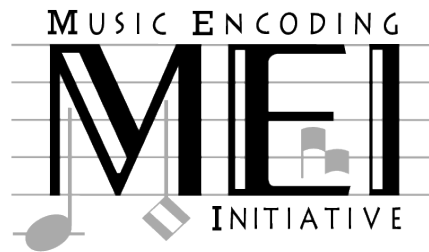


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DFG

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Introduction

This release of the Music Encoding Initiative (MEI) provides three major components:

- formalized rules for recording the intellectual and physical characteristics of music notation documents so that the information contained in them may be searched, retrieved, displayed, and exchanged in a predictable and platform-independent manner;
- a 'Tag Library' that documents the components of the MEI model; and
- best practices guidelines for the application of those rules.

Both the MEI rules and their documentation are expressed in the form of a One Document Does-it-all (ODD) document, which was developed for the Text Encoding Initiative (TEI). The MEI ODD document has been processed to create the MEI application guidelines, Tag Library, and accompanying schemas.

The MEI Guidelines, which include the Tag Library, are intended to serve as a reference tool for music encoders. Through the use of natural-language definitions and examples, this document assists users of MEI in achieving effective and consistent markup. Despite translating XML and RNG terminology and concepts into more accessible language, it is still a technical one that presupposes a minimal understanding of XML and music notation. Novice encoders will need to supplement their use of the Guidelines by participating in discussions on the MEI-L list, attending introductory MEI workshops and training classes and referring to other information sources.

As a natural-language translation of the MEI conceptual model, the Guidelines convey information about the three principal tasks accomplished by the model. First, the model breaks down the content of music notation documents into data fields or categories of information called "elements". All of these elements are named, defined, and described in the tag library. Second, the tag library identifies and defines attributes associated with those elements. Attributes are characteristics or properties that further refine the element. Last, and perhaps most importantly, the tag library documents the structure of the MEI model by explaining the relationship between elements, specifying where the elements may be used and describing how they may be modified by attributes. While two of the basic purposes of MEI are to facilitate the searching and display of encoded music notation documents in an electronic environment, nothing in the tag library addresses their specific implementation. Searching and display are entirely dependent on software applications outside the scope of the MEI model.

The MEI model contains only a few required elements, the majority are optional. Therefore, the amount of markup desired will vary from one situation to another depending on intellectual, technical, and temporal considerations. Creating encoded music notation documents for inclusion in union databases may also result in tagging requirements that are separate from those dictated by the model.

Suggestions for new elements, revised descriptions, and more illustrative examples may be submitted to the MEI Working Group via the MEI discussion list at mei-l@lists.uni-paderborn.de. The model and Guidelines will be updated periodically based on the feedback received from the users of MEI.

MEI Design Principles

This section of the Guidelines defines principles and criteria for designing, developing, and maintaining an XML-based encoding scheme for music notation documents.

Definitions and Parameters

- A music notation document is one that contains music notation; that is, any one of a number of "visual analogues of musical sound, either as a record of sound heard or imagined, or as a set of visual instructions for performers." (Ian D. Bent, et al. "Notation." Grove Music Online. Oxford Music Online. 25 May 2010. <<http://www.oxfordmusiconline.com/subscriber/article/grove/music/20114>>.)
- The encoding scheme permits both the creation of new music notation documents and the conversion of existing ones from print and other electronic formats. However, conversion of existing documents may require revisions in content or rearrangement of information.

General Principles

- No prima facie distinction is made between a primary source of music notation, such as an autograph or published score, and a secondary source, such as a scholarly edition based on one or more primary sources. The tag set encompasses both, and the encoder must choose the elements and attributes most appropriate in each case.
- As an encoded representation of one or more music notation documents, an MEI file may be employed as a surrogate for the original materials.
- Although the encoding scheme does not define or prescribe intellectual content for music notation documents, it does define content designation and is intended to be used with available data content standards. MEI identifies the essential data elements within music notation documents and establishes codes and conventions necessary for capturing and distinguishing information within those elements for future action or manipulation. While there are a few elements that ought to appear in any MEI document, various intellectual, technical, and economic factors influence the level of detail of analysis and encoding actually undertaken. Taking this into consideration, the encoding scheme is designed with a minimum of required elements and allows for progressively more detailed levels of description as desired.
- The encoding scheme preserves and enhances the current functionality of existing music notation documents. It permits identification of document structures and content that support description, navigation, analysis, and online and print presentation.
- The encoding scheme is intended to facilitate interchange between notational tools. It aims to assist in the creation of more effective and consistent encoding, encourage the creation of cooperatively-created and widely available databases of music notation documents, and permit the reuse of encoded data for multiple output purposes. It will also ensure that machine-readable music notation documents will outlive changing hardware and software environments because they are based on a platform-independent standard.

Structural Features

- The encoding scheme is based on eXtensible Markup Language (XML), a text-based format for representing structured information. It is expressed as a One Document Does-it-all (ODD) document, referred to as the "Music Encoding (MEI) Guidelines". For more information on ODD, please refer to TEI Guidelines chapter 22 (<http://www.tei-c.org/release/doc/tei-p5-doc/en/html/TD.html>), chapter 23 (<http://www.tei-c.org/release/doc/tei-p5-doc/en/html/USE.html>), and to the TEI's "Getting Started with P5 ODDs" document (<http://www.tei-c.org/Guidelines/Customization/odds.xml>).
- Related or complementary standards, such as the Text Encoding Initiative (TEI) Guidelines for Electronic Text Encoding and Interchange (<http://www.tei-c.org/Guidelines/P5/>), the Encoded Archival Description (EAD) (<http://www.loc.gov/ead/>), MARC 21 Format for Bibliographic Data (<http://www.loc.gov/marc/bibliographic/ecbdhome.html>), existing notation encoding schemes, etc. have been consulted and employed as appropriate. The data model includes a header that is comparable to the TEI header, and TEI and EAD naming conventions and tag structures have been used whenever feasible. With respect to metadata, MEI recognizes the inter-relationship between the metadata content found in the MEI header and that of catalog records, authority records, and finding aids, and it provides for the use of an encoding equivalency attribute for MEI elements corresponding to fields in other metadata standards.
- To ensure broad international and multi-repertoire application of MEI, existing musical terminology was used in building the data model where practical. In addition, a method for localization of the data model's names has been provided. Finally, extensive use of attributes in the schema permits the refinement of element meanings with specific musical, geographic, or temporal contexts.

Control and Maintenance

- Control and maintenance of the MEI model, schemas and documentation will be provided by a maintenance agency working in concert with the national and international music communities, assisted in an advisory capacity by other interested groups of users.

1 Shared Elements, Models, and Attributes

This chapter describes the elements, models, and attributes that are part of the MEI.shared module. The shared module contains declarations that are shared among two or more other modules.

1.1 Structural Elements

1.1.1 Document Elements

The following elements are available for the representation of the outermost structure of an MEI document:

<mei> – Contains a single MEI-conformant document, consisting of an MEI header and a musical text, either in isolation or as part of an meiCorpus element.

@meiversion specifies the version number of the MEI Guidelines in use.

<meiCorpus> (MEI corpus) – A group of related MEI documents, consisting of a header for the group, and one or more <mei> elements, each with its own complete header.

<meiHead> (MEI header) – Supplies the descriptive and declarative metadata prefixed to every MEI-conformant text.

<music> – Contains a single musical text of any kind, whether unitary or composite, for example, an etude, opera, song cycle, symphony, or anthology of piano solos.

A typical MEI document contains an [mei](#) element, which in turn contains metadata, represented by an [meiHead](#) element, and the musical text itself, represented by a [music](#) element. The [meiHead](#) element, formally declared in the MEI.header module, is described in chapter [2 The MEI Header](#).

Other variations on this basic form are also available for the representation of a:

- collection of related MEI-encoded texts, each with its own metadata, known as a corpus
- document that contain only metadata, known as an independent or stand-alone header
- music markup without metadata, typically intended to be embedded within another kind of markup, such as TEI

Further information regarding the organization and encoding of music corpora is given in chapter [8 Musical Corpora](#). Stand-alone headers are more fully described in chapter [2.6 Independent Headers](#).

Inclusion of MEI encodings (partial or complete) inside Text Encoding Initiative (TEI) documents is covered in the TEI Guidelines at <http://www.tei-c.org/release/doc/tei-p5-doc/en/html/FT.html#FTNM> and by the TEI Music Special Interest Group at <http://www.tei-c.org/SIG/Music/twm/index.html>.

1.1.2 Music Element

MEI texts may be regarded either as unitary; that is, forming an organic whole, or as composite; that is, consisting of several components which are in some important sense independent of each other. The distinction is not always entirely obvious. For example, a collection of songs might be regarded as a single item in some circumstances, or as a number of distinct items in others. In such borderline cases, the encoder must choose whether to treat the text as unitary or composite; each option may have advantages and disadvantages.

Whether unitary or composite, the musical text is marked with the [music](#) tag and may contain front matter, a body, and back matter. In unitary texts, the body is tagged using the [body](#) element; in composite texts, however, where the textual body consists of a series of subordinate musical texts or other groups, it is tagged with the [group](#) element. The overall structure of any musical text, unitary or composite, is thus defined by the following elements:

[<front>](#) (front matter) – Bundles prefatory text found before the start of the musical text.

[<body>](#) – Contains the whole of a single musical text, excluding any front or back matter.

[<group>](#) – Contains a composite musical text, grouping together a sequence of distinct musical texts (or groups of such musical texts) which are regarded as a unit for some purpose, for example, the collected works of a composer.

[<back>](#) (back matter) – Contains any appendixes, advertisements, indexes, etc. following the main body of a musical text.

Critical editions and collections of works often contain extensive text, such as a title page, table of contents, an introductory essay, commentary, biographical sketch, index, etc. These textual items may appear in either the front or back elements. The front and back elements, available only when the MEI.text module is activated, are described more fully in chapter [21 Text in MEI](#).

The overall structure of a single musical text is:

```
<mei>
  <meiHead>
    <!-- metadata goes here -->
  </meiHead>
  <music>
    <front>
      <!-- front matter of text, if any, goes here -->
    </front>
    <body>
      <!-- body of text goes here -->
    </body>
    <back>
      <!-- back matter of text, if any, goes here -->
    </back>
  </music>
</mei>
```


The top-level structure of a composite musical text made up of two unitary musical texts is:

```
<mei>
  <meiHead>
    <!-- metadata for
      the composite musical text -->
  </meiHead>
  <music>
    <front>
      <!-- front matter
        for composite musical text -->
    </front>
    <group>
      <music>
        <front>
          <!-- front matter of first unitary
            musical text, if any -->
        </front>
        <body>
          <!-- body of first unitary musical text
            -->
        </body>
        <back>
          <!-- back matter of
            first unitary musical text, if any -->
        </back>
      </music>
      <music>
        <body>
          <!-- body of second unitary musical text
            -->
        </body>
      </music>
    </group>
    <back>
      <!-- back matter for composite musical text, if any
        -->
    </back>
  </music>
</mei>
```

1.1.2.1 Grouped Texts

The [group](#) element may be used to represent a collection of independent musical texts which is to be regarded as a single unit for processing or other purposes. It is provided to simplify the encoding of collections, anthologies, and cyclic works. It can also be used to record the potentially complex internal structure of corpora, covered more fully in chapter [8 Musical Corpora](#).

<group> – Contains a composite musical text, grouping together a sequence of distinct musical texts (or groups of such musical texts) which are regarded as a unit for some purpose, for example, the collected works of a composer.

Examples of composite texts which may be represented using the [group](#) element include anthologies and other collections. The presence of common front matter referring to the whole collection,

possibly in addition to front matter relating to each individual musical text, is a good indication that a given musical text might usefully be encoded in this way.

For example, the overall structure of a collection of songs might be encoded as follows:

```
<music>
  <group>
    <music>
      <!-- song 1 -->
    </music>
    <music>
      <!-- song 2 -->
    </music>
    <!-- additional songs here -->
  </group>
</music>
```

A group of musical texts may contain other unitary and grouped texts:

```
<music>
  <group>
    <music>
      <!-- song 1 -->
    </music>
    <group>
      <!-- songs sharing one or more characteristics, treated as a group -->
        <music>
          <!-- song 2 -->
        </music>
        <music>
          <!-- song 3 -->
        </music>
      </group>
    </group>
  </music>
```

The [group](#) element may be used to encode any kind of collection in which the constituents are regarded by the encoder as works in their own right, such as *ad hoc* single- or multiple-composer collections or anthologies of works not originally conceived of as a single composition.

1.1.2.2 Divisions of the Body

This section describes sub-division of the body of a musical text. Front and back matter are described in chapter [21 Text in MEI](#).

The body of a unitary musical text may contain one or more discrete, linear segments. The names commonly used for these structural subdivisions vary with the genre, style, and time period of the music, or even at the whim of the author, editor, or publisher. For example, a major subdivision of a

symphony is generally referred to as a 'movement'. An opera, on the other hand, is usually organized into 'acts' and then further by 'scenes'. All such divisions are treated as occurrences of the same neutrally-named element, with a @type attribute used to categorize them independently of their hierarchic level.

The following element is used to identify musical subdivisions. As a member of the class att.typed, the [mdiv](#) element has attributes which can be used to classify or sub-classify it.

<mdiv> (musical division) – contains a subdivision of the body of a musical text.

@type characterizes the element in some sense, using any convenient classification scheme or typology.

@subtype provide any sub-classification for the element, additional to that given by its type attribute.

To accommodate "divisions within divisions", an [mdiv](#) element may contain additional [mdiv](#) sub-elements nested to any level required. For example, the encoding of a multi-movement work, such as a symphony, will have the following structure:

```
<body
  xmlns="http://www.music-encoding.org/ns/mei">
  <mdiv type="symphony">
    <mdiv n="1" type="movement">
      <!-- contents of mvt 1 -->
    </mdiv>
    <mdiv n="2" type="movement">
      <!-- contents of mvt 2 -->
    </mdiv>
    <mdiv n="3" type="movement">
      <!-- contents of mvt 3 -->
    </mdiv>
    <mdiv n="4" type="movement">
      <!-- contents of mvt 4 -->
    </mdiv>
  </mdiv></body>
```

while dramatic works, such as Verdi's opera, *Il Trovatore* often have a more deeply-nested structure:

```
<body>
  <mdiv type="opera">
    <mdiv n="I" type="act">
      <mdiv n="1" type="scene">
        <!-- contents of act I, sc. 1 -->
      </mdiv>
      <mdiv n="2" type="scene">
        <!-- contents of act I, sc. 2 -->
      </mdiv>
      <mdiv n="3" type="scene">
        <!-- contents of act I, sc. 3 -->
      </mdiv>
    </mdiv>
    <mdiv n="II" type="act">
      <mdiv n="1" type="scene">
```

```
<!--  
    contents of act II, sc. 1 -->  
    </mdiv>  
    <mdiv n="2" type="scene">  
<!-- contents of act II, sc.  
        2 -->  
        </mdiv>  
        <mdiv n="3" type="scene">  
<!--  
            contents of act II, sc. 3 -->  
            </mdiv>  
            <mdiv n="4" type="scene">  
<!-- contents of act II, sc.  
                4 -->  
                </mdiv>  
                <mdiv n="5" type="scene">  
<!--  
                    contents of act II, sc. 5 -->  
                    </mdiv>  
                    </mdiv>  
                    <mdiv n="III" type="act">  
                    <mdiv n="1" type="scene">  
<!--  
                        contents of act III, sc. 1 -->  
                        </mdiv>  
                        <mdiv n="2" type="scene">  
<!-- contents of act III,  
                            sc. 2 -->  
                            </mdiv>  
                            <mdiv n="3" type="scene">  
<!--  
                                contents of act III, sc. 3 -->  
                                </mdiv>  
                                </mdiv>  
                                <mdiv n="IV" type="act">  
                                <mdiv n="1" type="scene">  
<!--  
                                    contents of act IV, sc. 1 -->  
                                    </mdiv>  
                                    <mdiv n="2" type="scene">  
<!-- contents of act IV, sc.  
                                        2 -->  
                                        </mdiv>  
                                        <mdiv n="3" type="scene">  
<!--  
                                            contents of act IV, sc. 3 -->  
                                            </mdiv>  
                                            </mdiv>  
                                            </mdiv>  
</body>
```

Conventionally, in performance the musical structures represented by [mdiv](#) elements are separated by pauses; however, *attacca*, *attacca subito*, *seque*, or similar terms are sometimes used at the end of an [mdiv](#) to indicate that the next [mdiv](#) should begin immediately after the conclusion of the current one. They are encoded using the [dir](#) element.

1.1.2.3 Content of Musical Divisions

The [mdiv](#) element may contain one or both of two possible views: score and parts.

[<score>](#) – Full score view of the musical content.

[<parts>](#) – Provides a container for performers' parts.

The [score](#) element represents notation in which all the parts of an ensemble are arranged on vertically aligned staves, while the [parts](#) element collects the individually notated parts for each performer or group of performers. The explicit encoding of these two 'views' is necessary because it is not always possible or desirable to automatically derive one view from the other. In addition, separating scores and parts can eliminate a great deal of markup complexity.

```
<body>
  <mdiv n="1" type="movement">
    <score>
      <!-- markup of score goes here -->
    </score>
    <parts>
      <!-- markup of performers' parts goes here -->
    </parts>
  </mdiv>
  <!-- additional movements go here -->
</body>
```

The [score](#) and [parts](#) elements may also be employed to accommodate different methods of organizing the markup – with no particular presentation implied. In this case, software may render a collection of parts as a score or a score as a collection of parts.

Within the collective [parts](#) element, notation for a single performer is represented by the [part](#) element:

[<part>](#) – An alternative visual rendition of the score from a particular performer's (or group of performers') point of view.

A [part](#) is effectively a small-scale score, allowing all the encoding features of a full score, such as multiple staves, performance directives, and so on. A group of [part](#) element is useful for encoding performing parts when there is no score, such as in early music part books; when the parts have non-aligning bar lines; when different layout features, such as page turns, are needed for the score and parts; or for accommodating software that requires part-by-part encoding. Please note that part elements in MEI are not an indication of voice leading. Voice leading can be encoded using the [@next](#) attribute available on all the members of the [model.eventLike](#) class.

```
<parts>
  <part label="Violin 1">
    <!-- first performer's part -->
  </part>
  <part label="Violin 2">
```

```
<!-- second performer's part -->
</part>
<!-- additional performers'
      parts -->
</parts>
```

In both score and part views, the [scoreDef](#) element is used to describe logical characteristics of the encoded music, such as key signature, the sounding key (as opposed to the notated key signature), meter, etc., and visual features, such as page size, staff groupings and display labels, etc. The order of [staffGrp](#) elements within [scoreDef](#) and the order of [staffDef](#) elements inside [staffGrp](#) determine the score order of the MEI file.

A [part](#) or [score](#) may be further divided into linear segments called "sections".

[<section>](#) – Segment of music data.

<Section> elements are often used as a scoping mechanism for clef signs, key and meter signatures, plus metronome, tempo, and expression markings. This use can help to minimize the need for backward scanning to establish context when the starting point for access is not at the beginning of the score. <Section> elements may also be used for other user-defined, i.e., analytical or editorial, purposes, and therefore may be arbitrarily nested to any desired level.

The [ending](#) element shares the same model as the [section](#) element. Unlike [section](#), however, it may not be recursively nested.

[<ending>](#) – Alternative ending for a repeated passage of music; i.e., prima volta, seconda volta, etc.

The most common (non-analytical, non-editorial) use of [section](#) and [ending](#) elements is illustrated below:

```
<music>
<body>
  <mdiv>
    <score>
      <section>
        <!-- section one to be
              repeated -->
        </section>
        <ending n="1">
        <!-- 1st
              ending -->
        </ending>
        <ending n="2">
        <!-- 2nd
              ending -->
        </ending>
      </section>
```

```

<!-- next section
      -->
    </section>
  </score>
</mdiv>
</body>
</music>

```

Within [section](#) elements, several methods of organization are possible, depending upon the notational style of the source material and the encoder's needs. For example, when the MEI.cmn module is used, the default organization is measure-by-measure, with [staff](#) and [layer](#) sub-elements within each [measure](#). Further discussion of CMN notation is continued in chapter [3 Common Music Notation](#).

However, staff-by-staff organization is more appropriate for music without measures and is provided when either the MEI.mensural or MEI.neumes module is employed. Coverage of mensural notation is provided in chapter [4 Mensural Notation](#), while [5 Neume Notation](#) describes neumatic notation.

It must be noted that, when both the MEI.cmn and MEI.mensural modules are available, it is possible to encode CMN notation without using [measure](#) elements; that is, staff-by-staff organization may be used and the ends of measures marked using [barLine](#) elements.

In certain circumstances, this approach may be preferable for reproduction of the visual layout of the music. However, the simultaneous use of the [measure](#) and [barLine](#) elements may lead to confusion and should be avoided.

Typically, MEI follows the order of sections as they appear in the document being encoded. When performance requires a different order, for instance in the case of D.C. and D.S. directives, the following element may be used to define the performance order.

<expansion/> – Indicates how a section may be programmatically expanded into its 'through-composed' form.

In the following example, [expansion](#) is used to indicate how the notated sections should be ordered in a "through-composed" rendition, for example for machine performance or analysis. The `plist` attribute contains an ordered list of identifiers of descendant [section](#), [ending](#), [lem](#), or [rdg](#) elements. The sequence "#A #B #A" indicates that the section labelled 'A' comes first, then the section labelled 'B', followed by the 'A' section again. This mechanism must be specified independently of any textual directives, such as "Da capo" or "D.S. al Fine", that may be present in the document.

```

<music>
  <body>
    <mdiv>
      <score>
        <section>
          <expansion plist="#shared.A #shared.B
                        #shared.A"/>

```

```
<section xml:id="shared.A">
<!-- "A" section -->
</section>
<section xml:id="shared.B">
<!-- "B" section -->
</section>
</section>
</score>
</mdiv>
</body>
</music>
```

1.2 Shared Musical Elements

This section lists the elements defined in the shared module that are available within the music element.

1.2.1 Score and Parts

The following elements are provided for the capture of scores and parts:

[`<score>`](#) – Full score view of the musical content.

[`<parts>`](#) – Provides a container for performers' parts.

[`<part>`](#) – An alternative visual rendition of the score from a particular performer's (or group of performers') point of view.

[`<scoreDef>`](#) (score definition) – Container for score meta-information.

[`<staffDef>`](#) (staff definition) – Container for staff meta-information.

[`<layerDef>`](#) (layer definition) – Container for layer meta-information.

[`<staffGrp>`](#) (staff group) – A group of bracketed or braced staves.

[`<grpSym>`](#) (group symbol) – A brace or bracket used to group two or more staves of a score or part.

[`<label>`](#) – A text string that identifies a staff, staff group, or contentItem.

[`<clef/>`](#) – Indication of the exact location of a particular note on the staff and, therefore, the other notes as well.

[`<clefGrp>`](#) (clef group) – A set of simultaneously-occurring clefs.

[`<keySig>`](#) (key signature) – Written key signature.

[`<keyAccid/>`](#) (key accidental) – Accidental in a key signature.

The character of elements specifying one or more score parameters, such as meter and key signature, clefs, etc., is that of a milestone; that is, they affect all subsequent material until a following

redefinition. A [scoreDef](#) element, which may affect more than just one staff, is allowed only within [score](#), [part](#) and [section](#) elements, whereas [staffDef](#) is allowed only within [staffGrp](#), [staff](#) and [layer](#). A [staffDef](#) nested inside a [staff](#) must bear the same value for its @n attribute as its parent staff and may thus not affect other staves.

The actual use of these elements depends on the repertoire and historical context of the source material. For details on their use in Common Western Notation, please refer to chapter [3.2.2 Defining Score Parameters for CMN](#).

1.2.2 Staves and Layers

The elements below are used to capture the logical organization of musical notation:

[<staff>](#) – A group of equidistant horizontal lines on which notes are placed in order to represent pitch or a grouping element for individual 'strands' of notes, rests, etc. that may or may not actually be rendered on staff lines; that is, both diastematic and non-diastematic signs.

[<layer>](#) – An independent stream of events on a staff.

The actual use of the [staff](#) and [layer](#) elements depends on the repertoire and historical context of the source material. For details on their use in Common Western Notation, please refer to chapter [3.2.1 The Role of the Measure Element](#). For mensural notation, see chapter [4.5 Music Data Organization](#), and for neumatic notation, chapter [5.3 Neume Notation](#).

1.2.3 Basic Music Events

The basic features of music notation are represented by the following elements:

[<note>](#) – A single pitched event.

[<chord>](#) – A simultaneous sounding of two or more notes in the same layer *with the same duration*.

[<rest/>](#) – A non-sounding event found in the source being transcribed.

1.2.4 Other "Events"

Because they can occur in the context of a stream of events on the staff, some elements which are used in other contexts are also treated as events. For example, in addition to being used to define the initial clef of a staff, the [clef](#) element can also be used to indicate a clef change.

1.2.4.1 Key Signatures and Clefs

Key signatures and clefs as well as inter-staff changes to these musical parameters are treated as events.

[`<keySig>`](#) (key signature) – Written key signature.

[`<keyAccid/>`](#) (key accidental) – Accidental in a key signature.

[`<clef/>`](#) – Indication of the exact location of a particular note on the staff and, therefore, the other notes as well.

[`<clefGrp>`](#) (clef group) – A set of simultaneously-occurring clefs.

1.2.4.2 Bar Lines and Custos Signs

Measure separators, i.e., bar lines, and custos signs are also considered to be events.

[`<barLine/>`](#) – Vertical line drawn through one or more staves that divides musical notation into metrical units.

[`<custos/>`](#) – Symbol placed at the end of a line of music to indicate the first note of the next line. Sometimes called a "direct".

1.2.4.3 Accidentals, Articulation Symbols, Augmentation Dots, and Custos Signs

The following elements are regarded as events primarily because they sometimes occur independently of any associated notes, rests, or chords, especially in mensural and neume repertoires.

[`<accid/>`](#) (accidental) – Records a temporary alteration to the pitch of a note.

[`<artic/>`](#) (articulation) – An indication of how to play a note or chord.

[`<dot/>`](#) – Dot of augmentation or division.

1.2.4.4 Lyric Syllables

The [`<syl>`](#) element is used to mark a word or portion of a word that is to be vocally performed. A fuller description of its use is provided in chapter [15.1 Lyric Syllables](#).

[`<syl>`](#) (syllable) – Individual lyric syllable.

1.2.4.5 Event Spacing

The following elements provide control over the horizontal spacing of notational events, such as notes, chords, rests, etc.:

[`<space/>`](#) – A placeholder used to fill an incomplete measure, layer, etc. most often so that the combined duration of the events equals the number of beats in the measure.

[`<pad/>`](#) (padding) – An indication of extra visual space between notational elements.

[`@num`](#) amount of "padding" to be added, in interline units; that is, in units of 1/2 the distance between adjacent staff lines.

In this context, the term 'space' is used to mean whitespace that is required to meaningfully align multiple voices in a multi-voice texture. In DARMS these were referred to as 'push codes'. The [`space`](#) element is most often used when a new voice appears on a staff mid-measure.

The [`space`](#) element may also be used to align material that crosses staves.

'Space' can be thought of as another kind of event. In fact, some refer to this concept as an 'invisible rest'.

While 'space' is meaningful, 'padding' is non-essential whitespace that is used to shift the position of the events which follow.

The [`pad`](#) element is provided in order to capture software-dependent placement information when it is desirable to do so. Unless the MEI file will be used as an intermediate file format, this is usually not necessary.

1.2.5 Expression Marks

Expression marks are instructions in the form of words, abbreviations, or symbols that convey aspects of performance that cannot be expressed purely through the musical notation.

1.2.5.1 Text Directives

All of the following elements can be considered text directives; however, MEI uses the [`dir`](#) element specifically for words, abbreviations, numbers, or symbols specifying or suggesting the manner of performance that are not encoded elsewhere using the more specific elements of [`tempo`](#), [`dynam`](#), and [`phrase`](#).

[`<dir>`](#) (directive) – A text expression that is on the score (typically above, below, or between staves, but not on the staff) not encoded elsewhere in more specific elements, such as [`<tempo>`](#) or [`<dynam>`](#).

Examples include text strings such as 'affettuoso', fingering numbers, or music symbols such as segno and coda symbols or fermatas over a bar line. Directives can be control elements. That is, they can be linked via their attributes to other events. The starting point of the directive may be indicated by either a `tstamp`, `tstamp.ges`, `tstamp.real` or `startid` attribute, while the ending point may be recorded by either a `dur`, `dur.ges` or `endid` attribute. It is a semantic error not to specify a starting point attribute.

1.2.5.2 Tempo

Tempo marks are indications through words, abbreviations, or specific metronome settings of the speed at which a piece of music is to be performed.

`<tempo>` – Text and symbols descriptive of tempo, mood, or style, e.g., "allarg.", "a tempo", "cantabile", "Moderato", "♩=60", "Moderato ♩=60").

Both instantaneous and continuous tempo markings may be encoded using this element. Please note that the `@dur` attribute here is expressed in musical time, i.e., beats or other time stamp. Therefore, it is not a true duration, but rather a time stamp for the end point of the directive. More information regarding time stamps is available in chapter [3.2.5 Timestamps and Durations](#).

1.2.5.3 Dynamics

Dynamics, or dynamic marks, are terms, abbreviations, and symbols that indicate the specific degrees of volume of a note, phrase, or section of music, e.g., "piano", "forte". Transitions from one volume level to another, e.g., "crescendo", "diminuendo", are also specified through dynamic marks.

`<dynam>` (dynamic) – Indication of the volume of a note, phrase, or section of music.

1.2.5.4 Phrase Marks

Phrase marks are curved lines placed over or under notes to delineate short sections of a work that have a musical syntax, analogous to a phrase in literature. MEI maintains a distinction between phrase marks and slurs, the latter being curved lines (or brackets) over or under a sequence of notes indicating their grouping for a specific reason, such as breathing or articulation.

`<phrase/>` – Indication of 1) a "unified melodic idea" or 2) performance technique.

`<slur/>` – Indication of 1) a "unified melodic idea" or 2) performance technique.

1.3 Shared Textual Elements

This section lists elements declared in the shared module that pertain to the encoding of prose.

1.3.1 Paragraphs

A paragraph is a structural unit of a larger text. Usually it is typographically distinct: It usually begins on a new line and the first letter of the content is often indented, enlarged, or both. This element has a similar meaning as the corresponding elements in Encoded Archival Description (EAD), Text Encoding Initiative (TEI), and HTML.

<p> (paragraph) – One or more text phrases that form a logical prose passage.

In MEI, a [p](#) is used in many different situations, including transcriptional use as on a [titlePage](#) or descriptive purposes as in a [changeDesc](#).

1.3.2 Text Rendition

Sometimes, the encoder wants to emphasize or highlight a chunk of text without assigning it a special meaning beyond its typographical speciality. For this purpose, MEI offers the [rend](#) element, which compares to TEI's *hi* element. Its @rend attribute is used to specify typographic features like underlining or quotes, whereas @fontweight and @fontstyle are used to capture a bold or italic rendering respectively. The @altrend attribute may be used to capture arbitrary individual rendition styles.

<rend> (render) – A formatting element indicating special visual rendering, e.g., bold or italicized, of a text word or phrase.

@rend captures the appearance of the element's contents.

@fontweight used to indicate bold type.

@fontstyle records the style of a font, i.e, italic, oblique, or normal.

@altrend used to extend the values of the rend attribute.

1.3.3 Transcription of Titlepages

A specialized element is furnished for the capture of titlepage information.

<titlePage> – Contains a transcription of the title page of a text.

The [titlePage](#) element, modelled after a similar element in Encoded Archival Description (EAD), may occur within the textual matter preceding or following the musical content of the encoding. Since a diplomatic transcription of the titlepage is often necessary to accurately identify musical material contained within a source, [titlePage](#) may also be used within the metadata header as a child of the [physDesc](#) element.

1.3.4 Names, Dates, Numbers, Abbreviations, and Addresses

1.3.4.1 Names and Dates

The [name](#) and [date](#) elements may be used to mark up portions of a text that function as names or dates.

[<name>](#) – Proper noun or noun phrase.

[<date>](#) – A string identifying a point in time or the time period between two such points.

The [name](#) element is intended for generic applications and may be used to identify any named entity, such as a person, item, application, place, etc. The namesDates module documented in [17 Names and Dates](#) offers the more specific elements [persName](#), [corpName](#) and [geogName](#).

1.3.4.2 Numbers

The [num](#) element may be used to identify any numeric information in a text. The @unit may be used to specify the unit of measurement.

[<num>](#) (number) – Numeric information in any form.

[@unit](#) indicates the unit used for a measurement of size.

This element is useful when it is necessary to provide specific information about numeric data, such as the unit of measurement or the kind of quantity described, or when it should be displayed in a special manner.

1.3.4.3 Addresses

Addresses may be encoded using the [address](#) element, which itself may hold an arbitrary number of [addrLine](#) elements.

[<address>](#) – Contains a postal address, for example of a publisher, an organization, or an individual.

<addrLine> (address line) – Single line of a postal address.

It is important to notice that the address element does not hold a reference to the person or organization whose address is specified. This has to be provided in a separate element, as in the following example:

```
<corpName> Universität  
                Paderborn </corpName>  
<address>  
  <addrLine>Warburger  
                Straße 100</addrLine>  
  <addrLine>33098 Paderborn</addrLine>  
  <addrLine>Germany</addrLine>  
</address>
```

1.3.5 Annotations

Annotations are one of the most versatile features of MEI. They are provided using the [annot](#) element.

<annot> (annotation) – Provides a short statement explaining the text or indicating the basis for an assertion.

This element may be contained by a wide range of other elements, and itself may contain a large number of other elements. It is up to the encoder to ensure that no unwanted nesting is constructed using [annot](#). In all cases, [annot](#) always provides a comment for something, but no transcription.

Depending on its context, an annotation will deal with either its parent element, or, more usually, with the element(s) specified in its @plist attribute. This attribute uses URI references to specify one or more other elements' @xml:id attribute, like in the following example:

```
<note xml:id="shared.someInterestingNote"/>  
<!--  
    elsewhere in the document: -->  
<annot plist="#shared.someInterestingNote">  
<!--  
    additional information about this note -->  
</annot>
```

1.3.6 Bibliographic Citations and References

The following elements are commonly used in the encoding of bibliographic citations and references:

[<bibl>](#) (bibliographic reference) – Provides a citation for a published work.

[<address>](#) – Contains a postal address, for example of a publisher, an organization, or an individual.

[<annot>](#) (annotation) – Provides a short statement explaining the text or indicating the basis for an assertion.

[<date>](#) – A string identifying a point in time or the time period between two such points.

[<edition>](#) (edition designation) – A word or text phrase that indicates a difference in either content or form between the item being described and a related item previously issued by the same publisher/distributor (e.g. 2nd edition, version 2.0, etc.), or simultaneously issued by either the same publisher/distributor or another publisher/distributor (e.g. large print edition, British edition, etc.).

[<identifier>](#) – An alpha-numeric string that establishes the identity of the described material.

[<name>](#) – Proper noun or noun phrase.

[<repository>](#) – Institution or agency which holds a bibliographic item.

[<title>](#) – Title of a bibliographic entity.

The element [bibl](#), or bibliographic reference, may contain a mix of text and more specific elements such as [title](#), [edition](#), [<persname>](#), and [<corpname>](#). This element may also function as a hypertext reference to an external electronic resource.

The [identifier](#) for a given item may be an International Standard Book/Music Number, Library of Congress Control Number, a publisher's or plate number, a personal identification number, an entry in a bibliography or catalog, etc.

The [repository](#) element identifies an institution that holds a bibliographic item. To identify sub-units of the institution, [repository](#) sub-elements may be used. The name of the list from which a controlled value for the agency name is taken may be recorded using the @authority attribute. This element is modelled on an element in Encoded Archival Description (EAD).

To classify the [title](#) according to some convenient typology, the @type attribute may be used. Sample values include: main (main title), subordinate (subtitle, title of part), abbreviated (abbreviated form of title), alternative (alternate title by which the work is also known), translated (translated form of title), uniform (collective title). The @type attribute is provided for convenience in analysing titles and processing them according to their type; where such specialized processing is not necessary, there is no need for such analysis, and the entire title, including subtitles and any parallel titles, may be enclosed within a single [title](#) element. Title parts may be encoded in [title](#) sub-elements. The name of the list from which a controlled value is taken may be recorded using the @authority attribute.

Please consult [1.3.4 Names, Dates, Numbers, Abbreviations, and Addresses](#) and [17 Names and Dates](#) for more specific information about recording the names and dates frequently found in bibliographic citations.

1.4 Common Attributes

The following attributes, provided by the [att.common](#) attribute class, are available on nearly all elements in an MEI encoding. They provide the means to identify, label, and access elements in MEI-encoded files.

[att.common](#) Attributes common to many elements.

- @xml:id** regularizes the naming of an element and thus facilitates building links between it and other resources. Each id attribute within a document must have a unique value.
- @label** provides a label for an element. The value may be any string.
- @n** provides a name or number designation for an element. While the value need not be unique, it is required to be a single token.
- @xml:base** provides a base URI reference with which applications can resolve relative URI references into absolute URI references.

The value of the @xml:id attribute serves as an identifier for an element and its content. Its value must be unique in the context of the current document and must conform to the definition of an XML Name provided by the W3C Recommendation at <http://www.w3.org/TR/xml/#NT-Name>. Suggestions for constructing an ID value can be found at <http://www.w3.org/TR/xml/#sec-suggested-names>.

The @xml:id attribute may take values similar to the following:

```
<!--
    The following are valid IDs. --><note xml:id="n1"/>
<note xml:id="_n1"/>
<note xml:id="thisIsMyFavoriteNote"/>
<note xml:id="shared.thisIsMyFavoriteNote"/>
```

This is an example of an incorrectly-formulated @xml:id value:

```
<!-- xml:id not valid as IDs are not allowed to start with a number. -->
<note xml:id="1"/>
```

The @label and @n attributes both serve a labeling function; however, they differ in the values they allow. The @n attribute must be a single token, while @label may contain a string value that includes spaces. This makes @label useful for the capture of free-text labels, but a name or number specified with @n may be easier to process.

```
<!--
    Example of a @label containing whitespace: --><mdiv label="Allegro moderato"> ...
```

```
</mdiv>
<!-- Example of
      a processable @n attribute: -->
<measure n="42"> ... </measure>
```

When a reference to an external entity is not a complete URI, the @xml:base attribute can record a value against which it can be resolved into a complete, or absolute, location.

```
<graphic target="myImage.jpg" xml:base="http://www.mySite.org/images/" />
```

The value of @xml:base can be inherited from an ancestor. In the following example, the values of the graphic elements' @target attribute can be completed by the xml:base value specified for the [facsimile](#) element:

```
<facsimile xml:base="http://www.mySite.org/images/">
  <surface>
    <graphic target="myImage.jpg" />
    <graphic target="myImage.tif" />
  </surface>
</facsimile>
```

See <http://www.w3.org/TR/xmlbase/> for more details on xml:base.

2 The MEI Header

This chapter addresses the description of an encoded item so that the musical text, as well as its sources, encoding, and revisions are all thoroughly documented. Such documentation is necessary for scholars using the texts, for software processing them, and for catalogers in libraries and archives. Together these descriptions and declarations provide an electronic analog to the title page attached to a printed work. They also constitute an equivalent for the content of the code books or introductory manuals customarily accompanying electronic data sets.

Every MEI-conformant text not embedded in another XML carrier that provides for capturing metadata, such as TEI or METS, must carry a set of descriptions, prefixed to it and encoded as described in this chapter. This set is known as the MEI header, tagged [meiHead](#), and has five major parts:

1. one or more alternative identifiers, tagged with [altId](#), each of which provides an identifying name or number associated with the file.
2. a file description, tagged [fileDesc](#), containing a full bibliographic description of the computer file itself, from which a user of the text could derive a proper bibliographic citation, or which a librarian or archivist could use in creating a catalog entry recording its presence within a library or archive. The term computer file here is to be understood as referring to the whole intellectual entity or document described by the header, even when this is stored in multiple physical operating system files. The file description also includes information about the source or sources from which the electronic document was derived. The MEI elements used to encode the file description are described in section [2.1 File Description](#) below.
3. an encoding description, tagged [encodingDesc](#), which describes the relationship between an electronic text and its source or sources. It allows for detailed description of whether (or how) the text was normalized during transcription, how the encoder resolved ambiguities in the source, what levels of encoding or analysis were applied, and similar matters. The MEI elements used to encode the encoding description are described in section [2.2 Encoding Description](#) below.
4. a work description, tagged [workDesc](#), containing classification and contextual information about the work, such as its subject matter, the situation in which it was produced, the individuals described by or participating in producing it, and so forth. Such a work profile is of particular use in highly structured composite texts such as corpora or language collections, where it is often highly desirable to enforce a controlled descriptive vocabulary or to perform retrievals from a body of text in terms of text type or origin. The work description may however be of use in any form of automatic text processing. The MEI elements used to encode the work description are described in section [2.3 Work Description](#) below.
5. a revision history, tagged [revisionDesc](#), which allows the encoder to provide a history of changes made during the development of the electronic text. The revision history is important for version control and for resolving questions about the history of a file. The MEI elements used to encode the revision description are described in section [2.4 Revision Description](#) below.

2.1 File Description

The structure of the bibliographic description of a machine-readable or digital musical text resembles that of a book, an article, or other kinds of textual objects. The file description element of the MEI header has therefore been closely modeled on existing standards in library cataloging; it should thus provide enough information to allow users to give standard bibliographic references to the electronic text, and to allow catalogers to catalog it. Bibliographic citations occurring elsewhere in the header, and in the text itself, are derived from the same model.

The bibliographic description of an electronic musical text should be supplied by the mandatory [fileDesc](#) element:

[<fileDesc>](#) (file description) – Contains a full bibliographic description of the MEI file.

The [fileDesc](#) element contains two mandatory and six optional elements, each of which is described in more detail below. These elements are listed below in the order in which they must occur within the [fileDesc](#) element.

[<titleStmt>](#) (title statement) – Container for title and responsibility meta-data.

[<editionStmt>](#) (edition statement) – Container for meta-data pertaining to a particular edition of the material being described.

[<extent>](#) – Used to express size in terms other than physical dimensions, such as number of pages, number of records in file, number of bytes, performance duration for music, audio recordings and visual projections, etc.

[<pubStmt>](#) (publication statement) – Container for information regarding the publication or distribution of a bibliographic item, including the publisher's name and address, the date of publication, and other relevant details.

[<seriesStmt>](#) (series statement) – Groups information about the series, if any, to which a publication belongs.

[<notesStmt>](#) (notes statement)– Collects any notes providing information about a text additional to that recorded in other parts of the bibliographic description.

[<sourceDesc>](#) (source description) – A container for the descriptions of the source(s) used in the creation of the electronic file.

A complete file description will resemble the following example:

```
<fileDesc>
  <titleStmt>
    <title>
      <!-- title of the resource -->
    </title>
```

```

</titleStmt>
<editionStmt>
<!--
      information about the edition of the resource -->
</editionStmt>
<extent>
<!-- description of the size of the
      resource -->
</extent>
<pubStmt>
<!-- information
      about the publication and distribution of the resource -->
</pubStmt>
<seriesStmt>
<!-- information about any
      series to which the resource belongs -->
</seriesStmt>
<notesStmt>
<annot>
<!-- notes on other aspects of the resource
      -->
</annot>
</notesStmt>
<sourceDesc>
<!-- information about the
      source(s) from which the resource was derived -->
</sourceDesc>
</fileDesc>

```

2.1.1 Title Statement

The [titleStmt](#) element is the first component of the [fileDesc](#) element, and is mandatory:

<titleStmt> (title statement) – Container for title and responsibility meta-data.

It contains the title given to the electronic work, together with one or more optional statements of responsibility which identify the encoder, editor, author, compiler, or other parties responsible for it:

<title> – Title of a bibliographic entity.

<respStmt> (responsibility statement) – Names one or more individuals, groups, or in rare cases, mechanical processes, responsible for creation or realization of the intellectual or artistic content.

The [title](#) element contains the chief name of the electronic work. Its content takes the form considered appropriate by its creator. The element may be repeated, if the work has more than one title (perhaps in different languages). Where the electronic work is derived from an existing source text, it is strongly recommended that the title for the former should be derived from the latter, but clearly distinguishable from it, for example by the addition of a phrase such as ‘: an electronic transcription’ or ‘a digital edition’. This will distinguish the electronic work from the source text in citations and in catalogs, which contain descriptions of both types of material.

Other alternative titles or subtitles may be encoded in additional title elements with values in the @type attribute that distinguish them from the chief title. Sample values for the @type attribute include: main (main title), subordinate (subtitle, title of part), abbreviated (abbreviated form of title), alternative (alternate title by which the work is also known), translated (translated form of title), uniform (collective title). The name of a list from which other values of the @type attribute are taken may be recorded using the @authority attribute.

The @type attribute is provided for convenience in analyzing titles and processing them according to their type; where such specialized processing is not necessary, there is no need for such analysis, and the entire title, including subtitles and any parallel titles, may be enclosed within a single [title](#) element.

The electronic work will also have an external name (its 'filename' or 'data set name') or reference number on the computer system where it resides at any time. This name is likely to change frequently, as new copies of the file are made on the computer system. Its form is entirely dependent on the particular computer system in use and thus cannot always easily be transferred from one system to another. Moreover, a given work may be composed of many files. For these reasons, these Guidelines strongly recommend that such names should not be used as the title for any electronic work.

Helpful guidance on the formulation of useful descriptive titles in difficult cases may be found in the Anglo-American Cataloguing Rules (Gorman and Winkler, 1978, chapter 25) or in equivalent national-level bibliographical documentation.

Any number of responsibility statements may occur within the title statement. The [respStmt](#) element has two subcomponents: a [name](#) element identifying a responsible individual or organization, and a [resp](#) element indicating the nature of the responsibility. All names should be stated in the form in which the persons or bodies wish to be publicly cited. This will usually be the fullest form of the name, including first names. No specific recommendations are made at this time as to appropriate content for [resp](#). However, it should make clear the nature of the responsibility concerned, as in the examples below.

At a minimum, the author of the text and (where appropriate) the creator of the file should be identified. If the bibliographic description is for a corpus, identify the creator of the corpus. Optionally also include the names of others involved in the transcription or elaboration of the text, sponsors, and funding agencies. The name of the person responsible for physical data input need not normally be recorded, unless that person is also intellectually responsible for some aspect of the creation of the file.

When the MEI.namesdates module is enabled, two additional elements are permitted within [respStmt](#):

[<corpName>](#) (corporate name) – Identifies an organization or group of people that acts as a single entity.

[<persName>](#) (personal name) – Designation for an individual, including any or all of that individual's forenames, surnames, honorific titles, and added names

These elements allow for more precise identification of the entity associated with the name than is permitted by the simpler [name](#) element.

```
<titleStmt>
<title>Symphony No. 5 in C Minor : an electronic transcription</title>
<respStmt>
  <resp>Composed by:
    </resp>
  <persName>Ludwig van Beethoven</persName>
  <resp>Machine-readable transcription by: </resp>
  <persName>Maja
    Hartwig</persName>
  <persName>Kristina Richts</persName>
</respStmt>
</titleStmt>
```

In addition to, or instead of the [resp](#) element, the @role attribute on [name](#), [persName](#), and [corpName](#) may be used to capture the nature of responsibility. While [resp](#) accommodates capturing the wide variety of text that may occur in responsibility statements, use of the @role attribute provides the possibility of recording a controlled value independently of the textual content of [resp](#). The use of @role is required for improved data processability and interchange. The following example demonstrates how a responsibility statement may be literally transcribed using interleaved [resp](#) and [persName](#) elements:

```
<titleStmt>
<title>Symphony No.
  5 in C Minor : an electronic transcription</title>
<respStmt>
  <resp>Composed by:
    </resp>
  <persName role="composer">Ludwig
    van Beethoven</persName>
  <persName role="encoder">Johannes
    Jones:</persName>
  <resp>Machine-readable transcription</resp>
</respStmt>
</titleStmt>
```

The literal transcription of responsibility statements is most useful when encoding source material titles. For responsibility statements within the description of MEI files, the more data-centric approach exemplified below is recommended:

```
<titleStmt>
<title>Symphony No. 5 in C Minor : an electronic
  transcription</title>
<respStmt>
  <persName role="composer">Ludwig van Beethoven</persName>
  <persName role="encoder">Maja
    Hartwig</persName>
  <persName role="encoder">Kristina
    Richts</persName>
</respStmt>
</titleStmt>
```

Values from the MARC relator code list (<http://www.loc.gov/marc/relators/relacode.html>) or term list (<http://www.loc.gov/marc/relators/relaterm.html>) are recommended for @role, where applicable.

Responsibilities, transcribed using the [resp](#) element, and names may be associated through the use of multiple responsibility statements. For example:

```
<titleStmt>
  <title>Symphony No.
    5 in C Minor : an electronic transcription</title>
  <respStmt>
    <resp>Composed
      by</resp>
    <persName>Ludwig van Beethoven</persName>
  </respStmt>
  <respStmt>
    <persName role="encoder">Maja Hartwig</persName>
    <persName role="encoder">Kristina Richts</persName>
    <resp>Encoders</resp>
  </respStmt>
</titleStmt>
```

For diplomatic transcription of a titlepage, use the [titlePage](#) element described in chapter [1.3.3 Transcription of Titlepages](#).

2.1.2 Edition Statement

The [editionStmt](#) element is the second component of the [fileDesc](#) element. It is optional but recommended when applicable.

<editionStmt> (edition statement) – Container for meta-data pertaining to a particular edition of the material being described.

It contains elements for identifying the edition and those responsible for it:

<edition> (edition designation) – A word or text phrase that indicates a difference in either content or form between the item being described and a related item previously issued by the same publisher/distributor (e.g. 2nd edition, version 2.0, etc.), or simultaneously issued by either the same publisher/distributor or another publisher/distributor (e.g. large print edition, British edition, etc.).

<respStmt> (responsibility statement) – Names one or more individuals, groups, or in rare cases, mechanical processes, responsible for creation or realization of the intellectual or artistic content.

For printed texts, the word edition applies to the set of all the identical copies of an item produced from one master copy and issued by a particular publishing agency or a group of such agencies. A

change in the identity of the distributing body or bodies does not normally constitute a change of edition, while a change in the master copy does.

For electronic texts, the notion of a *master copy* is not entirely appropriate, since they are far more easily copied and modified than printed ones; nonetheless, the term edition may be used for a particular state of a machine-readable text at which substantive changes are made and fixed. Synonymous terms used in these Guidelines are *version*, *level*, and *release*. The words *revision* and *update*, by contrast, are used for minor changes to a file which do not amount to a new edition.

No simple rule can specify how substantive changes have to be before they are regarded as producing a new edition, rather than a simple update. The general principle proposed here is that the production of a new edition entails a significant change in the intellectual content of the file, rather than its encoding or appearance. The addition of analytic coding to a text would thus constitute a new edition, while automatic conversion from one coded representation to another would not. Changes relating to the character code or physical storage details, corrections of misspellings, simple changes in the arrangement of the contents and changes in the output format do not normally constitute a new edition, whereas the addition of new information (e.g., a linguistic analysis expressed in part-of-speech tagging, sound or graphics, referential links to external data sets) almost always does.

Clearly, there will always be borderline cases and the matter is somewhat arbitrary. The simplest rule is: if you think that your file is a new edition, then call it such. An edition statement is optional for the first release of a computer file; it is mandatory for each later release, though this requirement cannot be enforced.

Note that all changes in a file, whether or not they are regarded as constituting a new edition or simply a new revision, should be independently noted in the revision description section of the file header (see section [2.4 Revision Description](#)).

The edition element should contain phrases describing the edition or version, including the word 'edition', 'version', or an equivalent term, together with a number or date, or terms indicating difference from other editions such as 'new edition', 'revised edition', etc. Any dates that occur within the edition statement should be marked with the [date](#) element. The @n attribute of the edition element may be used as elsewhere to supply any formal identification (such as a version number) for the edition.

One or more [respStmt](#) elements may also be used to supply statements of responsibility for the edition in question. These may refer to individuals or corporate bodies and can indicate functions such as that of a reviser, or can name the person or body responsible for the provision of supplementary matter, of appendices, etc., in a new edition.

Some examples follow:

```
<editionStmt>
  <edition n="D2">Second draft,
    substantially extended, revised, and corrected.</edition>
</editionStmt>
```

```
<editionStmt>
  <edition>Student's edition, <date>June 1987</date>
</edition>
<respStmt>
  <resp>New
    annotations by</resp>
  <name>George Brown</name>
</respStmt>
</editionStmt>
```

2.1.3 Physical Description of the File

The third component of the fileDesc is a description of the physical qualities of the file. The [extent](#) element is provided for this purpose.

<extent> – Used to express size in terms other than physical dimensions, such as number of pages, number of records in file, number of bytes, performance duration for music, audio recordings and visual projections, etc.

The [extent](#) element describes the approximate size of a text as stored on some carrier medium, whether digital or non-digital, specified in any convenient units.

For printed books, information about the carrier, such as the kind of medium used and its size, are of great importance in cataloging procedures. The print-oriented rules for bibliographic description of an item's medium and extent need some re-interpretation when applied to electronic media. An electronic file exists as a distinct entity quite independently of its carrier and remains the same intellectual object whether it is stored as file on a hard disc drive, a CD-ROM, a set of USB devices, or in the internet. Since, moreover, these Guidelines are specifically aimed at facilitating transparent document storage and interchange, any purely machine-dependent information should be irrelevant as far as the file header is concerned.

This is particularly true of information about file-type although library-oriented rules for cataloging often distinguish two types of computer file: 'data' and 'programs'. This distinction is quite difficult to draw in some cases, for example, hypermedia or texts with built-in search and retrieval software.

Although it is equally system-dependent, some measure of the size of the computer file may be of use for cataloging and other practical purposes. Because the measurement and expression of file size is fraught with difficulties, only very general recommendations are possible; the element [extent](#) should contain a phrase indicating the size or approximate size of the computer file in one of the following ways:

- in bytes of a specified length (e.g. '4000 bytes')
- as falling within a range of values, for example:
 - less than 1 Mb
 - between 1 Mb and 5 Mb

- between 6 Mb and 10 Mb
- over 10 Mb
- in terms of any convenient logical units (for example, words or sentences, citations, paragraphs)
- in terms of any convenient physical units (for example, compact discs, removable hard drives, DVDs)

The use of standard abbreviations for units of quantity is recommended where applicable, here as elsewhere (see <http://physics.nist.gov/cuu/Units/binary.html>).

```
<extent>between 1 MB and 2 MB</extent>
<extent>4.2 MiB</extent>
<extent>4532 Mbytes</extent>
<extent>3200
    sentences</extent>
<extent>5 90-mm high density diskettes</extent>
```

For ease of processability, the use of the @unit attribute is recommended, as in the following example:

```
<extent unit="sentence">3200</extent>
```

2.1.4 Publication, Distribution, etc.

The [pubStmt](#) element is the fourth component of the [fileDesc](#) element and is mandatory.

<pubStmt> (publication statement) – Container for information regarding the publication or distribution of a bibliographic item, including the publisher's name and address, the date of publication, and other relevant details.

It may contain either a single [unpub](#) element, indicating that the file has yet to be published, or in the case of published material, one or more elements from the [model.nameLike.geogName](#), [model.addressLike](#), [model.dateLike](#), and [model.identifierLike](#) classes, as well as the elements [availability](#) and [respStmt](#).

<respStmt> (responsibility statement) – Names one or more individuals, groups, or in rare cases, mechanical processes, responsible for creation or realization of the intellectual or artistic content.

The [respStmt](#) element may be used to identify the publisher and distributor of the file. The publisher is the person or institution by whose authority a given edition of the file is made public. The distributor is the person or institution from whom copies of the text may be obtained.

The following elements may be used to provide additional details regarding the publication and distribution of a bibliographic entity:

[<geogName>](#) (geographic name) – The proper noun designation for a place, natural feature, or political jurisdiction.

[<address>](#) – Contains a postal address, for example of a publisher, an organization, or an individual.

[<identifier>](#) – An alpha-numeric string that establishes the identity of the described material.

[<availability>](#) – Groups elements that describe the availability of and access to a bibliographic item, including an MEI-encoded document.

[<date>](#) – A string identifying a point in time or the time period between two such points.

The sub-elements of [availability](#) should be used to provide detailed information regarding the availability of an item.

[<acqSource>](#) (acquisition source) – Post-publication source, such as a vendor or distributor, from which access to a bibliographic item may be obtained, including electronic access.

[<accessRestrict>](#) (access restriction) – Describes the conditions that affect the accessibility of material.

[<price>](#) – The cost of access to a bibliographic item.

[<useRestrict>](#) (usage restrictions) – Container for information about the conditions that affect use of a bibliographic item after access has been granted.

[<sysReq>](#) (system requirements) – System requirements for using the electronic item.

Note that the dates, places, etc., given in the publication statement relate to the publisher, distributor, or release authority most recently mentioned. If the text was created at some date other than its date of publication, its date of creation should be given within the [workDesc](#) element, not in the publication statement. Give any other useful dates (e.g., dates of collection of data) in an annotation within the notes statement.

```
<pubStmt>
  <respStmt>
    <corpName>Musikwissenschaftliches Seminar <Detmold></corpName>
  </respStmt>
  <address>
    <addrLine>Gartenstrasse 20</addrLine>
```

```

<addrLine>32756
      <geogName>Detmold</geogName>
</addrLine>
<addrLine>
      <geogName>Germany</geogName>
</addrLine>
</address>
<date>2011</date>
<availability>
  <useRestrict>©
    2004, MEI Consortium</useRestrict>
</availability>
</pubStmt>

```

```

<pubStmt>
  <respStmt>
    <resp>Publisher</resp>
    <corpName>Segno Press Inc.</corpName>
  </respStmt>
  <respStmt>
    <resp>Distributor</resp>
    <corpName>University of Virginia</corpName>
  </respStmt>
  <address>
    <addrLine>21 B
      LowWater Street,</addrLine>
    <addrLine>Charlottesville, Virginia</addrLine>
    <addrLine>22901</addrLine>
  </address>
  <date>2010</date>
  <identifier>1234</identifier>
  <availability>
    <useRestrict>Available for purposes of academic research and
      teaching
      only.</useRestrict>
  </availability>
</pubStmt>

```

2.1.5 Series Statement

The [seriesStmt](#) element is the fifth component of the [fileDesc](#) element and is optional.

<seriesStmt> (series statement) – Groups information about the series, if any, to which a publication belongs.

A series may be defined in one of the following ways:

- A group of separate items related to one another by the fact that each item bears, in addition to its own title proper, a collective title applying to the group as a whole. The individual items may or may not be numbered.
- Each of two or more volumes of essays, lectures, articles, or other items, similar in character and issued in sequence.

- A separately numbered sequence of volumes within a series or serial.

The [seriesStmt](#) element may contain one or more of the following more specific elements:

[<title>](#) – Title of a bibliographic entity.

[<respStmt>](#) (responsibility statement) – Names one or more individuals, groups, or in rare cases, mechanical processes, responsible for creation or realization of the intellectual or artistic content.

[<identifier>](#) – An alpha-numeric string that establishes the identity of the described material.

[<contents>](#) – Description of the material contained within a resource.

[<seriesStmt>](#) (series statement) – Groups information about the series, if any, to which a publication belongs.

The [title](#) and [respStmt](#) elements have the same function described above: identification of the item, in this case the series, and the individuals or groups responsible for its creation and production. The [title](#) element is required within [seriesStmt](#).

```
<seriesStmt>
  <title>MEI Sample
    Collection</title>
</seriesStmt>
```

The [identifier](#) element may be used to supply any identifying number associated with the series, including both standard numbers such as an ISSN and particular issue numbers. Its @type attribute is used to categorize the number further, taking the value 'ISSN' for an ISSN, for example.

```
<seriesStmt>
  <title level="s">Studies in Ornamentation</title>
  <respStmt>
    <resp>ed. by</resp>
    <name>Jacques Composeur</name>
  </respStmt>
  <identifier type="vol">1.2</identifier>
  <identifier type="ISSN">0 345 6789</identifier>
</seriesStmt>
```

The contents of the series may be enumerated using the [contents](#) element. Use of this element should be determined by the complexity of the resource and whether or not the information is readily available. The [contents](#) element may consist of a single paragraph when unstructured information is sufficient.

```
<contents>
  <p>On Wenlock Edge
    -- From Far, From Eve and Morning -- Is My Team Ploughing? -- Oh, When
    I Was In
    Love With You -- Bredon Hill -- Clun</p>
</contents>
```

Alternatively, [contentItem](#) elements may be used to provide structure for the content description.

```
<contents>
<head>Contents</head>
<contentItem>On Wenlock Edge</contentItem>
<contentItem>From Far, From Eve and Morning</contentItem>
<contentItem>Is
  My Team Ploughing?</contentItem>
<contentItem>Oh, When I Was In Love With You</contentItem>
<contentItem>Bredon Hill</contentItem>
<contentItem>Clun</contentItem>
</contents>
```

Finally, using the @target attribute, a link to an external table of contents may be supplied in lieu of or in addition to the child elements of [contents](#).

```
<contents target="http://www.series.content/12345"/>
```

The [seriesStmt](#) element is allowed to nest within itself in order to accommodate a series within a series.

2.1.6 Notes Statement

The [notesStmt](#) element is the sixth component of the [fileDesc](#) element and is optional. If used, it contains one or more [annot](#) elements, each containing a single piece of descriptive information of the kind treated as 'general notes' in traditional bibliographic descriptions.

<notesStmt> (notes statement)– Collects any notes providing information about a text additional to that recorded in other parts of the bibliographic description.

Some information found in the notes area in conventional bibliography has been assigned specific elements in these Guidelines; in particular the following items should be tagged as indicated, rather than as general notes:

- the nature, scope, artistic form, or purpose of the file; also the genre or other intellectual category to which it may belong. These should be formally described within the [workDesc](#) element (section [2.3 Work Description](#)).

- bibliographic details relating to the source or sources of an electronic text: e.g., 'Transcribed from a facsimile of the 1743 publication'. These should be formally described in the [sourceDesc](#) element (section [2.1.7 Source Description](#)).
- further information relating to publication, distribution, or release of the text, including sources from which the text may be obtained, any restrictions on its use or formal terms on its availability. These should be placed in the appropriate division of the [pubStmt](#) element (section [2.1.4 Publication, Distribution, etc.](#)).
- publicly documented numbers associated *with the file* should be placed in an [altId](#) element within the [meiHead](#) element. International Standard Serial Numbers (ISSN), International Standard Book Numbers (ISBN), and other internationally agreed upon standard numbers that uniquely identify an item, should be treated in the same way, rather than as specialized bibliographic notes. As described elsewhere, identifiers *for sources of the file* should be recorded within the [sourceDesc](#).

Nevertheless, the [notesStmt](#) element may be used to record potentially significant details about the file and its features, for example:

- dates, when they are relevant to the content or condition of the computer file: e.g. 'manual dated 2010', 'file validated Apr 2011'
- names of persons or bodies connected with the technical production, administration, or consulting functions of the effort which produced the file, if these are not named in statements of responsibility in the title or edition statements of the file description: e.g. 'Historical commentary provided by members of the Big Symphony Orchestra'
- availability of the file in an additional medium or information not already recorded about the availability of documentation: e.g. 'User manual is loose-leaf in eleven paginated sections'
- language of work and abstract, if not encoded in the [langUsage](#) element, e.g. 'Text in English with stage directions in French and German'

Each such item of information may be tagged using the general-purpose [annot](#) element. Groups of annotations are contained within the [notesStmt](#) element, as in the following example:

```
<notesStmt>
  <annot>Historical commentary provided by John Smith.</annot>
  <annot>OCR scanning performed at University of Virginia.</annot>
</notesStmt>
```

There are advantages, however, to encoding such information with more precise elements elsewhere in the MEI header, when such elements are available. For example, the notes above might be encoded as follows:

```
<titleStmt>
  <title>...</title>
  <respStmt>
    <persName>John
      Smith</persName>
```



```

<resp>historical commentary</resp>
</respStmt>
<respStmt>
  <orgName>University of Virginia</orgName>
  <resp>OCR
    scanning</resp>
</respStmt>
</titleStmt>

```

2.1.7 Source Description

The [sourceDesc](#) element is the seventh and final component of the [fileDesc](#) element. In MEI, [sourceDesc](#) is a grouping element containing one or more [source](#) elements, each of which records details of a source from which a computer file is derived. This might be a printed text or manuscript, another computer file, an audio or video recording, or a combination of these. An electronic file may also have no source, if what is being cataloged is an original text created in electronic form.

<sourceDesc> (source description) – A container for the descriptions of the source(s) used in the creation of the electronic file.

<source> – A bibliographic description of a source used in the creation of the electronic file.

The content model of the [source](#) element is similar to that of the [fileDesc](#) and [work](#) elements. The list below reflects the order in which the components of [source](#) must occur.

<identifier> – An alpha-numeric string that establishes the identity of the described material.

<titleStmt> (title statement) – Container for title and responsibility meta-data.

<editionStmt> (edition statement) – Container for meta-data pertaining to a particular edition of the material being described.

<pubStmt> (publication statement) – Container for information regarding the publication or distribution of a bibliographic item, including the publisher's name and address, the date of publication, and other relevant details.

<physDesc> (physical description) – Container for information about the location, appearance, construction, or handling of physical materials, such as their dimension, quantity, color, style, and technique of creation.

<seriesStmt> (series statement) – Groups information about the series, if any, to which a publication belongs.

<notesStmt> (notes statement) – Collects any notes providing information about a text additional to that recorded in other parts of the bibliographic description.

<[history](#)> – Provides a container for information about the creation and history of a resource.

<[langUsage](#)> (language usage) – Groups elements describing the languages, sub-languages, dialects, etc., represented within the encoded resource.

<[key](#)> – Key captures information about tonal center and mode.

<[tempo](#)> – Text and symbols descriptive of tempo, mood, or style, e.g., "allarg.", "a tempo", "cantabile", "Moderato", "♩=60", "Moderato ♩=60").

<[meter](#)> – Captures information about the time signature within bibliographic descriptions.

<[mensuration](#)> – Captures information about mensuration within bibliographic descriptions.

<[perfMedium](#)> (performance medium) – Indicates the number and character of the performing forces used in a musical composition.

<[classification](#)> – Groups information which describes the nature or topic of an entity.

<[incip](#)> (incipit) – The opening music and/or words of a composition.

<[contents](#)> – Description of the material contained within a resource.

<[relatedItem](#)> (related item) – contains or references another bibliographic item which is related to the present one in some specified manner, for example as a constituent or alternative version of it.

In the simplest case, the [source](#) element may contain nothing more than a notes statement giving a simple prose description or a brief note stating that the document has no physical source:

```
<sourceDesc>
  <source>
    <notesStmt>
      <annot>Based on
        the Porter Wagner edition.</annot>
    </notesStmt>
  </source>
</sourceDesc>
```

```
<sourceDesc>
  <source>
    <notesStmt>
      <annot>Born
        digital.</annot>
    </notesStmt>
  </source>
</sourceDesc>
```

Alternatively, it may contain a basic bibliographic citation, also in an annotation:

```

<sourceDesc>
  <source>
    <notesStmt>
      <annot>Bach, Carl
        Philipp Emanuel. Sonata in B-flat major, Wq.62/1 (H.2)</annot>
    </notesStmt>
  </source>
</sourceDesc>

```

However, more structured bibliographic data, such as that in the example below, facilitates better machine-processing:

```

<sourceDesc>
  <source xml:id="header.s1">
    <identifier>1</identifier>
    <titleStmt>
      <title>Sonata in
        B-flat major, <identifier>Wq. 62/1 (H.2)</identifier>
      </title>
      <respStmt>
        <name>Bach, Carl
          Philipp Emanuel</name>
      </respStmt>
    </titleStmt>
    <pubStmt>
      <geogName>Paris</geogName>
      <respStmt>
        <name>A.
          Farrenc</name>
      </respStmt>
      <date>1861-72</date>
    </pubStmt>
    <seriesStmt>
      <title>Tresor
        des Pianistes, Vol. 13</title>
    </seriesStmt>
    <notesStmt>
      <annot>reprinted
        New York: Dover Publications, n.d.</annot>
    </notesStmt>
  </source>
</sourceDesc>

```

A description of more precise capture of dates and date ranges is provided in chapter [17 Names and Dates](#).

The `<identifier>` element is provided within [source](#) in order to accommodate identifying strings which cannot be captured by the `@xml:id` attribute, such as numbers or strings requiring XML markup.

The [titleStmt](#), [editionStmt](#), [pubStmt](#), [seriesStmt](#), and [notesStmt](#) elements function in exactly the same way as described in section [2.1 File Description](#) above and [2.3 Work Description](#) below and will not be covered again here.

The [history](#) element is a container for non-bibliographic details relating to the creation of a source. The languages and sub-languages used by the source can be recorded in the [langUsage](#) element as

described in section [2.3.3 Language Usage](#) below. The usage of [key](#), [tempo](#), and [meter](#) below in section [2.3.4 Key, Tempo, and Meter](#). The elements [perfMedium](#), [classification](#), [castList](#), [incip](#), [contents](#), and [relatedItem](#) are also discussed in sections , [2.3.5 Performance Medium](#), [2.3.7 Classification](#), [2.3.5.1 Cast Lists](#), [2.3.8 Incipits](#), [2.3.9 Contents](#), and [2.3.10 Related Items](#), respectively.

If a source of the file is an unpublished manuscript, it is recommended that the [unpub](#) element be used as the only content of the source's [pubStmt](#) element. Other identifying information for the manuscript may be collected in the [notesStmt](#) element, as described in section [2.1.6 Notes Statement](#).

```
<source>
  <titleStmt>
    <title>[Untitled
      Bach Manuscript]</title>
  <respStmt>
    <persName>Johann
      Sebastian Bach</persName>
  </respStmt>
</titleStmt>
<pubStmt>
  <unpub/>
</pubStmt>
<notesStmt>
  <annot>Manuscript
    discovered in library stacks, 2012</annot>
</notesStmt>
</source>
```

2.1.7.1 Associating Metadata and Data

In the MEI header, the @data attribute may be used to associate metadata with related notational elements.

Similarly, in the body of the MEI document, the @decls attribute may be used to associate parts of the encoded text with related metadata.

Most often the association is between the bibliographic description of a source and the material which is derived from it.

2.2 Encoding Description

The [encodingDesc](#) element is the second major subdivision of the MEI header. It specifies the methods and editorial principles which governed the transcription or encoding of the source material. Though not formally required, its use is highly recommended.

<encodingDesc> (encoding description) – Documents the relationship between an electronic file and the source or sources from which it was derived as well as applications used in the encoding/editing process.

The encoding description may contain elements taken from the `model.encodingPart` class. By default, this class makes available the following elements:

<applInfo> (application information) – Groups information about applications which have acted upon the MEI file.

<editorialDecl> (editorial declaration) – Used to provide details of editorial principles and practices applied during the encoding of musical text.

<projectDesc> (project description) – Project-level meta-data describing the aim or purpose for which the electronic file was encoded, funding agencies, etc. together with any other relevant information concerning the process by which it was assembled or collected.

<samplingDecl> (sampling declaration) – Contains a prose description of the rationale and methods used in sampling texts in the creation of a corpus or collection.

Each of these elements is further described in the appropriate section below.

2.2.1 Application Information

It is sometimes convenient to store information relating to the processing of an encoded resource within its header. Typical uses for such information might be:

- to allow an application to discover that it has previously opened or edited a file, and what version of itself was used to do that;
- to show (through a date) which application last edited the file to allow for diagnosis of any problems that might have been caused by that application;
- to allow users to discover information about an application used to edit the file
- to allow the application to declare an interest in elements of the file which it has edited, so that other applications or human editors may be more wary of making changes to those sections of the file.

<application> – Provides information about an application which has acted upon the current document.

@version supplies a version number for an application, independent of its identifier or display name.

Each **application** element identifies the current state of one software application with regard to the current file. This element is a member of the `att.dataable` class, which provides a variety of attributes for associating this state with a date and time, or a temporal range. The `@xml:id` and `@version` attributes should be used to uniquely identify the application and its major version number (for example, 'Edirom Tool 1.5'). It is not intended that a software application should add a new **application** element each time it touches the file.

The following example shows how these elements might be used to document the fact that version 1.5 of an application called 'Music Markup Tool' has an interest in two parts of a document which was last processed on June 6, 2011. The parts concerned are accessible at the URLs given as targets of the two [ptr](#) elements. When used on [application](#), the @date attribute specifies when the application was employed. Version information for the application should be placed in @version, even if the version specification is a date.

```
<appInfo>
  <application isodate="2011-06-06" version="1.5" xml:id="header.MusicMarkupTool">
    <name>Music Markup Tool</name>
    <ptr target="#header.P1"/>
    <ptr target="#header.P2"/>
  </application>
</appInfo>
```

2.2.2 Declaration of Editorial Principles

The [editorialDecl](#) element is used to provide details of the editorial practices applied during the encoding of a musical text.

It may contain a prose description only, or one or more of a set of specialized elements; that is, members of the MEI model.editorialDeclPart class.

Some of these policy elements carry attributes to support automated processing of certain well-defined editorial decisions; all of them contain a prose description of the editorial principles adopted with respect to the particular feature concerned. Examples of the kinds of questions which these descriptions are intended to answer are given in the list below.

correction

- [<correction>](#) – States how and under what circumstances corrections have been made in the text. **@corrlevel** indicates the degree of correction applied to the text.
- [att.regularmethod](#) Attributes that describe correction and normalization methods. **@method** indicates the method employed to mark corrections and normalizations.

Was the text corrected during or after data capture? If so, were corrections made silently or are they marked using the tags described in chapter [10 Editorial Markup](#)? What principles have been adopted with respect to omissions, truncations, dubious corrections, alternate readings, false starts, repetitions, etc.?

interpretation

- [<interpretation>](#) – Describes the scope of any analytic or interpretive information added to the transcription of the music.
Has any analytic or 'interpretive' information been provided — that is, information which is felt to be non-obvious, or potentially contentious? If so, how was it generated? How was it encoded?

normalization

- [<normalization>](#) – Indicates the extent of normalization or regularization of the original source carried out in converting it to electronic form.
- [att.regularmethod](#) Attributes that describe correction and normalization methods.
[@method](#) indicates the method employed to mark corrections and normalizations.

Was the text normalized, for example by regularizing any non-standard enharmonic spellings, etc.? If so, were normalizations performed silently or are they marked using the tags described in chapter [10 Editorial Markup](#) ? What authority was used for the regularization? Also, what principles were used when normalizing numbers to provide the standard values for the [@value](#) attribute described in section [1.3.4 Names, Dates, Numbers, Abbreviations, and Addresses](#) and what format is used for them?

segmentation

- [<segmentation>](#) – Describes the principles according to which the musical text has been segmented, for example into movements, sections, etc.

How is the musical text segmented? If [mdiv](#) and/or section elements have been used to partition the music for analysis, how are they marked and how was the segmentation arrived at?

standard values

- [<stdVals>](#) (standard values) – Specifies the format used when standardized date or number values are supplied.

In most cases, attributes bearing standardized values should conform to a defined datatype. In cases where this is not appropriate, this element may be used to describe the standardization methods underlying the values supplied.

Experience shows that a full record should be kept of decisions relating to editorial principles and encoding practice, both for future users of the text and for the project which produced the text in the first instance. Any information about the editorial principles applied not falling under one of the above headings may be recorded as additional prose following the special-use elements.

```
<editorialDecl>
  <segmentation>
    <p>Separate
      mdiv elements have been created for each movement of the work.</p>
  </segmentation>
  <interpretation>
    <p>The
      harmonic analysis applied throughout movement 1 was added by hand and has not
      been checked.</p>
  </interpretation>
  <correction>
    <p>Errors in
      transcription controlled by using the Finale editor.</p>
  </correction>
  <normalization>
    <p>All sung text converted to Modern American spelling following
      Webster's 9th
      Collegiate dictionary.</p>
  </normalization>
```

```
<p>
<!-- Other editorial practices described here.
-->
</p>
</editorialDecl>
```

An editorial practices declaration which applies to more than one text or division of a text need not be repeated in the header of each text or division. Instead, the @decls attribute of each text (or subdivision of the text) to which it applies may be used to supply a cross-reference to a single declaration encoded in the header.

2.2.3 Project Description

[**<projectDesc>**](#) (project description) – Project-level meta-data describing the aim or purpose for which the electronic file was encoded, funding agencies, etc. together with any other relevant information concerning the process by which it was assembled or collected.

The [**projectDesc**](#) element may be used to describe, in prose, the purpose for which a digital resource was created, together with any other relevant information concerning the process by which it was assembled or collected. This is of particular importance for corpora or miscellaneous collections, but may be of use for any text, for example to explain why one kind of encoding practice has been followed rather than another.

For example:

```
<encodingDesc>
<projectDesc>
  <p>Texts
    collected for use in the MEI Summer Workshop, Aug. 2012.</p>
</projectDesc>
</encodingDesc>
```

2.2.4 Sampling Declaration

The **samplingDecl** element may be used to describe, in prose, the rationale and methods used in selecting texts, or parts of text, for inclusion in the resource.

[**<samplingDecl>**](#) (sampling declaration) – Contains a prose description of the rationale and methods used in sampling texts in the creation of a corpus or collection.

The [**samplingDecl**](#) element should include information about such matters as:

- the size of individual samples
- the method or methods by which they were selected
- the underlying population being sampled
- the object of the sampling procedure used

but is not restricted to these.

```
<samplingDecl>
  <p>Encoding contains 40 randomly-selected measures.</p>
</samplingDecl>
```

It may also include a simple description of any parts of the source text included or excluded:

```
<samplingDecl>
  <p>Only the songs have been transcribed. Advertisements
      have been silently omitted. All
      mathematical expressions have been omitted, and
      their place marked with a <gi>gap</gi>
      element.</p>
</samplingDecl>
```

```
<samplingDecl>
  <p>Only the
      first 6 measures of movement 1 are encoded.</p>
</samplingDecl>
```

A sampling declaration which applies to more than one text or division of a text need not be repeated in the header of each such text. Instead, the @decls attribute of each text (or subdivision of the text) to which the sampling declaration applies may be used to supply a cross-reference to it, as further described in section [2.1.7.1 Associating Metadata and Data](#).

2.3 Work Description

The [workDesc](#) element is the third major subdivision of the MEI Header. It is an optional element, the purpose of which is to enable the recording of information characterizing various descriptive aspects of the abstract work.

<workDesc> (work description) – Grouping mechanism for information describing non-bibliographic aspects of a text.

<work> – Provides a detailed description of the non-bibliographic aspects of a text, specifically its history, language use, and high-level musical attributes: key, tempo, meter, and medium of performance.

Within [workDesc](#), the [work](#) element is used to hold information for each resource being described.

<work> – Provides a detailed description of the non-bibliographic aspects of a text, specifically its history, language use, and high-level musical attributes: key, tempo, meter, and medium of performance.

All the components of [work](#) are optional, but they must occur in the following order:

1. identifier
2. titleStmt
3. history
4. langUsage
5. key
6. tempo
7. meter
8. mensuration
9. perfMedium
10. notesStmt
11. classification
12. incip
13. contents
14. relatedItem

2.3.1 Work Identification

Basic data identifying the intellectual work may be recorded in [identifier](#) and [titleStmt](#) elements. The identifier and title values recorded here may or may not be the same as those assigned to published versions of the work.

<identifier> – An alpha-numeric string that establishes the identity of the described material.

<titleStmt> (title statement) – Container for title and responsibility meta-data.

The following components provide detailed information about the work, including the circumstances of its creation, the languages used within it, high-level musical attributes, performing forces, etc.

2.3.2 Work History

The following elements are provided to capture the history of a musical work:

[`<history>`](#) – Provides a container for information about the creation and history of a resource.

[`<creation>`](#) – Non-bibliographic details of the creation of an intellectual entity, in narrative form, such as the date, place, and circumstances of its composition.

[`<eventList>`](#) – Contains historical information given as a sequence of significant past events.

[`<event>`](#) – Contains a description of an event, including the dates and locations of its occurrence and prominent participants.

The [`history`](#) element is a container for the non-bibliographic details relating to a work. The [`creation`](#) element is intended to contain a brief statement of the circumstances of the work's creation. Its content is limited to text and [`date`](#) and [`geogName`](#) elements. Following it, a list of key events in the creation of the work may be enumerated using [`eventList`](#). The list is comprised of [`event`](#) elements that contain a brief description of the associated event, including dates and locations where the event took place. The `@type` attribute may be used to distinguish between event lists with different functions, such as a list of events in the compositional process and a list of performance dates.

Paragraphs may be mixed with event lists, or used instead of [`eventList`](#) and [`creation`](#) elements, when a fuller, 'essay-like' description is desired.

2.3.3 Language Usage

The [`langUsage`](#) element is used within the [`workDesc`](#) element to describe the languages, sublanguages, dialects, etc. represented within a work. It contains one or more [`language`](#) elements, each of which provides information about a single language.

[`<langUsage>`](#) (language usage) – Groups elements describing the languages, sub-languages, dialects, etc., represented within the encoded resource.

[`<language>`](#) – Description of a language used in the document.

A [`language`](#) element may be supplied for each different language used in a document. If used, its `@xml:id` attribute should specify an appropriate language identifier. This is particularly important if extended language identifiers have been used as the value of `@xml:lang` attributes elsewhere in the document.

Here is an example of the use of this element:

```
<langUsage>
  <language xml:id="fr-CA">Québécois</language>
  <language xml:id="en-CA">Canadian English</language>
  <language xml:id="en-GB">British English</language>
</langUsage>
```

2.3.4 Key, Tempo, and Meter

The attributes key, tempo, and meter are often helpful for identifying a musical work when it does not have a distinctive title.

[**<key>**](#) – Key captures information about tonal center and mode.

[**<tempo>**](#) – Text and symbols descriptive of tempo, mood, or style, e.g., "allarg.", "a tempo", "cantabile", "Moderato", "♩=60", "Moderato ♩=60").

[**<meter>**](#) – Captures information about the time signature within bibliographic descriptions.

[**<mensuration>**](#) – Captures information about mensuration within bibliographic descriptions.

The [**key**](#) element used exclusively within bibliographic descriptions. Do not confuse this element with [**keySig**](#), which is used within the body of an MEI file to record this data for musical notation. Likewise, [**meter**](#) should not be confused with the attributes used by staffDef and scoreDef to record meter-related data for notated music. The [**tempo**](#) element can be used here as well as in the body of an MEI document; however, its attributes other than @xml:id, @label, @n, @base, and @lang are meaningless in the MEI header context, and therefore should be avoided within a work description. The [**meter**](#) and [**mensuration**](#) elements are available for the description of works that use both metrical systems.

2.3.5 Performance Medium

The following elements are available for description of a composition's performing forces:

[**<perfMedium>**](#) (performance medium) – Indicates the number and character of the performing forces used in a musical composition.

[**<castList>**](#) – Contains a single cast list or dramatis personae.

[**<instrumentation>**](#) – Instrumental and non-dramatic vocal resources.

The [**perfMedium**](#) element provides the possibility of describing a work in terms of its medium of performance; that is, the performing forces required. In the case of a dramatic work, the dramatis

personae and associated voice qualities may be described using [castList](#). The [instrumentation](#) element describes the necessary instrumental resources.

2.3.5.1 Cast Lists

A cast list is a specialized form of list, conventionally found at the start or end of a dramatic work, usually listing all the speaking/singing and non-speaking/singing roles in the play, often with additional description ('Cataplasma, a maker of Periwigges and Attires') or the name of an actor or actress ('Old Lady Squeamish. Mrs Rutter').

[<castList>](#) – Contains a single cast list or dramatis personae.

[<castItem>](#) – Contains a single entry within a cast list, describing either a single role or a list of non-speaking roles.

[<castGrp>](#) (cast group) – Groups one or more individual castItem elements within a cast list.

Cast lists often function as identifying metadata and for this reason are permitted within the description of a work.

Because the format and internal structure of cast lists are unpredictable, a [castList](#) may contain any combination of [castItem](#) and [castGrp](#) elements.

A [castItem](#) element may contain any mixture of text and the following elements:

[<role>](#) – Name of a dramatic role, as given in a cast list.

[<roleDesc>](#) (role description) – Describes a character's role in a drama.

[<instrVoice>](#) (instrument or voice) – Name of an instrument on which a performer plays or a performer's voice range.

In the following example, [role](#) provides the name of the dramatic character and [roleDesc](#) contains a brief description of the role. The [instrVoice](#) element is used to describe the voice range of the role.

```
<castItem>
  <role>Ursula</role>
  <roleDesc>Queen of the Britons</roleDesc>
  <instrVoice>Soprano</instrVoice>
</castItem>
<castItem>
  <role>Dersagrena</role>
  <roleDesc>Handmaiden to Ursula</roleDesc>
  <instrVoice>Mezzo-Soprano</instrVoice>
</castItem>
<castItem>
  <role>Fingal</role>
  <roleDesc>King of the Britons</roleDesc>
```

```
<instrVoice>Baritone</instrVoice>
</castItem>
```

The vocal qualities and associated roles for Beethoven's opera *Fidelio* may be encoded as:

```
<perfMedium>
<castList>
  <castItem>
    <instrVoice>Tenor</instrVoice>
    <role>Florestan</role>
  </castItem>
  <castItem>
    <instrVoice>Soprano</instrVoice>
    <role>Leonore</role>, <roleDesc>his wife</roleDesc>
  </castItem>
  <castItem>
    <instrVoice>Bass</instrVoice>
    <role>Rocco</role>, <roleDesc>gaoler</roleDesc>
  </castItem>
  <castItem>
    <instrVoice>Soprano</instrVoice>
    <role>Marzelline</role>, <roleDesc>his daughter</roleDesc>
  </castItem>
  <castItem>
    <instrVoice>Tenor</instrVoice>
    <role>Jaquino</role>, <roleDesc>assistant to Rocco</roleDesc>
  </castItem>
  <castItem>
    <instrVoice>Bass-baritone</instrVoice>
    <role>Don
      Pizarro</role>, <roleDesc>governor of the prison</roleDesc>
  </castItem>
  <castItem>
    <instrVoice>Bass</instrVoice>
    <role>Don
      Fernando</role>, <roleDesc>King's minister</roleDesc>
  </castItem>
</castList>
</perfMedium>
```

The `castItem` element may also contain:

<actor> – Name of an actor appearing within a cast list.

However, this element is unlikely to be useful in the context of a work description. It is available, however, for the very rare occasion when a work was conceived for and is only performable by a single person or group, such as certain "performance art" works.

It is common to find some roles presented in groups or sublists. Roles are also often grouped together by their function. To accommodate these situations, the [castGrp](#) element is provided as a component of [castList](#). It may contain any combination of [castItem](#), [castGrp](#), and [roleDesc](#) elements.

2.3.5.2 Instrumentation

The [instrumentation](#) element is used to capture the solo and ensemble instrumental resources of a composition. For example, a work for a standard ensemble may be indicated thus:

```
<perfMedium>
  <instrumentation>
    <ensemble>Orchestra</ensemble>
  </instrumentation>
</perfMedium>
```

The make-up of standard and non-standard ensembles may be enumerated using the [instrVoice](#) element:

```
<perfMedium>
  <instrumentation>
    <head>Orchestration</head>
    <instrVoice>Flute</instrVoice>
    <instrVoice>Oboe</instrVoice>
    <instrVoice>English Horn</instrVoice>
    <instrVoice>2
      Horns in D</instrVoice>
    <instrVoice>Strings</instrVoice>
  </instrumentation>
</perfMedium>
```

For ensembles where multiple instruments of the same kind are used, the @count attribute on [instrVoice](#) may be used to specify the number of players:

```
<perfMedium>
  <instrumentation>
    <!--
      concert band -->
    <instrVoice count="2">Piccolo</instrVoice>
    <instrVoice count="2">Flute</instrVoice>
    <instrVoice count="3">1st Clarinet</instrVoice>
    <instrVoice count="3">2nd Clarinet</instrVoice>
    <instrVoice count="3">3rd Clarinet</instrVoice>
    <!-- and so on -->
  </instrumentation>
</perfMedium>
```

Instrument or voice specifications may be grouped using the [instrVoiceGrp](#) element and a label assigned to the group with [head](#). For example:

```
<perfMedium>
  <instrumentation>
    <!--
      concert band -->
    <instrVoiceGrp>
```

```
<head>Woodwinds</head>
<instrVoice count="2">Piccolo</instrVoice>
<instrVoice count="2">Flute</instrVoice>
<instrVoice count="3">1st
    Clarinet</instrVoice>
<instrVoice count="3">2nd Clarinet</instrVoice>
<instrVoice count="3">3rd
    Clarinet</instrVoice>
<!-- etc. -->
</instrVoiceGrp>
<instrVoiceGrp>
<head>Brass</head>
<instrVoice count="3">1st Trumpet</instrVoice>
<instrVoice count="3">2nd
    Trumpet</instrVoice>
<instrVoice count="3">3rd Trumpet</instrVoice>
<instrVoice count="3">2nd
    Clarinet</instrVoice>
<!-- etc. -->
</instrVoiceGrp>
<!-- and so on -->
</instrumentation>
</perfMedium>
```

```
<perfMedium>
<instrumentation>
<instrVoiceGrp>
<head>Woodwinds</head>
<instrVoice code="wa" count="2">2 Flutes <instrVoice code="wz">(2.
    piccolo)</instrVoice>
</instrVoice>
<instrVoice code="wc" count="1">1 Oboe</instrVoice>
<!-- ... -->
</instrVoiceGrp>
<instrVoiceGrp>
<head>Strings (8-6-4-4-2)</head>
<instrVoice count="8">Violin 1</instrVoice>
<instrVoice count="6">Violin
    2</instrVoice>
<instrVoice count="4">Viola</instrVoice>
<instrVoice count="4">Violoncello</instrVoice>
<instrVoice count="2">Double
    Bass</instrVoice>
</instrVoiceGrp>
</instrumentation>
</perfMedium>
```

The preceding example also demonstrates how instrumental doublings can be accommodate through the use of nested [instrVoice](#) elements.

Both [ensemble](#) and [instrVoice](#) provide the @code attribute, which can be used to record a coded value that represents the string value stored as the element's content. It is recommended that coded values be taken from a standardized list, such as the International Association of Music Libraries' Medium of performance Codes List or the MARC Instruments and Voices Code List.


```
<perfMedium>
  <instrumentation>
    <!--
      @code contains values from the MARC Instruments and Voices Code List
    -->
    <instrVoice code="ba">Horn</instrVoice>
    <instrVoice code="bb">Trumpet</instrVoice>
    <instrVoice code="bd">Trombone</instrVoice>
  </instrumentation>
</perfMedium>
```

Solo parts may be marked with the @solo attribute of [instrVoice](#), like so:

```
<instrumentation>
  <instrVoice solo="true">Violin</instrVoice>
  <instrVoice>Violin</instrVoice>
  <instrVoice>Violin</instrVoice>
  <instrVoice>Viola</instrVoice>
  <instrVoice>Violoncello</instrVoice>
</instrumentation>
```

Music for a single player should, however, never use the @solo attribute.

```
<!-- This is an example of what not to do --><instrumentation>
  <instrVoice solo="true">Piano</instrVoice>
</instrumentation>
```

2.3.6 Notes Statement

The [notesStmt](#) element may be used within the description of the musical work to capture information not accounted for by the other elements of the description.

2.3.7 Classification

The next component of the core [workDesc](#) element is the [classification](#) element. This element is used to classify a musical text according to one or more of the following methods:

- by reference to a recognized international classification scheme such as the Dewey Decimal Classification, the Universal Decimal Classification, the Colon Classification, the Library of Congress Classification, or any other system widely used in library and documentation work
- by providing a set of keywords, as provided, for example, by British Library or Library of Congress Cataloguing in Publication data.

The following elements are provided for this purpose:

[<termList>](#) – Collection of text phrases which describe a resource.

[<classCode>](#) (classification code) – Holds a citation to the source of controlled-vocabulary terms used in the [<termList>](#) element; for example, Library of Congress Subject Headings (LCSH), Library of Congress Classification (LCC), Library of Congress Name Authority File (LCNAF), or other thesaurus or ontology.

The [termList](#) element categorizes an individual text by supplying a set of terms which may describe its topic or subject matter, its physical or intellectual form, date, etc. Each term is indicated by a [term](#) element. In some schemes, the order of items in the list is significant, for example, from major topic to minor; in others, the list has an organized substructure of its own. No recommendations are made here as to which method is to be preferred. Wherever possible, such terms should be taken from a recognized source.

The classCode element offers the possibility of capturing a bibliographic citation and/or a URI at which the classification scheme or information about it may be found.

```
<classCode xml:id="header.LoC_lccoA">Library of Congress subject headings. Prepared  
    by the  
    Cataloging Policy and Support Office, Collections Services. Washington,  
    D.C.: Library of  
    Congress, Cataloging Distribution Service, 1993- .</classCode>
```

```
<classCode  
  authURI="http://www.loc.gov/aba/cataloging/classification/lcco/lcco_m.pdf"  
  xml:id="header.LoC_lccoB"/>
```

```
<classCode  
  authURI="http://www.loc.gov/aba/cataloging/classification/lcco/lcco_m.pdf"  
  xml:id="header.LoC_lccoC">Library of  
  Congress  
    subject headings. Prepared by the Cataloging Policy and Support Office,  
    Collections Services. Washington, D.C.: Library of Congress, Cataloging  
    Distribution  
    Service, 1993- .</classCode>
```

The @classcode attribute may be used on each term element to make reference, by means of an identifier, to the classification scheme from which it is drawn.

```
<classification>  
  <classCode  
    authURI="http://www.loc.gov"  
    authority="Library  
      of Congress"  
    xml:id="header.LCSH1"/>
```

```
<classCode
  authURI="http://www.loc.gov/aba/cataloging/classification/lcco/lcco_m.pdf"
  authority="Library of Congress"
  xml:id="header.LoC_lcco1"/>
<termList>
  <term classcode="#header.LCSH1">Guitar music (Rock)</term>
  <term classcode="#header.LCSH1">Rock music 1971-1980.</term>
  <term classcode="#header.LoC_lcco1">M1630.18.Z26 06 2011</term>
</termList>
</classification>
```

Alternatively, @classcode may be used on [termList](#) when all the contained terms come from the same source.

```
<classification>
  <classCode
    authURI="http://www.loc.gov"
    authority="Library
      of Congress"
    xml:id="header.LCSH2"/>
  <classCode
    authURI="http://www.loc.gov/aba/cataloging/classification/lcco/lcco_m.pdf"
    authority="Library of Congress"
    xml:id="header.LoC_lcco2"/>
  <termList classcode="#header.LCSH2">
    <term>Guitar music (Rock) </term>
    <term>Rock music
      1971-1980.</term>
  </termList>
  <termList classcode="#header.LoC_lcco2">
    <term>M1630.18.Z26 06 2011</term>
  </termList>
</classification>
```

2.3.8 Incipits

[<incip>](#) (incipit) – The opening music and/or words of a composition.

The first few notes and/or words of a piece of music are often used for identification purposes, especially when the piece has only a generic title, such as "Sonata no. 3". They appear in catalogs of music and in tables of contents of printed music that include multiple works.

The following elements are provided for the inclusion of incipits:

[<incip>](#) (incipit) – The opening music and/or words of a composition.

[<incipCode>](#) – Incipit coded in a non-XML, plain text format, such as Plaine & Easie Code.

[<incipText>](#) – Opening words of a musical composition.

[<score>](#) – Full score view of the musical content.

[<graphic>](#) – Indicates the location of an inline graphic, illustration, or figure.

The elements [incipCode](#) and [incipText](#) are available for the inclusion of coded incipits of music notation and textual incipits, respectively. The [incipText](#) element should contain only the initial performed text of the work, while [incipCode](#) may contain both words and music, depending on the capabilities of the scheme used to encode it. When both music and text are provided in [incipCode](#), it may be helpful to repeat the text in [incipText](#) in order to provide easier access to only the text, for example, for indexing of the text without having to extract it from the coded incipit.

Both [incipCode](#) and [incipText](#) allow reference to an external file location via the @target attribute and specification of the internet media type of the external file via the @mimetype attribute.

An MEI-encoded incipit may be captured in the [score](#) element.

In addition, [graphic](#) may be used to include an image of an incipit.

2.3.9 Contents

[<contents>](#) – Description of the material contained within a resource.

[<contentItem>](#) – Contains a single entry within a content description element.

Often, it is helpful to identify an entity by listing its constituent parts. A simple description of the work's content, such as may be found in a bibliographic record, can be given in single paragraph element:

```
<contents>
  <p>A suitable tone ; Left hand colouring ; Rhythm and
    accent ; Tempo ; Flexibility ;
    Ornaments</p>
</contents>
```

Alternatively, a structured list of contents may be constructed using the [contentItem](#) element:

```
<contents>
  <contentItem>Sonata
    in D major, op. V, no. 1 / Corelli</contentItem>
  <contentItem>Sonata in G minor / Purcell (with Robert Donington,
    gamba)</contentItem>
  <contentItem>Forlane from Concert royal no. 3 / Couperin</contentItem>
</contents>
```

Each [contentItem](#) element may be preceded by an optional [label](#):

```
<contents>
  <label>1</label>
  <contentItem>Sonata in D major, op. V, no. 1 /
    Corelli</contentItem>
  <label>2</label>
  <contentItem>Sonata in G minor / Purcell (with Robert
    Donington,
    gamba)</contentItem>
  <label>3</label>
  <contentItem>Forlane
    from Concert royal no. 3 / Couperin</contentItem>
</contents>
```

To reference a contents list in an external location, use the @target attribute:

```
<contents
  target="http://www.contentProvider.org/toc/toc01.html"/>
```

To facilitate the creation of music catalogs based on MEI header information, [contents](#) may contain a heading:

```
<contents>
  <head>Contents of
    this Work:</head>
  <contentItem>Sonata No. 1</contentItem>
  <contentItem>Sonata No. 2 </contentItem>
  <contentItem>Sonata No. 3</contentItem>
</contents>
```

2.3.10 Related Items

2.4 Revision Description

The final sub-element of the MEI header, the [revisionDesc](#) element, provides a detailed change log in which each change made to a text may be recorded. Its use is optional but highly recommended. It provides essential information for the administration of large numbers of files which are being updated, corrected, or otherwise modified as well as extremely useful documentation for files being passed from researcher to researcher or system to system. Without change logs, it is easy to confuse different versions of a file, or to remain unaware of small but important changes made in the file by some earlier link in the chain of distribution. No change should be made in any MEI-conformant file without corresponding entries being made in the change log.

[<revisionDesc>](#) (revision description) – Container for information about alterations that have been made to an MEI file.

[<change>](#) – Individual change within the revision description.

The main purpose of the revision description is to record changes in the text to which a header is prefixed. However, it is recommended practice to include entries also for significant changes in the header itself (other than the revision description itself, of course). At the very least, an entry should be supplied indicating the date of creation of the header.

The log consists of a list of [change](#) elements, each of which contains a detailed description of the changes made. If a number is to be associated with one or more changes (for example, a revision number), the @n attribute may be used to indicate it. The person responsible for the change and the date of the change must be indicated by the [respStmt](#) and [date](#) elements, respectively. The description of the change itself is contained within the [changeDesc](#) element, which can hold one or more paragraphs.

It is recommended to give changes in reverse chronological order, most recent first.

For example:

```
<revisionDesc>
  <change n="4">
    <respStmt>
      <persName>KR</persName>
    </respStmt>
    <changeDesc>
      <p>Cleaned up MEI
        file automatically using Header.xsl.</p>
    </changeDesc>
    <date reg="2011-12-01"/>
  </change>
  <change n="3">
    <respStmt>
      <persName>KR</persName>
    </respStmt>
    <changeDesc>
      <p>Cleaned up MEI
        file automatically using ppq.xsl.</p>
    </changeDesc>
    <date reg="2011-10-21"/>
  </change>
</revisionDesc>
```

2.5 Minimal and Recommended Header Information

The MEI header allows for the provision of a very large amount of information concerning the text itself, its source, its encodings, and revisions of it, as well as a wealth of descriptive information, such as the languages it uses and the situation(s) in which it was produced, together with the setting and identity of participants within it. This diversity and richness reflects the diversity of uses to which it is

envisaged that electronic texts conforming to these Guidelines will be put. It is emphatically not intended that all of the elements described above should be present in every MEI Header.

The amount of encoding in a header will depend both on the nature and the intended use of the text. At one extreme, an encoder may expect that the header will be needed only to provide a bibliographic identification of the text adequate to local needs. At the other, wishing to ensure that their texts can be used for the widest range of applications, encoders will want to document as explicitly as possible both bibliographic and descriptive information, in such a way that no prior or ancillary knowledge about the text is needed in order to process it. The header in such a case will be very full, approximating the kind of documentation often supplied in the form of a manual. Most texts will lie somewhere between these extremes; textual corpora in particular will tend more to the latter extreme. In the remainder of this section we demonstrate first the minimal, and then a commonly recommended, level of encoding for the bibliographic information held by the MEI header.

Supplying only the level of encoding required, the MEI header of a single text will look like the following example:

```
<meiHead>
  <fileDesc>
    <titleStmt>
      <title>Fughette (in
        Gottes Namen Fahren wir - Dies sind die heil'gen zehn Gebote) for
        Brass
        Quintett : an electronic transcription</title>
    </titleStmt>
    <pubStmt>
      <respStmt>
        <corpName authURI="http://d-nb.info/gnd" authority="GND" dbkey="5115204-6">Musikwissenschaftliches
        Seminar <Detmold></corpName>
      </respStmt>
    </pubStmt>
  </fileDesc>
</meiHead>
```

The only mandatory component of the MEI Header is the [fileDesc](#) element. Within this element, [titleStmt](#) and [pubStmt](#) are required constituents. Within the title statement, a title is required. Within the [pubStmt](#), a publisher, distributor, or other agency responsible for the file is required.

While not formally required, additional information is recommended for a minimally effective header. For example, it is recommended that the person or corporate entity responsible for the creation of the encoding should be specified using [respStmt](#) within the [titleStmt](#) element. It is also recommended that information about the source, or sources, of the encoding be included. Each [source](#) element should contain at the least a loosely structured bibliographic citation that identifies the source used to construct the MEI file.

Furthermore, If the electronic transcription is a member of a series of publications, the series title and publisher should be included using the [seriesStmt](#) element. It is also common for cataloging records to include genre and/or form information, here represented by the MEI [classification](#) element.

We now present the same example header, expanded to include additionally recommended information, adequate for most bibliographic purposes, in particular to allow for the creation of an AACR2-conformant bibliographic record.

```
<meiHead>
<fileDesc>
<titleStmt>
<title>Fughette (in
  Gottes Namen Fahren wir - Dies sind die heil'gen zehn Gebote) for
  Brass
  Quintett : an electronic transcription</title>
<respStmt>
<resp>Encoded
  by:</resp>
<persName xml:id="header.MH">Maja
  Hartwig</persName>
<persName xml:id="header.KR">Kristina Richts</persName>
</resp>
</resp>
</title>
</title>
<pub>
<resp>
<corpName>Musikwissenschaftliches Seminar <Detmold></corpName>
</resp>
<date>2011</date>
</pub>
<series>
<title>MEI Sample
  Collection</title>
<resp>
<corpName role="publisher">MEI Project</corpName>
</resp>
</series>
<source>
<source>
<title>
<title>Fughette
  (in Gottes Namen Fahren wir - Dies sind die heil'gen zehn Gebote)
  for
  Brass Quintett</title>
<resp>
<persName role="composer">Johann Christoph Bach</persName>
<persName role="arranger">Michel
  Rondeau</persName>
</resp>
</title>
</title>
<pub>
<identifier type="URI">http://icking-music-archive.org/scores/j.chr.bach/JCBIN-xml.zip</identifier>
<date reg="2011-10-13"/>
<resp>
<name>Werner
  Icking Music Archive</name>
</resp>
<availability>
<useRestrict>© 2010 - Gatineau, Qc. Ca.</useRestrict>
</availability>
</pub>
<classification>
<classCode
  authURI="http://www.oclc.org/dewey/resources/summaries/default.htm#700"
  authority="OCLC"
  xml:id="header.OCLC_DDC"/>
<termList>
<term classcode="#header.OCLC_DDC">785.15</term>
</termList>
</classification>
</source>
</source>
</source>
```



```
</fileDesc>  
</meiHead>
```

2.6 Independent Headers

Many libraries, repositories, research sites and related institutions collect bibliographic and documentary information about machine readable music documents without necessarily collecting the music documents themselves. Such institutions may thus want access to the header of an MEI document without its attached text in order to build catalogs, indexes and databases that can be used to locate relevant texts at remote locations, obtain full documentation about those texts, and learn how to obtain them. This section describes a set of practices by which the metadata headers of MEI documents can be encoded separately from those documents and exchanged as freestanding MEI documents. Headers exchanged independently of the documents they describe are called independent headers.

2.6.1 Definition and Principles for Encoders

An independent header is a MEI metadata header that can be exchanged as an independent document between libraries, archives, collections, projects, and individuals.

The structure of an independent header is exactly the same as that of an header attached to a document. This means that an [meiHead](#) can be extracted from an MEI document and sent to a receiving institution with little or no change.

When deciding which information to include in the independent header, and the format or structure of that information, the following should be kept in mind:

- The independent header should provide full bibliographic information about the encoded text, its sources, where the text can be located, and any restrictions governing its use.
- The independent header should contain useful information about the encoding of the text itself. In this regard, it is highly recommended that the encoding description be as complete as possible. The Guidelines do not require that the encoding description be included in the header (since some simple transcriptions of small items may not require it), but in practice the use of a header without an encoding description would be severely limited.
- The independent header should be amenable to automatic processing, particularly for loading into databases and for the creation of publications, indexes, and finding aids, without undue editorial intervention on the part of the receiving institution. For this reason, two recommendations are made regarding the format or structure of the header: first, where there is a choice between a prose content model and one that contains a formal series of specialized elements, wherever possible and appropriate the specialized elements should be preferred to unstructured prose. Second, with respect to corpora, information about each of the texts within a corpus should be included in the overall corpus-level [meiHead](#). That is, source information, editorial practices, encoding descriptions, and the like should be included in the relevant sections of the corpus [meiHead](#), with pointers to them from the headers of the

individual texts included in the corpus. There are three reasons for this recommendation: first, the corpus-level header will contain the full array of bibliographic and documentary information for each of the texts in a corpus, and thus be of great benefit to remote users, who may have access only to the independent header; second, such a layout is easier for the coder to maintain than searching for information throughout a text; and third, generally speaking, this practice results in greater overall consistency, especially with respect to bibliographic citations.

2.6.2 Header Elements and their Relationship to Other Bibliographic Standards

Mapping elements from the MEI metadata header to another descriptive system may help a repository harvest selected data from the MEI file to build a basic catalog record. For this purpose, the following attribute is provided on most `meiHead` elements:

[att.bibl](#) Bibliographic attributes.

@analog contains a reference to a field or element in another descriptive encoding system to which this MEI element is comparable.

The encoding system to which fields are mapped must be specified in **@analog**. When possible, subfields as well as fields should be specified, e.g., subfields within MARC fields.

3 Common Music Notation

3.1 Overview of the CMN Module

The module described in this chapter offers the means to describe music in so-called ‘Common Music Notation’ (CMN, sometimes referred to as ‘Common Western Music Notation’). For this purpose, it provides a number of special elements and adds several attribute classes to elements from the [Shared](#) module.

3.2 Basic Elements of CMN

This section describes the use of basic features of MEI important for encoding CMN material. Most of the elements discussed here are defined in chapter [1 Shared Elements, Models, and Attributes](#) of these Guidelines, but are used in music from the CMN repertoire in specialized ways.

3.2.1 The Role of the Measure Element

Arguably, the most important element of the CMN module is the [measure](#) element. It is used as a structural unit inside [section](#) elements and acts as a container for ‘events’ from the [model.eventLike](#) class, such as notes, chords and rests as well as ‘control events’ from the [model.controleventLike](#) class, such as slurs and indications of dynamics.

The following example demonstrates the use of the [measure](#) element:

```
<section>
  <measure n="1">
    <staff n="1">
      <layer>
        <chord dur="1">
          <note oct="5" pname="c"/>
          <note oct="4" pname="g"/>
          <note oct="4" pname="e"/>
        </chord>
      </layer>
    </staff>
    <staff n="2">
      <layer>
        <note dur="1" oct="3" pname="c"/>
      </layer>
    </staff>
  </measure>
</section>
```

A [measure](#) slices the flow of a score or part into chunks that normally comply with a duration determined by the meter defined within a preceding [scoreDef](#) or [staffDef](#) element. Each staff in the source material is represented by a [staff](#) element. As the order of the staff elements in the file does not have to reflect their order in the original document, to eliminate confusion they should always

refer to a [staffDef](#) element, using either an @n or @def attribute. Whereas the @def attribute uses the xs:anyURI datatype, the @n value refers to the closest preceding [staffDef](#) or [layerDef](#) with the same value in its @n attribute.

```
<staffDef n="3" xml:id="cmn_staffDef1"/>
<!-- later in the file: -->
<staff def="#cmn_staffDef1">
  <!-- @def refers to
           staffDef with this identifier -->
  <!-- staff
           content -->
</staff>
<!-- or: -->
<staff n="3">
  <!-- @n refers to staffDef with this numeric label
           -->
  <!-- staff content
           -->
</staff>
```

Each [staff](#) may hold a number of [layer](#) elements to reflect multiple ‘voices’. Just as with [staff](#), the order of the [layer](#) elements in the file does not have to reflect their original order in the document, so they also possess @n and @def attributes for association with the appropriate layer definition.

```
<staffDef n="3" xml:id="cmn_staffDef1">
  <layerDef n="1" xml:id="cmn_layerDef1"/>
</staffDef>
<!-- later in the file:
-->
<staff def="#cmn_staffDef1">
  <layer def="#cmn_layerDef1">
    <!-- layer content -->
  </layer>
</staff>
<!-- OR: -->
<staff n="3">
  <layer n="1">
    <!-- layer content
           -->
  </layer>
</staff>
```

3.2.2 Defining Score Parameters for CMN

When encoding a score in CMN, MEI relies on the following elements from the [Shared](#) module:

<[scoreDef](#)> (score definition) – Container for score meta-information.

<[staffGrp](#)> (staff group) – A group of bracketed or braced staves.

<[staffDef](#)> (staff definition) – Container for staff meta-information.

<[layerDef](#)> (layer definition) – Container for layer meta-information.

A [scoreDef](#) element is used to specify the common parameters of a score, e.g., key and meter. The most important attributes for this purpose are:

[att.meterSigDefault.log](#) Used by staffDef and scoreDef to provide default values for attributes in the logical domain related to meter signature.

@meter.count captures the number of beats in a measure, that is, the top number of the meter signature.

@meter.unit contains the number indicating the beat unit, that is, the bottom number of the meter signature.

[att.meterSigDefault.vis](#) Used by staffDef and scoreDef to provide default values for attributes in the visual domain related to meter signature.

@meter.sym indicates the use of a meter symbol instead of a numeric meter signature, that is, 'C' for common time or 'C' with a slash for cut time.

[att.keySigDefault.log](#) Used by staffDef and scoreDef to provide default values for attributes in the logical domain related to key signatures.

@key.pname holds the pitch name of the tonic key, e.g. 'c' for the key of C.

@key.accid contains an accidental for the tonic key, if one is required, e.g., if key.pname equals 'c' and key.accid equals 's', then a tonic of C# is indicated.

@key.mode indicates major, minor, or other tonality.

@key.sig indicates where the key lies in the circle of fifths.

The following example describes a score in common time with 3 flats:

```
<scoreDef
  key.sig="3f"
  meter.count="4"
  meter.sym="common"
  meter.unit="4"/>
```

Other attributes allow the description of default page and system margins and fonts for text and music:

[<scoreDef>](#) (score definition) – Container for score meta-information.

@page.width describes the physical width of the rendered output page.

@page.height describes the physical height of the rendered output page.

@page.leftmar indicates the amount of whitespace at the left side of a rendered score page.

@page.topmar indicates the amount of whitespace at the top of a rendered score page.

@page.rightmar	indicates the amount of whitespace at the right side of a rendered score page.
@system.leftmar	describes the amount of whitespace at the left system margin relative to page.leftmar.
@system.topmar	describes the distance from page's top edge to the first system; used for first page only.
@system.rightmar	describes the amount of whitespace at the right system margin relative to page.rightmar.
@music.name	sets the default music font name.
@music.size	sets the default music font size.

There are other attributes that allow the specification of many further details of a score. These are available from the element definitions accessible at [scoreDef](#), [staffDef](#), [staffGrp](#) and [layerDef](#).

When content is provided for [scoreDef](#), it must contain a [staffGrp](#) element. This element is used to group individual staves and other staff groups. This is useful for collecting instrumental or vocal groups in a large score, such as woodwinds, brasses, etc., and for assigning a shared label to the group, using the @label and @label.abbr attributes. The [staffGrp](#) element is also used for the two staves of a grand staff. The @barthru attribute on [staffGrp](#) allows one to specify whether barlines are drawn across the space between staves of that group or only on the staves themselves.

A [staffDef](#) element is used to describe an individual staff of a [score](#) or performer [part](#). It bears most of the attributes described above, including @label and @label.abbr for providing staff labels for the first and subsequent pages.

Every [staffDef](#) must have an @n attribute with an integer as its value. The first occurrence of a [staffDef](#) with a given number must also indicate the number of staff lines via the @lines attribute.

The order of [staffDef](#) elements within [scoreDef](#) follows the order of staves in the source document or planned rendering. The individual [staff](#) elements within a [measure](#) refer to these [staffDef](#) declarations using their own @n attribute values. Therefore, the encoding order of staves within a measure does not have to mimic the order of the [staffDef](#) elements with [scoreDef](#).

In addition to the parameters inherited from [scoreDef](#), the following attributes are important for [staffDef](#) elements:

[att.cleffing.log](#) Used by staffDef and scoreDef to provide default values for attributes in the logical domain related to clefs.

@clef.line	contains a default value for the position of the clef. The value must be in the range between 1 and the number of lines on the staff. The numbering of lines starts with the lowest line of the staff.
@clef.shape	encodes a value for the clef symbol.

@clef.dis records the amount of octave displacement to be applied to the clef.
@clef.dis.place records the direction of octave displacement to be applied to the clef.

A staff with a tenor clef is encoded as in the following example:

```
<staffDef
  clef.dis="8"
  clef.dis.place="below"
  clef.line="2"
  clef.shape="G"/>
```

In the case of transposing instruments, the key-related attributes described above may be used to override the written key expressed in the [scoreDef](#) element. As a basic principle, MEI always captures written pitches, so the **@trans.diat** and **@trans.semi** attributes may be used to indicate the number of diatonic steps and semitones to calculate sounded pitch from written pitch. The piccolo and E \flat clarinet staves in the example below utilize these attributes:

```
<scoreDef meter.count="6" meter.unit="8">
  <!--
    Piccolo sounds 12 semitones higher than written (and encoded in MEI).
  -->

  <staffDef
    clef.line="2"
    clef.shape="G"
    key.mode="major"
    key.sig="4f"
    label="Piccolo"
    label.abbr="Picc."
    lines="5"
    n="1"
    trans.diat="0"
    trans.semi="12"
    xml:id="cmn.P1"/>
  <staffDef
    clef.line="2"
    clef.shape="G"
    key.mode="major"
    key.sig="4f"
    label="Flute"
    label.abbr="Fl."
    lines="5"
    n="2"
    xml:id="cmn.P2"/>
  <staffDef
    clef.line="2"
    clef.shape="G"
    key.mode="major"
    key.sig="4f"
    label="Oboe"
    label.abbr="Ob."
    lines="5"
    n="3"
    xml:id="cmn.P3"/>
  <staffDef
    clef.line="4"
    clef.shape="F"
```

```
key.mode="major"
key.sig="4f"
label="Bassoon"
label.abbr="Bsn."
lines="5"
n="4"
xml:id="cmn.P4"/>
<!-- Clarinet sounds a
      minor third (two diatonic steps or three semitones) higher than written.
-->
<staffDef
  clef.line="2"
  clef.shape="G"
  key.mode="major"
  key.sig="1f"
  label="Clarinet in
        Eb"
  label.abbr="Eb
        Cl."
  lines="5"
  n="5"
  trans.diat="2"
  trans.semi="3"
  xml:id="cmn.P5"/>
</scoreDef>
```

There are a number of additional elements that can be used as children of [staffDef](#) in order to describe additional features of the staff, such as the color of a clef or a key signature added in a different hand. These elements include:

[<clef/>](#) – Indication of the exact location of a particular note on the staff and, therefore, the other notes as well.

[<clefGrp>](#) (clef group) – A set of simultaneously-occurring clefs.

[<keySig>](#) (key signature) – Written key signature.

[<keyAccid/>](#) (key accidental) – Accidental in a key signature.

[<label>](#) – A text string that identifies a staff, staff group, or contentItem.

[<meterSig/>](#) (meter signature) – Written meter signature.

With the exception of [label](#), these elements may also occur within the flow of musical events captured in a [layer](#), since they are members of [model.eventLike](#). Here, they function as milestones and affect all content following in that particular layer (which includes subsequent measures) until their information is again overridden either by the same element bearing different information or a [staffDef](#) or [scoreDef](#). In this context, it is also possible to combine them with the elements described in chapters [9 Critical Apparatus](#) and [10 Editorial Markup](#) of these Guidelines.

Such flexibility as this may require close inspection of an encoding to retrieve the correct definitions for a given staff. As a general rule, the closest preceding and most specific element provides this information: For example, a [keySig](#) in the preceding measure is more relevant than a [staffDef](#) at the beginning of the section, which is more relevant than a [scoreDef](#) at the beginning of the score.

However, a section-specific [scoreDef](#) that provides only information about the meter does not override the more specific information about key signature gathered from a [staffDef](#) for a transposing instrument.

Every [staffDef](#) may contain a number of [layerDef](#) elements, which may be used to establish default values for the distinct layers sharing one staff. MEI does not use the term ‘voice’ to describe these ‘musical threads’ because that term implies continuity across measure boundaries. Given the sometimes arbitrary relationships between these threads from measure to measure as well as across staves, MEI uses the more neutral term ‘layer’.

3.2.3 Redefinition of Score Parameters

Sometimes it is necessary to provide the parameters of a score or a staff with new values. For example, a score may change keys, gain or lose staves, use different layout settings at any point, etc. Likewise, a staff may change its clef, gain or lose layers, or become invisible, and so on. To accommodate these circumstances, in CMN [staffDef](#) is allowed to occur in the following locations:

- within the description of staff groups; that is, in [staffGrp](#),
- within the content of a [measure](#),
- between measures; that is, directly within [section](#) and [ending](#) elements, and
- between sections and endings; that is, directly within a [score](#) or [part](#) element.

In addition, [scoreDef](#) is allowed to occur:

- within sections and endings; that is, inside [section](#) and [ending](#) elements; and
- between sections and endings; that is, directly within a [score](#) or [part](#).

The possibility also exists to include [scoreDef](#) and [staffDef](#) in staves and layers when the mei-all schema is in use; however, this practice is not recommended for the CMN repertoire.

3.2.4 Notes, Chords and Rests in CMN

3.2.4.1 Notes

Undoubtedly, the most important element for any music notation representation is the [note](#) element, which is defined in section [1.2.3 Basic Music Events](#). This section describes the usage of [note](#) in the CMN repertoire as well as CMN-specific additions to the basic definition in the shared module.

3.2.4.1.1 Basic Usage of Notes in CMN

In CMN, notes are determined by three basic parameters:

- pitch name (using @pname)

- octave (using @oct)
- duration (using @dur)

A typical note, in this case a quarter note C4, is therefore encoded like so:

```
<note dur="4" oct="4" pname="c" />
```

Because these attributes may not be required in all situations (such as @dur for the notes of a chord), processing software should anticipate retrieving the information that would have been provided by missing attributes from a preceding note or [chord](#) parent in the same [layer](#). Only information from @pname, @oct and @dur attributes can be gathered in this fashion. No other attributes can be treated this way.

The usual CMN-specific values for @dur are:

- **1** whole note
- **2** half note
- **4** quarter note
- **8** eighth note
- **16** sixteenth note
- ...
- **2048** 2048th note

Additionally, the following two values borrowed from mensural notation are allowed, as they sometimes also appear in CMN:

- **breve** double whole
- **longa** quadruple whole

Please note that their mensural counterparts bear different names in order to clearly distinguish between repertoires.

Dotted durational values are accommodated by the @dots attribute, which records the number of written augmentation dots:

```
<note  
  dots="1"  
  dur="4"  
  oct="4"  
  pname="c" />
```

3.2.4.1.2 Grace Notes

The CMN module adds two optional attributes, @grace and @grace.time, to [note](#) and [chord](#). The presence of the @grace attribute indicates a grace note.

Figure 1. Grace notes



The encoding of the left-most example would look like this:

```
<beam>
  <note
    dur="8"
    oct="5"
    pname="d"
    stem.dir="down"/>
  <note
    dur="8"
    grace="acc"
    oct="5"
    pname="e"
    stem.dir="up"/>
  <note
    dur="8"
    oct="5"
    pname="d"
    stem.dir="down"/>
  <note
    accid="s"
    dur="8"
    grace="acc"
    oct="5"
    pname="c"
    stem.dir="up"/>
  <note
    dur="8"
    oct="5"
    pname="d"
    stem.dir="down"/>
  <note
    dur="8"
    oct="4"
    pname="b"
    stem.dir="down"/>
</beam>
```

Grace notes are not counted when determining the measure's conformance to the current time signature. Therefore, the @dur attribute records only the *written* rhythmic value of the grace note. The time necessary for the performance of grace notes can be unspecified, calculated based on taking time from other non-grace notes, or specified precisely using the @dur.ges attribute.

The values of @grace indicate from which note time is 'borrowed' to perform the grace note: The preceding note, in which case the value 'unacc' (unaccented) is used, or the following note, when the value 'acc' (accented) is appropriate. Technically, this value determines if the note following the grace will keep its original onset time or will be slightly delayed to allow the grace note itself to be accented. Sometimes it is not clear how to perform a grace; in these situations the value 'unknown' allows one to indicate a grace note while unambiguously stating that its performed duration remains unknown.

The @grace.time attribute is only to be used in combination with the @grace attribute. It records the amount of time (as a percentage of the written duration) that the grace note should 'steal' from the preceding note (when @grace='unacc') or the following note (when @grace='acc').

More information about grace notes in the context of other CMN ornaments is available in chapter [7 Common Music Notation Ornaments](#).

3.2.4.1.3 Stem Modifications

The CMN module makes the [att.stemmed.cmn](#) attribute class available, which adds the optional @stem.mod and @stem.with attributes to [note](#) and [chord](#).

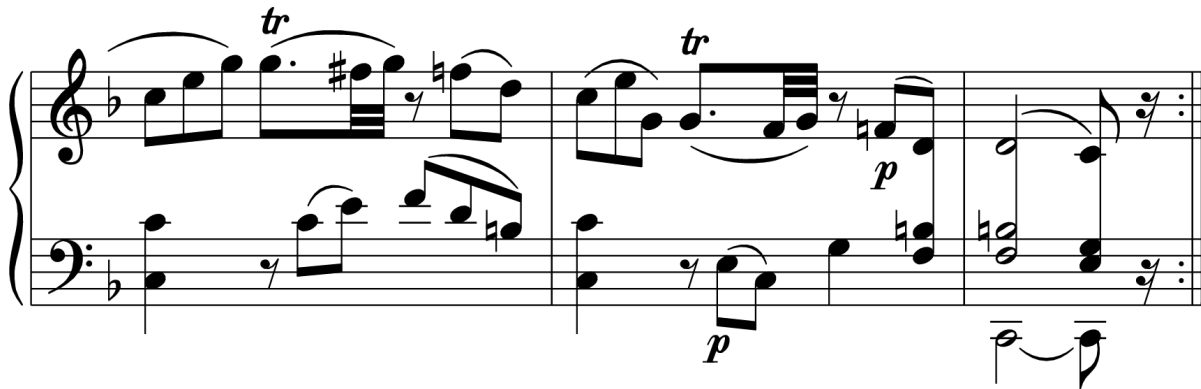
The @stem.mod attribute accommodates various stem modifiers found in the CMN repertoire. These symbols are placed on a note or chord's stem and generally indicate different types of tremolo and Sprechstimme. The following values are allowed:

- **1slash** 1 slash through stem
- **2slash** 2 slashes through stem
- **3slash** 3 slashes through stem
- **4slash** 4 slashes through stem
- **5slash** 5 slashes through stem
- **6slash** 6 slashes through stem
- **sprech** X placed on stem
- **z** Z placed on stem

The @stem.mod attribute is normally used in accordance with practices described in section [3.3.5.3 Tremolandi](#).

The attribute @stem.with allows for the indication of a stem that joins notes on adjacent staves.

Figure 2. Cross-staff chord



The following code snippet demonstrates the encoding of the first chord in the last measure in the image above. The `@stem.with` attribute must occur on all the notes or chords attached to the cross-staff stem.

```
<staff n="1">
  <layer n="1">
    <note
      dur="2"
      oct="4"
      pname="d"
      stem.with="below"/>
  </layer>
</staff>
<staff n="2">
  <layer n="1">
    <chord dur="2" stem.with="above">
      <note accid="n" oct="3" pname="b"/>
      <note oct="3" pname="f"/>
    </chord>
  </layer>
</staff>
```

Alternatively, the encoder may choose to treat the notes in the lower staff as belonging to the first one and to ‘displace’ them using the @staff attribute. Doing this, however, requires filling the time that those notes would normally occupy using the [space](#) element described in section [1.2.4.5 Event Spacing](#). Using this mechanism, the example above could also be encoded like so:

```
<staff n="1">
  <layer n="1">
    <chord dur="2">
      <note oct="4" pname="d"/>
      <note
        accid="n"
        oct="3"
        pname="b"
        staff="2"/>
      <note oct="3" pname="f" staff="2"/>
    </chord>
  </layer>
</staff>
<staff n="2">
  <layer n="1">
```

```
<space dur="2"/>
<!-- following content -->
</layer>
</staff>
```

The choice between these two methods of representing material that crosses staves is often software-dependent.

3.2.4.2 Rests

The @dur attribute on [rest](#) captures the written duration of the rest and allows the same values as on [note](#) and [chord](#). The CMN module also makes three more elements available for special forms of rest:

[<mRest/>](#) (measure rest) – Complete measure rest in any meter.

[<multiRest/>](#) (multiple rest) – Multiple measures of rest compressed into a single symbol, frequently found in performer parts.

[<mSpace/>](#) (measure space) – A measure containing only empty space in any meter.

3.2.4.2.1 Measure Rests

The [mRest](#) (measure rest) element is used to indicate a complete measure rest, independent from the meter of the current [measure](#).

The @cutout attribute provides for the description of the rendition of the [mRest](#). If @cutout is set to 'cutout' (the only value allowed), then the complete staff including the staff lines will not be rendered for this measure.

Figure 3. Measure rest


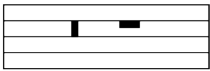
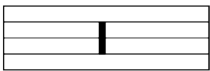

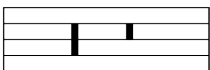


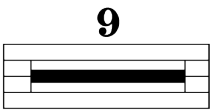
```
<staff>
  <layer>
    <mRest cutout="cutout"/>
  </layer>
</staff>
```

It is a semantic error to mix an [mRest](#) with other events in the same [layer](#). However, other 'control events', such as [fermata](#), may be used at the same time as [mRest](#).

3.2.4.2.2 Multiple-Measure Rests

The [multiRest](#) (multiple measure rest) element is used to encode multiple measures of rest. It is commonly used in performer parts, but due to the problem of synchronicity with other staves, it is never found in scores. A numeric value, stored in the @num attribute, indicates the number of resting measures. The various visual forms displayed below are not captured by [multiRest](#), but may be created by rendering software.

Figure 4. Forms of multiple measure rests

2 measures		double whole-rest in third space
3 measures		two-measure rest plus whole rest
4 measures		two double whole-rests joined as one in second and third spaces
5 measures		four-measure rest plus whole rest
6 measures		four-measure rest plus two-measure rest
7 measures		four-measure rest plus two-measure rest plus whole rest
8 measures		two four-measure rests
9 measures and longer		thick horizontal bar on third line with vertical ends plus large numeral above or below staff

```
<staff>
  <layer>
    <multiRest num="9"/>
  </layer>
</staff>
```

3.2.4.2.3 Empty Measures

The [mSpace](#) (measure space) element is closely related to the [space](#) and [mRest](#) elements. It is used to explicitly indicate that a layer has no content and that no information is missing from the encoding.

Figure 5. Empty measure



```
<measure n="2">
  <staff>
    <layer>
      <mSpace/>
    </layer>
  </staff>
</measure>
```

3.2.5 Timestamps and Durations

MEI offers multiple ways of defining onsets and offsets of timed musical events like notes and slurs. The most common and most musician-friendly approach to this is through the use of a combination of the attributes `@tstamp` and `@dur`, which are made available by the attribute classes [att.timestamp.musical](#) (inherited by [att.controlevent](#)) and [att.duration.musical](#), both from the shared module.

The timestamp (`@tstamp`) of a musical event is calculated in relation to the meter of the current measure and resembles the so-called 'beat'. In a common time measure with four quarter notes, the timestamp of each quarter equals its beat position in the measure: The first quarter has a timestamp of 1, the second has a timestamp of 2, and so on. MEI defines the value of `@tstamp` as a real number; the second eighth note position in a measure would thus be represented by the value of "1.5". The range of possible values is defined as starting with zero and ending with the number of metrical units in a measure (the 'numerator' in a time signature) + 1. This allows the capture of all graphical positions starting from the left barline ('0') and ending with the right barline of the measure ('5', in the case of 4/4 time).

For expressing durations, MEI offers two separate attributes which permit distinctly different values, however both named `@dur`. The first model for `@dur` attributes indicates the duration of events in the [model.eventLike](#) class, such as [note](#), [chord](#) or [rest](#). This attribute is described in section [3.2.4.1.1 Basic Usage of Notes in CMN](#). For 'spanning' elements like slurs, which are members of the [model.controleventLike](#) class, different `@dur` values are provided. Its datatype is constrained to values following the formula " $xm+y$ ", where x is the number of full measures that this particular feature lasts (or the number of bar lines crossed) and y is the timestamp in the target measure where the

feature ends. The timestamp is expressed using the same logic as described above. For example, a value of "0m+3" in 4/4 time indicates that the element bearing this attribute, a slur for example, ends on beat 3 of the same measure where it started. A value of "1m+1.5" would indicate an end on the second eighth note of the following measure. In 6/8 time, the value "2m+3" means that the feature ends two measures later on the third eighth note.

3.3 Advanced CMN Features

Over time, in addition to the basic features of note, chord, and rest, many other symbols have been added to CMN. The following section describes some of these symbols and introduces their handling in MEI.

3.3.1 Beams

A very common feature of music from the CMN repertoire is the beaming of eighth or shorter notes. MEI provides two elements for the explicit encoding of features joined by beams.

[<beam>](#) – A container for a series of explicitly beamed events that begins and ends entirely within a measure.

[<beamSpan/>](#) (beam span) – Alternative element for explicitly encoding beams, particularly those which extend across bar lines.

Use of the [beam](#) element is straightforward. The beamed notes, rests, or chords are simply enclosed by the [beam](#) element:

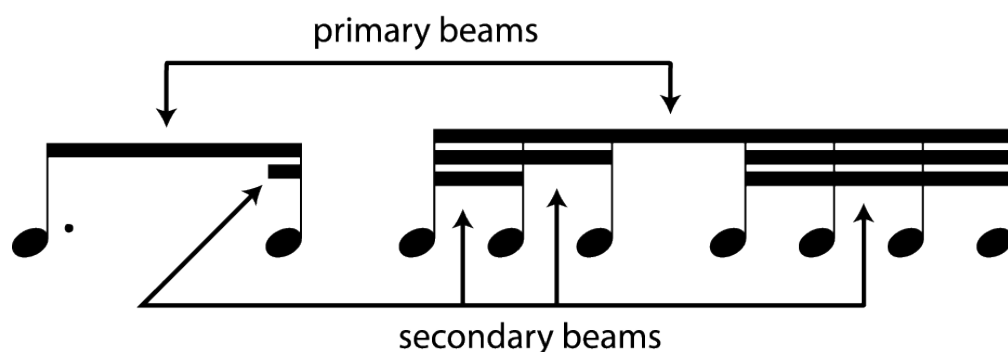
```
<layer>
  <beam>
    <note dur="8"/>
    <note dur="8"/>
  </beam>
</layer>
```

Whereas in music notation every note value shorter than an eighth adds another beam (sometimes referred to as 'secondary beams'), in MEI only one beam element is used, no matter the durations of the contained notes. The visual rendition of a set of beamed notes is presumed to be handled by rendering processes.

```
<layer> ... <beam>
  <note dur="16"/>
  <note dur="32"/>
  <note dur="32"/>
  <note dots="1" dur="16"/>
  <note dur="32"/>
</beam> ... </layer>
```

From the 19th century onwards, it became quite common to break secondary beams to increase readability of longer beamed passages. The optional `@breaksec` attribute on [notes](#) and [chords](#) under the beam may be used to encode the breaking of secondary beams *after* the note or chord bearing the attribute. The value of `@breaksec` indicates the number of continuous beams. For example:

Figure 6. Primary and secondary beams



```
<layer>
<beam>
  <note dots="1" dur="8"/>
  <note dur="16"/>
</beam>
<beam>
  <note dur="32"/>
  <note dur="32"/>
  <note breaksec="1" dur="16"/>
  <note dur="32"/>
  <note dur="32"/>
  <note dur="32"/>
  <note dur="32"/>
</beam>
</layer>
```

In the music of the second half of the 20th century, it is quite common to indicate acceleration or deceleration using converging beams as in the image below:

The encoding of such a beam is accomplished using the `@rend` attribute of the beam, which allows the following values:

- **acc** The secondary beams start in their usual position and gradually converge until they meet with the primary beam on the last note (or, the first eighth note under the beam).
- **rit** The secondary beams gradually diverge until they reach their regular distance.
- **mixed** The secondary beams diverge and converge arbitrarily.
- **norm** The beam is rendered as usual (default).

```

<layer>
<!-- ... -->
<beam rend="acc">
  <note dur="8"/>
  <note/>
  <note/>
  <note/>
  <note dur="32"/>
</beam>
<!-- ... -->
</layer>

```

The duration of notes, rests, or chords under a beam which carries the @rend attribute with a value of 'acc', 'rit', or 'mixed' must be treated specially. The first and last contained elements must specify a duration which matches the number of beams displayed at the point of these events. In the case of a 'mixed' beam, each event at the point of change in the number of secondary beams must carry a @dur attribute. Beams like this may be encoded thusly:

Figure 7. Accelerando beams

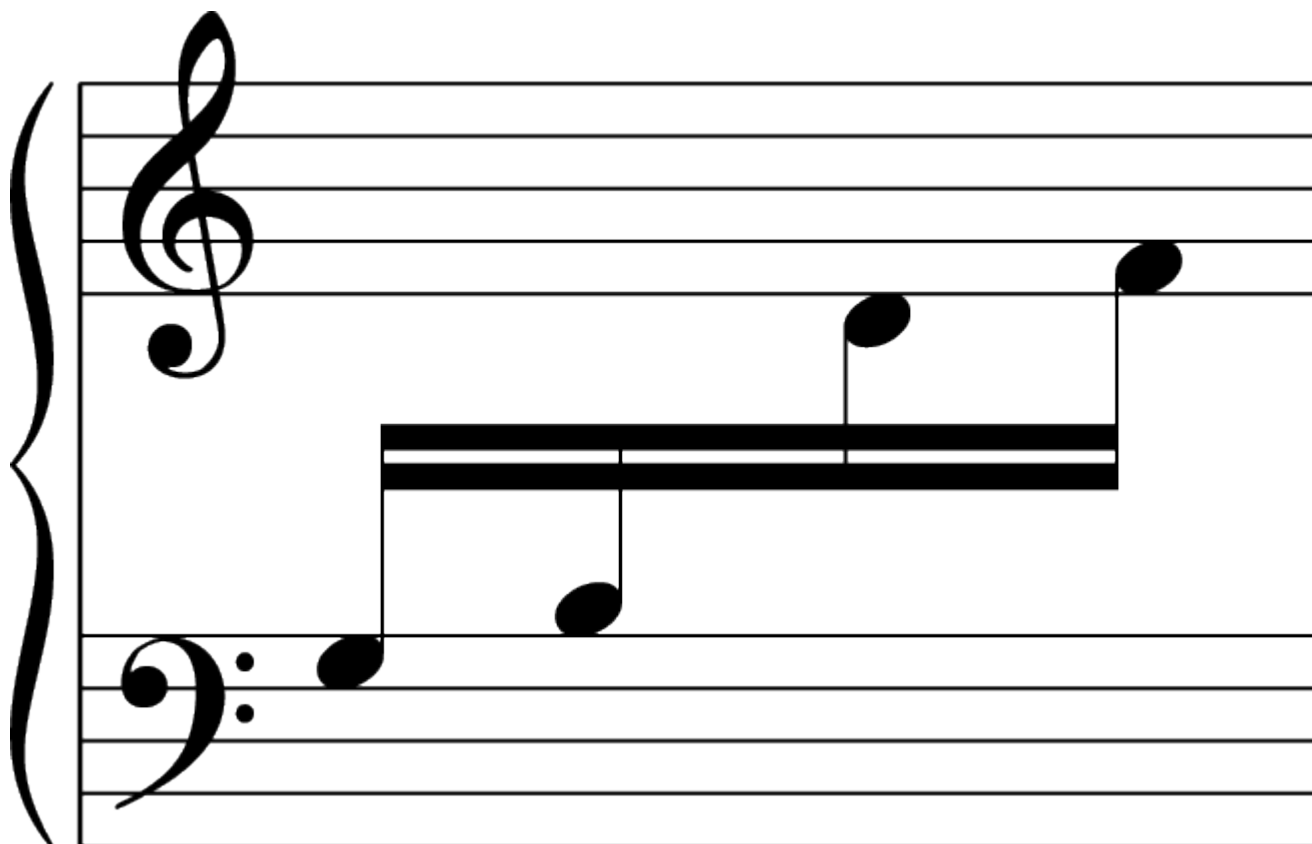


```

<layer>
<!-- ... -->
<beam rend="mixed">
  <note dur="8"/>
  <note dur="8"/>
  <note/>
  <note/>
  <note/>
  <note dur="32"/>
</beam>
<beam rend="mixed">
  <note dur="32"/>
  <note/>
  <note/>
  <note/>
  <note/>
  <note dur="8"/>
  <note dur="8"/>
</beam>
<!-- ... -->
</layer>

```

Figure 8. Cross-staff beam



Due to the potential problem of creating overlapping hierarchies, the [beam](#) element only allows the encoding of beams that do not cross barlines. When beams cross barlines, the use of the [beamSpan](#) element is required. Unlike [beam](#), the [beamSpan](#) element does not contain the beamed notes as its children. Instead, it references the @xml:id values of all affected notes in its @plist attribute and denotes the initial and terminal notes of the beam using @startid and @endid attributes. This configuration allows beams to cross measures and even staves. The following example demonstrates a typical example of such hierarchy-crossing beams:

```
<beamSpan endid="#note4" plist="#note1
          #note2 #note3 #note4" startid="#note1"/>
```

Beams may also be encoded using the @beam and @beam.with attributes. These features are useful when a single-pass encoding style is desired.

In addition to the explicit encoding of beams accommodated by the [beam](#) and [beamSpan](#) elements and the @beam attribute, MEI allows for specification of default beaming behavior using the following attributes on [scoreDef](#), [staffDef](#), and [layerDef](#):

- **@beam.group** Provides an example of how automated beaming (including secondary beams) is to be performed.

- **@beam.rests** Indicates whether automatically-drawn beams should include rests shorter than a quarter note duration.

The `@beam.group` attribute can be used to set a default beaming pattern to be used when no beaming is indicated at the layer level. It must contain a comma-separated list of time values that add up to a measure, e.g., '4,4,4,4' in 4/4 time indicates that each quarter note worth of shorter notes should be beamed together. Parentheses can be used to indicate sub-groupings of secondary beams. For example, '(4.,4.,4.)' in 9/8 meter indicates one primary beam per measure with secondary beams broken at each dotted quarter duration, while '(4,4),(4,4)' in 4/4 will result in a measure of 16th notes being rendered with a primary beam covering all the notes and secondary beams for each group of four 16th notes.

The `@beam.group` attribute is available on [scoreDef](#), [staffDef](#), and [layerDef](#) elements, making it possible to set different beaming patterns for each of these. Also, the beaming pattern can be changed anywhere score parameters may be changed, for example, at the start of sections. This beaming "directive" can be overridden by using [beam](#), [beamSpan](#), or `@beam` attributes as described above. If none of these beaming specifications is used, then no beaming is implied. Default beaming can be explicitly 'turned off' by setting `@beam.group` to an empty string.

3.3.2 Ties, Slurs and Phrase Marks

One of the most specific features of CMN is the use of 'curved lines' which connect notes. These lines are used to indicate various musical features, depending on their context.

A tie is a curved line connecting **two** notes of the **same pitch**. The purpose of a tie is to join the durations of both notes, so that the first note sounds for the combined duration. In other words, there is only one onset for both notes.

In MEI, ties can be encoded in different ways, depending on the level of detail that the encoder wants to preserve. The simplest solution is to use the `@tie` attribute found on [note](#) and [chord](#).

```
<note
  dur="2"
  oct="4"
  pname="f"
  tie="i"/>
<note
  dots="1"
  dur="4"
  oct="4"
  pname="f"
  tie="t"/>
```

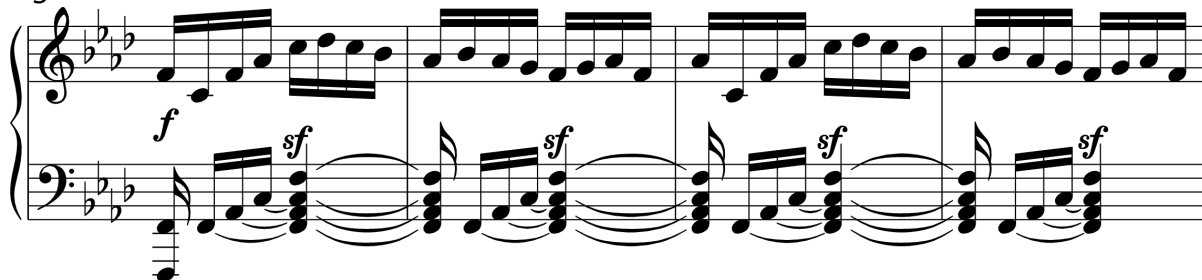
This attribute allows three values:

- ***i* (initial)** Marks the start of a tie
- ***m* (medial)** Marks a participant in a tie other than the first or last

- **t (terminal)** Marks the end of a tie

The scope of the @tie attribute is the musical [layer](#); that is, a tie started in one layer may only be ended by a subsequent musical event with a @tie attribute with an *m* or *t* value in the same layer. The tie-terminating event may lie in the following measure.

Figure 9. Ties across barlines



```
<measure n="1">
<!-- staff 1 omitted -->
<staff n="2">
  <layer n="1">
    <chord dur="16"/>
    <beam>
      <note pname="f" tie="i"/>
      <note pname="a" tie="i"/>
      <note pname="c" tie="i"/>
    </beam>
    <chord dur="4">
      <note pname="f" tie="i"/>
      <note pname="c" tie="m"/>
      <note pname="a" tie="m"/>
      <note pname="f" tie="m"/>
    </chord>
  </layer>
</staff>
</measure>
<measure n="2">
<!-- staff
      1 omitted -->
<staff n="2">
  <layer n="1">
    <chord dur="16">
      <note pname="f" tie="t"/>
      <note pname="c" tie="t"/>
      <note pname="a" tie="t"/>
      <note pname="f" tie="t"/>
    </chord>
  </layer>
</staff>
</measure>
<!-- measures 3
      and 4 omitted -->
```

When @tie is used on chords, it functions as a shorthand indication for multiple tie markings; that is, a separate tie is drawn for every pitch in the chord that remains unchanged in the succeeding chord.

```

<layer>
  <chord dur="4" tie="i">
    <note pname="f"/>
    <note pname="c"/>
    <note pname="a"/>
  </chord>
  <chord dur="4" tie="t">
    <note pname="f"/>
    <note pname="c"/>
    <note pname="a"/>
  </chord>
</layer>

```

This is equivalent to the following, more verbose version:

```

<layer>
  <chord dur="4">
    <note pname="f" tie="i"/>
    <note pname="c" tie="i"/>
    <note pname="a" tie="i"/>
  </chord>
  <chord dur="4">
    <note pname="f" tie="t"/>
    <note pname="c" tie="t"/>
    <note pname="a" tie="t"/>
  </chord>
</layer>

```

A slur is a curved line that connects a **group of notes** of different pitch. It normally denotes that the affected notes are to be played legato.

Figure 10. Slurs



In MEI, slurs may be encoded in a very similar way to ties: [note](#) and [chord](#) bear a @slur attribute that allows the commencement or ending of a slur at this element. The allowed values, however, are slightly different: The *i*, *m* or *t* are followed by a single digit in the range 1 to 6, as in the following example:

```

<note
  accid="s"
  dur="4"
  oct="4"
  pname="f"
  slur="i1"/>
<note
  dur="4"
  oct="4"
  pname="g"

```

```
    slur="m1"/>
<note
  dur="4"
  oct="4"
  pname="a"
  slur="t1"/>
```

The reason for this difference is that slurs, unlike ties, may overlap, so that a second slur may start while the first slur is still ongoing. The digit indicates the level of nesting of slurs on the note; '1' indicates no nesting, while '2' indicates the existence of 2 slurs in which this note participates, and so on. In the example below, the second and third quarter notes lie under 2 slurs. The second note is covered by the slur that begins on the preceding note and by the one that it starts. The third note is affected by the slur that begins on note one and by the one that starts on note two.

```
<layer>
  <note
    dur="2"
    oct="4"
    pname="g"
    slur="i1"/>
  <note
    dur="8"
    oct="4"
    pname="a"
    slur="i2"/>
  <note
    dur="8"
    oct="4"
    pname="g"
    slur="t2"/>
  <note
    accid="s"
    dur="4"
    oct="4"
    pname="f"
    slur="t1"/>
</layer>
<layer>
  <note
    dots="1"
    dur="2"
    oct="3"
    pname="b"
    slur="i1"/>
  <note
    dur="4"
    oct="4"
    pname="d"
    slur="t1"/>
</layer>
```

While ties are not normally allowed to cross layers or staves, slurs may. The following example demonstrates how cross-staff slurs may be encoded using the @slur attribute:

```
<staff>
  <layer>
```



```

<note
  dur="2"
  oct="4"
  pname="g"
  slur="i1"/>
<note
  dur="8"
  oct="4"
  pname="a"
  slur="m1"/>
<note
  dur="8"
  oct="4"
  pname="g"
  slur="m1"/>
<note
  accid="s"
  dur="4"
  oct="4"
  pname="f"
  slur="m1"/>
</layer>
</staff>
<staff>
<layer>
  <note
    dots="1"
    dur="2"
    oct="3"
    pname="b"
    slur="t1"/>
    <note dur="4" oct="4" pname="d"/>
  </layer>
</staff>

```

To support analytical operations, @slur may take on more than one value. For example, the example above may be more explicitly encoded as:

```

<layer>
  <note
    dur="2"
    oct="4"
    pname="g"
    slur="i1"/>
  <note
    dur="8"
    oct="4"
    pname="a"
    slur="m1 i2"/>
  <note
    dur="8"
    oct="4"
    pname="g"
    slur="m1
      t2"/>
  <note
    accid="s"
    dur="4"
    oct="4"
    pname="f"
    slur="t1"/>
</layer>
<layer>

```

```
<note
  dots="1"
  dur="2"
  oct="3"
  pname="b"
  slur="i1"/>
<note
  dur="4"
  oct="4"
  pname="d"
  slur="t1"/>
</layer>
```

Slurs and ties that cross system or page breaks are often split into two separate symbols for rendering. One slur or tie ends at the last barline, another one starts at the begin of the new system. MEI expects this to be the default rendering behaviour, so that in situations like these, the regular @tie or @slur attributes are sufficient to describe both curved lines resulting from the split.

Sometimes, however, one of these two symbols is missing in the document, or the encoder wants to provide additional information about the slur or tie. In these cases, using an attribute is not an adequate solution. Therefore, MEI offers dedicated [tie](#) and [slur](#) elements. A third element, [phrase](#), is used to identify a unified melodic idea (in German: *Phrasierungsbogen*), whereas the [slur](#) element is used as a generic element for all curved lines (in German: *Bogensetzung*) except ties. All three elements have nearly identical models.

Although these elements are allowed within a [layer](#) to accommodate unmeasured notation, by convention in CMN they are normally placed inside [measure](#), after the encoding of staves, alongside other so-called ‘control events’.

```
<measure>
<staff n="1">
  <layer>
    <note dur="4" oct="5" pname="c"/>
    <note dur="4" oct="4" pname="f"/>
    <note dur="4" oct="4" pname="g"/>
    <note dur="4" oct="4" pname="c"/>
  </layer>
</staff>
<slur/>
</measure>
```

Obviously, the slur in the above example needs to be ‘attached’ to the notes somehow. The ‘vertical assignment’ can be indicated for the example above using the @staff and @layer attributes like so:

```
<slur layer="1" staff="1"/>
```

For the ‘horizontal assignment’, the encoder may choose between two different mechanisms. The first uses timestamp and duration as described in section [3.2.5 Timestamps and Durations](#). The start and end points of the slur may be indicated thusly:

```
<slur
  dur="@m+4"
  layer="1"
  staff="1"
  tstamp="1"/>
```

By using @tstamp and @dur, the encoder denotes a rather loose connection – the slur (or tie) is attached to a certain position in the measure, not to a specific note or chord. If the encoder wants to specify a close connection to a particular event, the @startid and @endid attributes may be used instead. Here, the @xml:ids of the first and last note of the slur are referenced. This mechanism also allows the crossing of layers and staves, as in the following example:

For human readability, it is recommended to encode [slur](#), [tie](#) and [phrase](#) features that use @startid and @endid in the [measure](#) where they begin; that is, in the measure that holds the element referenced by @startid. On the other hand, for machine processability, it may be desirable to place [slur](#), [tie](#), and [phrase](#) elements in the measure *where they end* or even in the *last measure* regardless of their begin and end points in the music. Doing so makes all references contained within these elements ‘back references’. Back references are necessary when using processing software that treats the encoded file as a stream; that is, programs that process the file without creating an in-memory representation of its contents.

When using the [tie](#), [slur](#) or [phrase](#) elements, the curvature of the line may be described using the @curvedir, @bulge and @bezier attributes. Whereas the first attribute allows only specification of the slur's vertical placement, the others give increasingly more precise control of the curve.

A reason for using elements instead of attributes for ties, slurs, and phrase marks is that only elements may be combined with the functionality provided in chapters [10 Editorial Markup](#) and [9 Critical Apparatus](#) of these Guidelines.

If the encoder wishes to draw attention to the appearance of a slur or tie in a given source, the @facs attribute may be used instead of (or in addition to) the curve description attributes to point to a graphic image or a zone within an image (see [11 Facsimiles](#)).

3.3.3 Dynamics in CMN

Common Music Notation provides two different methodologies for expressing the degree of loudness of a note, phrase, section, etc. The first is a verbal instruction providing such information in human language, possibly in an abbreviated form. An example is the word piano, meaning a quiet volume, often abbreviated as p. In MEI, verbal instructions like this are encoded using the [dynam](#) element from the Shared module (see chapter [1 Shared Elements, Models, and Attributes](#)):

```
<dynam>p</dynam>
```

By convention, [dynam](#) elements, like [slur](#) and other elements belonging to the [model.controleventLike](#) class, are encoded at the end of the [measure](#) to which they belong. This requires [dynam](#) to be assigned to a certain [staff](#) using the @staff attribute, which refers to the target element's @n attribute.

```
<dynam staff="1">p</dynam>
```

When the layers of a staff have different dynamic indications, the @layer attribute may be used to associate the dynamic marking with a particular layer:

```
<dynam layer="1" staff="1">p</dynam>
<dynam layer="2" staff="1">mf</dynam>
```

The location of a dynamic marking in relation to a staff may be specified using the @place attribute, which may be given as *above*, *within* or *below* the staff:

```
<dynam place="above" staff="1">p</dynam>
```

Dynamics must also be associated with a particular time point in a measure, using the @tstamp or @startid attributes as described in section [3.2.5 Timestamps and Durations](#):

```
<measure>
  <staff n="1">
    <!--           content omitted -->
  </staff>
  <staff n="2">
    <layer n="1">
      <note
        dur="2"
        oct="4"
        pname="c"
        stem.mod="2slash"/>
      <note
        dur="2"
        oct="4"
        pname="e"
        stem.mod="2slash"/>
    </layer>
    <layer n="2">
      <!--           content omitted -->
    </layer>
  </staff>
  <dynam
    layer="1"
    place="above"
    staff="2"
    tstamp="1">p</dynam>
  <dynam
    layer="1"
```

```

    place="above"
    staff="2"
    tstamp="2.5">cresc.
        poco a poco</dynam>
</measure>

```

Dynamics which do not have an explicit endpoint are often referred to as ‘instantaneous’. On the other hand, some dynamic directions indicate a continuous change that must have a defined end point. It is possible to specify the logical scope of continuous dynamic marks using the attributes @dur or @endid. In order to capture the fact that they continue until the first beat of the next measure, the crescendo in the example above may be marked:

```

<!-- using the dur attribute --><dynam
    dur="1m+1"
    place="above"
    staff="2"
    tstamp="2.5">cresc.
        poco a poco</dynam>
<!-- using the endid attribute -->
<dynam
    endid="ID of ending
        note"
    place="above"
    staff="2"
    tstamp="2.5">cresc.
        poco a
poco</dynam>

```

Any combination of @tstamp, @startid, @dur, and @endid attributes may be used to define the scope of a dynamic, although the @tstamp and @dur or the @startid and @endid combinations are the most common combinations. For example, the following alternatives are all possibilities for marking up a crescendo. The exact choice of attributes is often processor dependent.

```

<!-- tstamp attribute indicates
    starting point, dur attribute marks the end --><dynam
    dur="1m+1"
    place="above"
    staff="2"
    tstamp="2.5">cresc.
        poco a poco</dynam>
<!-- tstamp attribute indicates starting point, endid attribute marks the end
    -->
<dynam
    endid="ID of last note"
    place="above"
    staff="2"
    tstamp="2.5">cresc.
        poco a
poco</dynam>
<!-- startid attribute indicates starting point, dur attribute marks the end
    -->
<dynam
    dur="1m+1"
    place="above"
    staff="2"
    startid="ID of starting

```

```
        note">cresc. poco a
poco</dynam>
<!-- startid attribute indicates
      starting point, endid attribute marks the end -->
<dynam
  endid="ID of ending
        note"
  place="above"
  staff="2"
  startid="ID of starting
        note">cresc. poco a poco</dynam>
```

All musical elements affected by the [dynam](#) may be explicitly specified using the @plist attribute, which contains @xml:id attribute values:

```
<dynam
  endid="#note4"
  place="above"
  plist="#note1 #note2 #note3
        #note4"
  staff="2"
  startid="#note1">cresc. poco a poco</dynam>
```

Since the @plist attribute's use is primarily analytical and the tstamp/startid and dur/endid attributes are often used for rendering, it is recommended that the list of references in @plist include all participants in the dynamic marking, including the first and last notes as in the preceding example, even though they are also referenced by @startid and @endid attributes.

In addition to verbal instructions, Common Music Notation uses graphical symbols to indicate 'continuous' dynamics. These crescendo and decrescendo (or diminuendo) symbols are encoded in MEI using the [hairpin](#) element. It also is a member of the [model.controleventLike](#) class, which means it too is used just before the close of a [measure](#) element, following the encoding of all staves. The required attribute @form specifies the direction of the symbol by taking one of two possible values: *crescendo* (louder) or *diminuendo* (softer).

```
<hairpin form="cres"/>
```

Positioning of hairpins is possible using the same attributes as for [dynam](#), so the example above could be encoded as:

```
<hairpin
  dur="1m+1"
  form="cres"
  layer="1"
  place="above"
  staff="2"
  tstamp="2.5"/>
```

3.3.4 Tuplets

Tuplets indicate a localized change of meter; that is, a given duration in the regular meter is divided between a group of notes with irregular (according to the current meter) rhythmic values. The most common tuplet is a so-called ‘triplet’, in which three notes take the time normally occupied by two.

The relation of the tuplet to the underlying meter is specified using the `@num` and `@numbase` attributes, where `@num` specifies the number of replacing notes and `@numbase` specifies the number of notes *of the same duration* to be replaced. For example, when three eighth notes replace one quarter note in common time, `@num` takes a value of "3", whereas `@numbase` reads "2", because a quarter note in common time is normally divided into two eighths. When three quarters replace two in the same meter, `@numbase` also reads "2". The combination of these attributes may be read as "3 (notes) in the time of 2 (notes)" in either case.

The duration of the entire tuplet may be encoded using the usual ‘power of 2’ values, e.g., 1, 2, 4, etc., in the `@dur` attribute.

```
<layer>
<tuplet dur="2" num="3" numbase="2">
  <note dur="4" oct="4" pname="g"/>
  <note
    accid="s"
    dur="4"
    oct="4"
    pname="f"/>
  <note dur="4" oct="4" pname="g"/>
</tuplet>
<note dur="2" oct="4" pname="d"/>
</layer>
```

Tuplets are often highlighted using brackets above or below the affected notes. The presence and position of these brackets can be encoded using the `@bracket.place` (above / below) and `@bracket.visible` (true / false) attributes.

A number or ratio may be given in addition to, or in some cases as a replacement for, the bracket. The `@num.format` attribute indicates whether a plain number (the value of `@num`) or a ratio (comprised of `@num` and `@numbase`, e.g., "3:2") should be displayed and `@num.visible` indicates the general presence of such a number. Usually, however, tuplets are rendered with a bracket (`@bracket.visible="true"`) and a single number (`@num.format="count"` and `@num.visible="true"`).

Beside [note](#) elements, [tuplet](#) may contain other elements, such as [rest](#) or [space](#), to match the content of a source document or an intended rendering. In particular, the [beam](#) element is allowed so that custom beaming may be indicated, e.g., a septuplet may be divided into a group of three plus a group of four notes.

In some situations, a tuplet is made up of events from different measures or even different staves. As this raises the issue of non-concurrent hierarchies, it is not possible to encode such situations with the [tuplet](#) element described above. Therefore, MEI offers the [tupletSpan](#) element, which is member of the [model.controleventLike](#) class. It is nested inside of [measure](#), following all the measure's [staff](#)

children. It uses the same attributes as [tuple](#) to describe tuples, but instead of nesting all affected notes inside itself, it points to the notes' respective @xml:ids using its @plist (participant list) attribute.

3.3.5 Articulation and Performance Instructions in CMN

This section introduces elements and attributes which may hold CMN-specific performance instructions. The functionality described herein is related to the @artic attribute and [artic](#) element introduced in [1 Shared Elements, Models, and Attributes](#). The following elements are relevant in this context:

[<bend/>](#) – A variation in pitch (often micro-tonal) upwards or downwards during the course of a note.

[<bTrem>](#) (bowed tremolo) – A rapid alternation on a single pitch or chord.

[<fTrem>](#) (fingered tremolo) – A rapid alternation between a pair of notes (or chords or perhaps between a note and a chord) that are (usually) farther apart than a major second.

[<gliss/>](#) (glissando) – A continuous or sliding movement from one pitch to another, usually indicated by a straight or wavy line.

[<arpeg/>](#) (arpeggiation) – Indicates that the notes of a chord are to be performed successively rather than simultaneously, usually from lowest to highest. Sometimes called a "roll".

[<octave/>](#) – An indication that a passage should be performed one or more octaves above or below its written pitch.

[<fermata/>](#) – An indication placed over a note or rest to indicate that it should be held longer than its written value. May also occur over a bar line to indicate the end of a phrase or section. Sometimes called a 'hold' or 'pause'.

3.3.5.1 Arpeggio and Glissando

In CMN, the notes of a chord are sometimes performed successively rather than simultaneously. This behavior, called arpeggio, is normally indicated using a wavy line preceding the chord. MEI offers the [arpeg](#) element to describe arpeggios. This element is a member of the [model.controleventLike](#) class and, like other members of this class, uses the @staff, @layer and @tstamp or the @startid and @endid attributes to connect it to the affected chord.

```
<measure>
  <staff n="1">
    <!-- content omitted -->
  </staff>
  <staff n="2">
    <layer>
      <note dur="4"/>
      <note dur="4"/>
      <chord dur="4">
        <!-- notes omitted -->
      </chord>
    </layer>
  </staff>
</measure>
```



```

-->
</chord>
</note/>
</layer>
</staff>
<arpeg staff="2" tstamp="3"/>
</measure>

```

The usual direction for the performance of an arpeggio is from lowest note to highest, but this is not always the case. The customary signal of an downward arpeggio is an arrowhead added to the bottom of the wavy line. The indication of the presence of an arrowhead and the direction of the arpeggio are handled separately, however. The @arrow attribute indicates the presence of an arrowhead in the arpeggiation sign, while the @order attribute records the preferred sequence of notes.

The following example illustrates various ways in which the arrow and order attributes may be employed. The default visual rendition and performance are assumed in the absence of both attributes, while the typical downward arpeggio is indicated by the presence of both attributes. The last two possibilities occur less frequently, but are sometimes appropriate: The presence of the arrow attribute without the order attribute may be used in those cases where the arrowhead is redundant but is added to the symbol for the sake of consistency or when the direction of successive arpeggios changes frequently. The last possibility, an order attribute without an arrow attribute, is ambiguous; however, it can be used as an encoding shortcut as a downward arpeggio must have a visual indication of its direction to distinguish it from the upward arpeggio; therefore, the presence of the arrowhead can be implied.

```

<!-- default visualization and performance --><arpeg staff="2" tstamp="3"/>
<!-- downward arpeggio with arrow added to visual symbol -->
<arpeg
  arrow="true"
  order="down"
  staff="2"
  tstamp="3"/>
<!-- default rendition with
      (redundant) arrow added to the top of the visual symbol -->
<arpeg arrow="true" staff="2" tstamp="3"/>
<!--
      downward arpeggio with no visual indication of order -->
<arpeg order="down" staff="2" tstamp="3"/>

```

A third value for @order, "nonarp", indicates that no arpeggio shall be performed. Normally rendered as a bracket instead of a wavy line, this form of arpeggio is used to indicate a non-arpeggiated chord in a sequence of arpeggiated ones. This is common in music for the harp, where arpeggiation is the usual method of performing chords.

For arpeggios that involve chords spanning multiple staves as a continuous arpeggio (instead of two separate arpeggios), the @plist attribute may be used to point to all affected [chord](#) elements' @xml:id attributes.

Whereas an arpeggio ‘stagger’ the onset times of the notes of a chord, a glissando denotes a situation where the pitch ‘slides’ from one note to another. It makes no difference whether this slide produces distinct intermediate pitches (as on the piano) or not (as on the trombone), though the latter is sometimes referred to as portamento. The visual appearance of a glissando, which MEI encodes as [gliss](#), is normally a line connecting the two most distant notes in the glissando.

The [gliss](#) element is a member of the [model.controleventLike](#) class and therefore it occurs inside a measure after the staves and uses its @staff, @layer, @tstamp, @dur, @startid and @endid attributes to connect it to the affected notes or chords. It is a semantic error not to specify a starting point attribute. The visual appearance of the indicating line may be recorded in the @rend attribute. Any text accompanying the line, such as "gliss.", may be provided in the @text attribute.

3.3.5.2 Bend

A bend is a variation in pitch (often microtonal) upwards or downwards during the course of a note. Typically, the performer attacks the note at ‘true’ pitch, changes the intonation, then returns to true pitch. The [bend](#) element can also be used for so-called scoop, plop, falloff, and doit performance effects. It should **not** be used for laissez vibrer (l.v.) indications. As with other control events, the starting point of the bend may be indicated by either a tstamp, tstamp.ges, tstamp.real or startid attribute. It is a semantic error not to specify a starting attribute.

3.3.5.3 Tremolandi

CMN has two slightly different concepts which are both called tremolo. The first is a rapid repetition of a single pitch or chord, whereas the second is a rapid alternation between two different notes or chords. In addition, either species of tremolo may be measured or unmeasured. A measured tremolo is an abbreviation for written-out notation; that is, the tremolo is intended to be perceived as notes with distinct rhythmic values. On the other hand, in an unmeasured tremolo no specific number of alternations is intended.

For the repetition of a single note or chord, MEI offers the [bTrem](#) (bowed tremolo) element, which is a member of the [model.eventLike](#) class, meaning it is encoded following the normal course of musical events within a [layer](#). It holds exactly one [note](#) or [chord](#) element that is to be repeated.

Figure 11. Bowed tremolandi



```
<bTrem>
<note dur="1" oct="4" pname="b"/>
</bTrem>
```

As seen in the example above, the [bTrem](#) element itself does not have a duration. Instead, this duration is derived from that of the child element. The @slash attribute value indicates the exact note values in an aural rendition of a measured tremolo, i.e., 4ths or 8ths=1, 16ths=2, 32nds=3, 64ths=4, 128ths=5, 256ths=6. The stem modifier (z) must also be explicitly set on the child [note](#) or [chord](#) element for a complete visual representation.

```
<layer>
<note/>
<bTrem slash="3">
  <note
    dur="4"
    oct="4"
    pname="g"
    stem.mod="3slash"/>
</bTrem>
<note/>
</layer>
```

The [bTrem](#) element may also be used for wind instrument double, triple, and flutter tonguing. In these cases, the @num attribute on [bTrem](#) can record a number to be rendered along with the tremolo.

In the case of alternating pitches, MEI offers the [fTrem](#) (fingered tremolo) element. While it mostly behaves the same as [bTrem](#), a fingered tremolo requires exactly two child elements, either being a [note](#) or [chord](#). As with [bTrem](#), the @slash attribute records the number of slashes required – 4ths or 8ths=1, 16ths=2, 32nds=3, 64ths=4, 128ths=5, 256ths=6.

```
<layer>
<note/>
<fTrem slash="3">
  <note dur="4" oct="4" pname="g"/>
  <note dur="4" oct="4" pname="c"/>
</fTrem>
<note/>
</layer>
```

3.3.5.4 Fermata

A very common feature of music notation from the CMN period is the so-called ‘fermata’. It is usually written as a dot above or below an arc. It may stand above or below the staff it affects. If this symbol is used, its ‘open’ side always faces the staff. A fermata indicates that the note or rest under it should be held longer than its written duration would normally require. Sometimes, a fermata occurs over a barline to indicate the end of a phrase or section.

In MEI, fermatas may be encoded as attribute on [note](#), [chord](#) or [rest](#). This attribute allows to place a fermata above or below the element to which it's attached.

```
<note fermata="above"/>
```

However, if there is further information about the fermata that should be addressed in the encoding, MEI offers the [fermata](#) element. This element, which is a member of the [model.controleventLike](#) class and therefore requires the use of such attributes as @staff, @layer, @tstamp or @startid, allows to specify the direction of the fermata using the @form attribute.

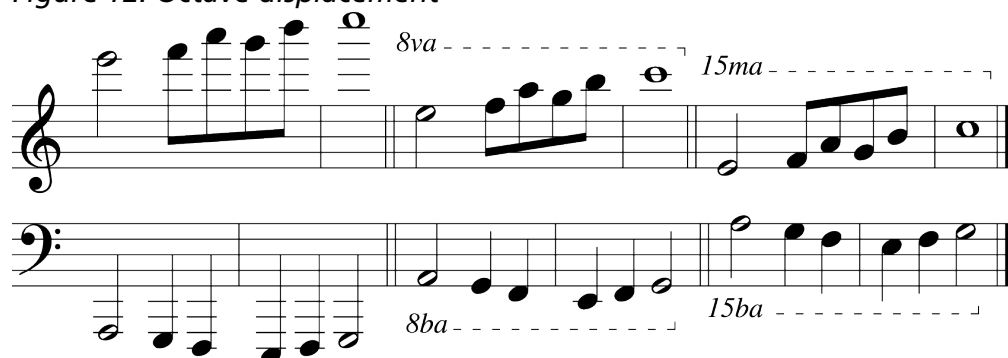
```
<fermata
  form="upright"
  place="above"
  staff="2"
  tstamp="4" />
```

The @shape attribute may be used to indicate whether the fermata is rendered as a semicircle ("curved") or semisquare ("square"). If the fermata is rendered with a completely different symbol, this may be specified using the @altsym attribute.

3.3.5.5 Octave Shift

An indication that a passage should be performed one or more octaves above or below its written pitch is represented by the [octave](#) element.

Figure 12. Octave displacement



Its @dis and @dis.place attributes record the amount and direction of displacement, respectively. The @rend attribute captures the appearance of the continuation line associated with the octave displacement. The starting point of the octave displacement may be indicated by either a @tstamp, @tstamp.ges, @tstamp.real or @startid attribute, while the ending point may be recorded by either a @dur, @dur.ges or @endid attribute. It is a semantic error not to specify one starting and one ending type of attribute. Please note that the @dur attribute here is not a true duration, but rather a time stamp for the end point of the octave displacement. Also, note that the @dur attribute is not required because the octave displacement can be visually instantaneous.

3.3.6 Instrument-specific Symbols in CMN

CMN contains a number of symbols which are closely related to a specific instrument. MEI offers elements for three of these symbols, namely breath marks, harp pedal diagrams, and indications for piano pedals.

3.3.6.1 Breath Marks

A breath mark indicates a point at which the performer of a wind instrument or singer may breathe. It is sometimes also used to indicate a short pause or break for instruments *not* requiring breath, which allows it to also serve as a guide to phrasing. In MEI, breath marks are encoded using the [breath](#) element, which is a member of [model.controleventLike](#). It is a semantic error not to specify a starting point attribute.

```
<measure>
  <staff n="1">
    <layer>
      <note
        dur="2"
        oct="3"
        pname="g"
        syl="Wald," />
      <note
        dur="4"
        oct="3"
        pname="c"
        syl="so"/>
    </layer>
  </staff>
  <breath staff="1" tstamp="1.5"/>
</measure>
```

The usual sign for the breath mark is a comma; however, other visual forms of the breath mark may be indicated using the `@altsym` attribute (see chapter [22 User-defined Symbols](#) for further details).

3.3.6.2 Harp Pedals

Modern harps have seven pedals which allow adjustment of their strings to different pitches. The settings for these pedals occur at the beginning of the harp notation and/or whenever it is necessary to change the harp's tuning. These settings may be rendered using letter pitches (in the order of the pedals from left to right) or in a diagram invented by Carlos Salzedo.

In MEI, harp pedal settings are encoded using the [harpPedal](#) element. It is a member of the [model.controleventLike](#) class and is therefore placed within [measure](#), following all [staff](#) children. The `@staff` and `@layer` attributes may be used to assign it to a certain [staff](#) or [layer](#). Either a `@tstamp` or `@startid` attribute must be used to indicate the placement within the measure (see [3.2.5 Timestamps and Durations](#) and [19 Pointers and References](#) for further details about those linking mechanisms).

The musical intention of the element is described using the @c, @d, @e, @f, @g, @a and @b attributes, which affect the corresponding strings of the harp. All of these attributes may take the values "f" (flat), "s" (sharp) or "n" (natural), where "n" is the default value, which is assumed when one of these attributes is not specified.

```
<measure>
<!-- staves omitted -->
<harpPedal
  a="f"
  b="f"
  e="f"
  staff="2"
  tstamp="1"/>
</measure>
```

3.3.6.3 Piano Pedal

Music for piano also often includes indications of the use of pedals. In MEI, these symbols are encoded using the [pedal](#) element. As a member of the [model.controleventLike](#) class, it is located within [measure](#) and refers to a staff, layer and timestamp using the @staff, @layer and @tstamp attributes. Alternatively, the @startid attribute may be used to identify a [note](#) or [chord](#) to which the mark should be assigned.

The meaning of the mark is captured using the @dir attribute, which provides the following values:

- **up** depress the pedal
- **down** release the pedal
- **bounce** depress, then immediately release the pedal
- **half** depress the pedal half way

```
<measure>
<!-- staves omitted -->
<pedal dir="down" staff="2" tstamp="1"/>
</measure>
```

3.3.7 Ossia

The term *ossia*, Italian for "or", denotes an alternative for a certain passage which is provided by the composer *without any preference* of one alternative over another. An *ossia* usually describes a simpler, easier to perform version of the original content. Another frequent use case for *ossia* is the provision of indications about performance practice, such as an alternative version with ornamentation written out in full. In all cases, it is up to the performer to choose between the alternatives.

Most often an ossia is rendered above the main staff on a reduced-size staff. Sometimes, however, the alternate material occurs on the same staff as the primary text, but in a separate layer. In this case, the alternative material is usually rendered in small-sized notation on the normal-sized staff. For both situations, MEI offers the [ossia](#) element, which may be nested either inside [measure](#) to reflect an ossia on a separate staff, or inside [staff](#) to reflect an inline ossia in a separate layer. The following example demonstrates an ossia on a separate staff:

```
<measure>
  <staff n="1">
    <!-- first
           staff, without ossia -->
  </staff>
  <ossia>
    <staff>
      <!-- alternative
           content on reduced-size staff -->
    </staff>
    <staff n="2">
      <!--
           original content on regular staff -->
    </staff>
  </ossia>
  <staff n="3">
    <!-- third staff, without ossia
           -->
  </staff>
</measure>
```

The example above demonstrates that only one of the two [staves](#) in [ossia](#) has an @n attribute. This mechanism allows one to distinguish between the "regular" and the alternative content: The one bearing the @n attribute goes in line with the preceding measure's staff, the other one is printed in reduced size above. In this case, the vertical order of staves follows document order: The top-most staff is encoded as the first child, the lowest comes last. In combination with the presence of the @n attribute, this allows the capture of multiple simultaneous ossia staves.

All staves within [ossia](#), even the alternative ones without a direct reference, obey the definitions of the associated [staffDef](#), which can be derived from the value of the @n attribute. Alternatively, a separate [staffDef](#) may be given at the beginning of the contained [layer](#) element(s).

In case of an inline ossia, the whole setup of elements moves down one step in the hierarchy, as seen in the following example:

```
<measure>
  <staff n="1">
    <!--
           content omitted -->
  </staff>
  <staff n="2">
    <ossia>
      <layer n="1">
        <!--
           original content in regular layer -->
      </layer>
      <layer>
        <!-- alternative content in separate layer
```

```
        -->
    </layer>
</ossia>
</staff>
<staff n="3">
<!--
    content omitted -->
</staff>
</measure>
```

3.3.8 Directions and Rehearsal marks

In CMN scores, there are often very many natural language instructions. Some of them concern the loudness and the speed of the performance, in which case MEI offers the elements [dynam](#) (described at [3.3.3 Dynamics in CMN](#)) and [tempo](#). In other cases, however, they provide other instructions for the performer. Instead of providing separate elements for all possible types of such directions, MEI offers the generic [dir](#) element. Although this element is not CMN specific (it is defined in [1 Shared Elements, Models, and Attributes](#)), it is especially important in this repertoire.

A tempo or character indication is often provided above the topmost staff of the first measure of a score, movement, or section. This indication, such as "Allegro moderato" or "Andante maestoso", is normally regarded as a label. Though the movement may be labelled using the @label attribute on the enclosing entity (such as, [mdiv](#) or [section](#)), it is often required to capture the exact position, spelling, or other features of the label as found in the underlying source material. In these cases, an element is necessary.

Since these labels often address the tempo at which the music should be performed, these labels should be encoded using the [tempo](#) element, which is a specialized form of [dir](#). [tempo](#) is a member of the [model.controleventLike](#) class and as such occurs as a child of [measure](#), following all [staff](#) children. Its @staff, @layer and @tstamp attributes are used to ensure correct semantic positioning, and @place indicates a visual position with respect to the staff.

```
<measure n="1">
<!-- all
    staves omitted -->
    <tempo place="above" staff="1" tstamp="1">Allegro
        moderato</tempo>
</measure>
```

Rehearsal marks are another specialized kind of directive. These marks, consisting of letters, numbers, or a combination of both, are used in scores and corresponding performer parts to identify convenient points to restart rehearsal after breaks or interruptions. For this reason, they are often visually emphasized by placing them within a surrounding square or circle. In MEI, they are encoded using the [reh](#) element, which holds the textual content of the rehearsal mark. The visual rendition of the rehearsal mark may be captured using the [rend](#) element described in chapter [1.3.2 Text Rendition](#).

The following detail from an edition of Hector Berlioz' *Symphonie Fantastique* shows a typical example:

Figure 13. Rehearsal mark



```
<measure>
  <staff n="1">
    <!--
      content omitted -->
    </staff>
    <staff n="2">
      <!--
        content omitted -->
      </staff>
      <staff n="3">
        <!--
          content omitted -->
        </staff>
        <reh place="above" staff="1" tstamp="1">
          <rend rend="box">37</rend>
        </reh>
      </measure>
```

The following example demonstrates how rehearsal marks often apply to more than one staff:

```
<measure>
  <reh place="above" staff="1" tstamp="1">A</reh>
  <reh place="within" staff="7 11" tstamp="1">A</reh>
  <reh place="below" staff="16" tstamp="1">A</reh>
</measure>
```

3.3.9 Repetition in CMN

A characteristic feature of music is repetition. Many musical forms rely on repetition (sometimes with modification) of distinct sections of the music. Repetition in this sense can be thought of as 'structural'. At the same time, composers and engravers of music often use local symbols for repeating smaller portions of music instead of writing them in full more than once. In this case, the repetition is better defined as a species of abbreviation.

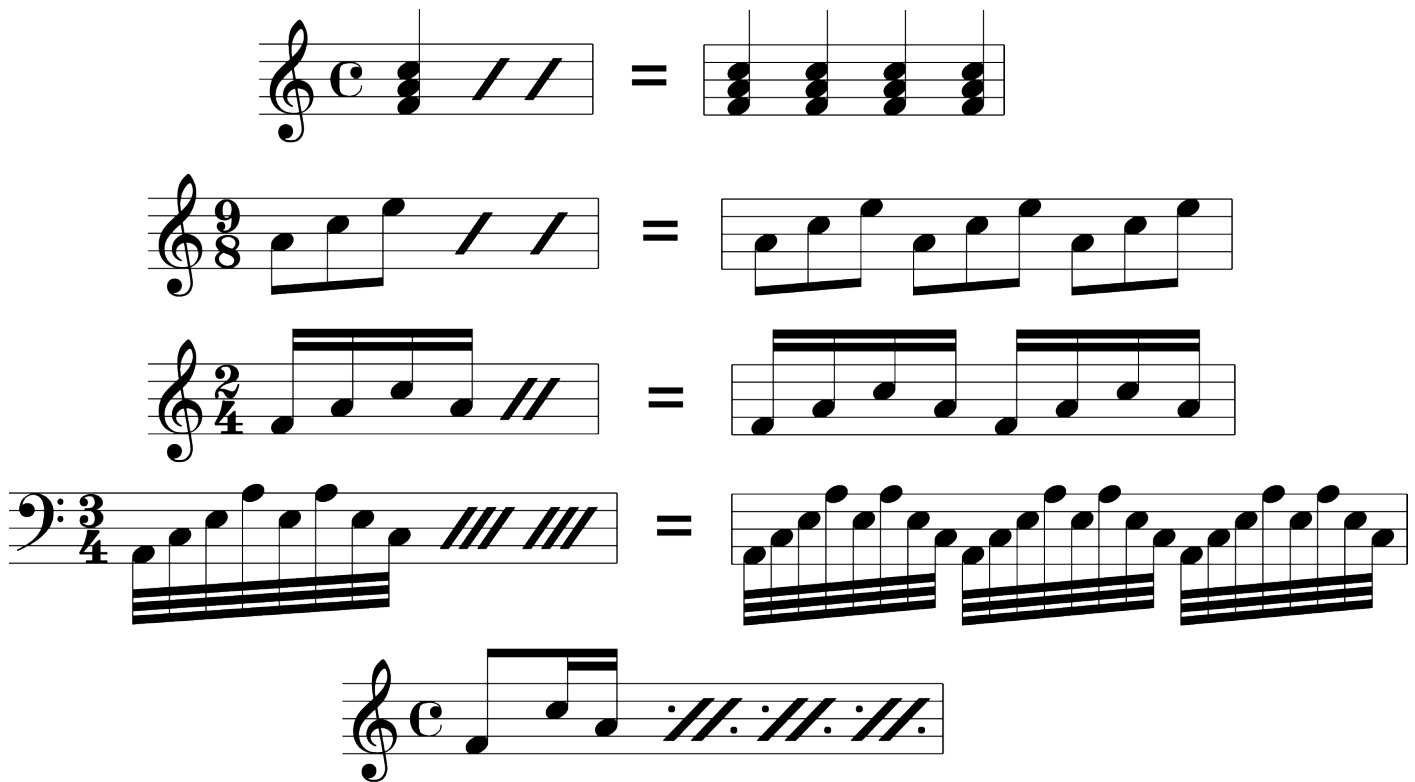
3.3.9.1 Structural Repetition

Large-scale structural repetition, utilizing [section](#) and [expansion](#) elements, is discussed in section [1.1.2.3 Content of Musical Divisions](#). This section will focus on repetition within sections.

3.3.9.2 Measure-Level Repetition Symbols

In addition to repetition at the section level, CMN includes a number of different symbols for measure-level repetitions. Many of these symbols are found in manuscripts and may be regarded as personal conventions of their respective authors. Some signs, however, have been widely adopted. For example, it is common to indicate the repetition of a single beat or an entire measure with one or more diagonal lines, sometimes with dots at the upper left and lower right, much like a percent sign. The illustration below contains the most common signs:

Figure 14. Beat repeat signs



In general, MEI places primary emphasis on the capture of the semantic meaning of symbols, not their visual rendition. In this case, the focus is on the material being repeated, for example, a beat, a measure, a 2-measure fragment, etc. The following elements are provided for this purpose:

[`<beatRpt/>`](#) (beat repeat) – An indication that material on a preceding beat should be repeated.

[`<halfmRpt/>`](#) (half-measure repeat) – A half-measure repeat in any meter.

[`<mRpt/>`](#) (measure repeat) – An indication that the previous measure should be repeated.

[`<mRpt2/>`](#) (2-measure repeat) – An indication that the previous two measures should be repeated.

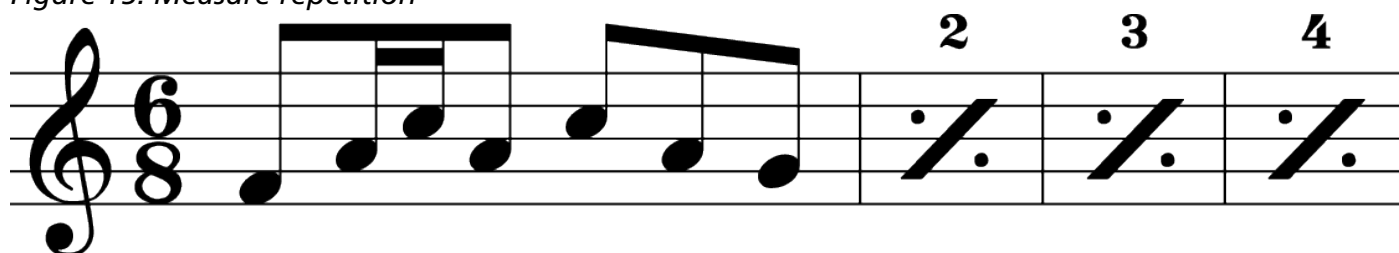
[`<multiRpt/>`](#) (multiple repeat) – Multiple repeated measures.

The [`beatRpt`](#) element is used to represent a single repeated beat. Its visual rendition can be recorded using the `@rend` attribute. This attribute indicates the number of slashes required to render the appropriate repeat symbol, which, as demonstrated in the preceding figure, depends on the rhythmic content of the beat being repeated. When a beat that consists of a single note or chord is repeated, the repetition sign is typically rendered as a single thick, slanting slash; therefore, the value '1' should be used. The following values should be used when the beat is divided into even notes: 4ths or 8ths=1, 16ths=2, 32nds=3, 64ths=4, 128ths=5. When the beat is comprised of mixed duration values, the symbol is always rendered as 2 slashes and 2 dots.

In addition to its indication of a repeated beat, the `beatRpt` element is sometimes used in popular music notation, especially in guitar or percussion parts, to indicate a repeated rhythmic pattern. The `beatRpt` element can be used, but when these parts require durations longer or shorter than a beat, note elements with appropriately-shaped note heads should be employed instead.

The `mRpt` element is available for repetition of an entire measure. Like `mRest`, it must be the sole child of `layer`, no other events may be used. The `@n` attribute of `mRpt` should not be used to record the number displayed above the measure in the figure below. Instead, the numbering of repetitions of the written-out measure can be enabled using the `@multi.number` attribute available on the `scoreDef` and `staffDef` elements.

Figure 15. Measure repetition

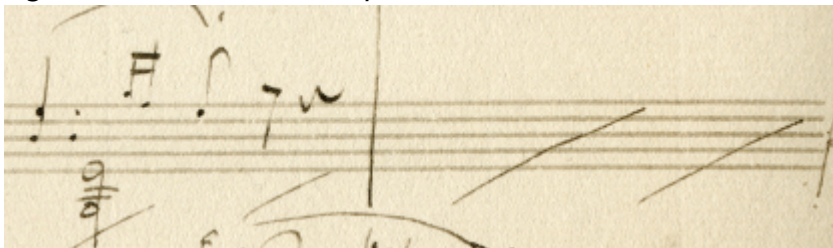


```
<measure>
<staff>
  <layer>
    <beam>
      <note dur="8" oct="4" pname="f"/>
      <note dur="16" pname="a"/>
      <note oct="5" pname="c"/>
      <note dur="8" oct="4" pname="a"/>
    </beam>
    <beam>
      <note dur="8" oct="5" pname="c"/>
      <note oct="4" pname="a"/>
      <note pname="g"/>
    </beam>
  </layer>
</staff>
</measure>
<measure>
<staff>
  <layer>
    <mRpt/>
  </layer>
</staff>
</measure>
<measure>
<staff>
  <layer>
    <mRpt/>
  </layer>
</staff>
</measure>
<measure>
<staff>
  <layer>
    <mRpt/>
  </layer>
</staff>
</measure>
```

```
</staff>
</measure>
```

The [halfmRpt](#) element represents the incorrect, but frequently found, use of the measure repeat (or similar) sign to indicate repetition of half of a measure. This practice mostly occurs in hand-written notation and usually involves the repetition of the second half of a measure in duple time. This element is necessary because the function of the symbol, not the visual symbol itself, is of primary importance. The following example from the beginning of Beethoven's *Waldstein* sonata illustrates such usage:

Figure 16. Half-measure repeat



```
<measure>
  <staff n="1">
    <!-- omitted -->
  </staff>
  <staff n="2">
    <layer n="1">
      <!-- omitted -->
    </layer>
    <layer n="2">
      <chord dur="2" stem.mod="1slash">
        <note oct="2" pname="g"/>
        <note oct="1" pname="b"/>
      </chord>
      <halfmRpt/>
    </layer>
  </staff>
</measure>
<measure>
  <staff n="1">
    <!-- omitted -->
  </staff>
  <staff n="2">
    <layer n="2">
      <halfmRpt/>
      <halfmRpt/>
    </layer>
  </staff>
</measure>
```

As seen in the example above, it is possible to continuously repeat half measures, even across barlines.

The [mRpt2](#) and [multiRpt](#) elements (as well as the `<multRest>` element) never occur in scores, only in performer parts, where it is often necessary to abbreviate the notation due to page size limitations.

Figure 17. Two-measure repetition

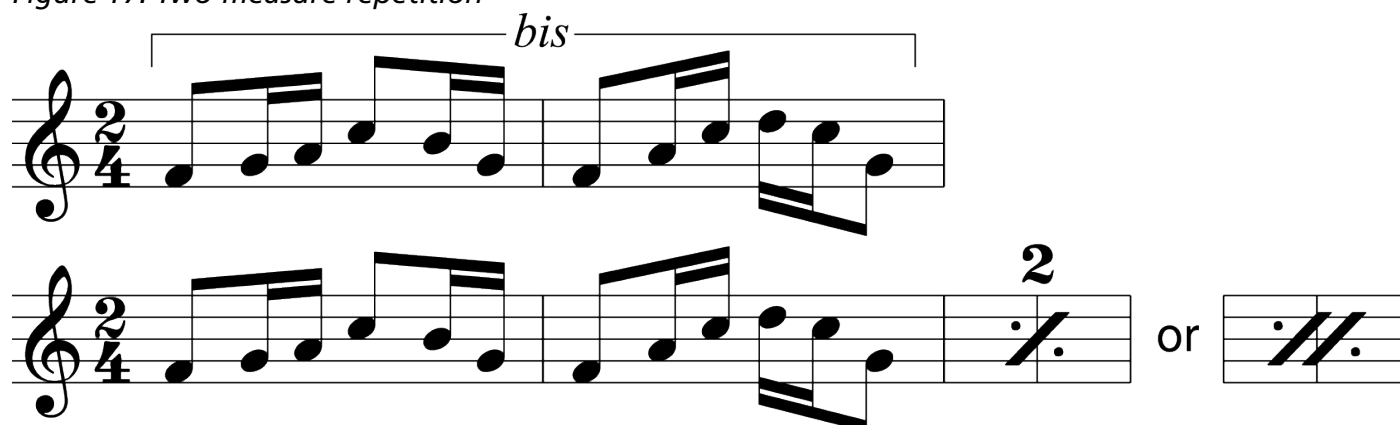
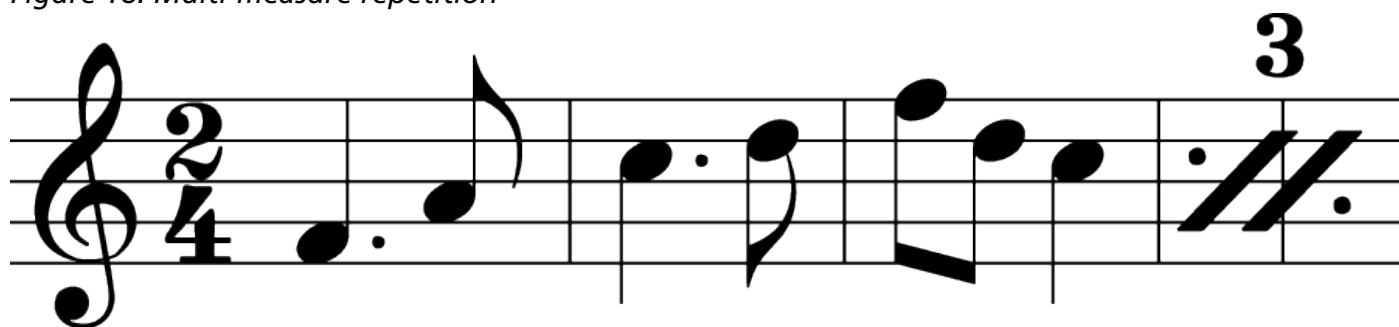


Figure 18. Multi-measure repetition



The [mRpt2](#) element represents repetition of a 2-measure fragment, while [multiRpt](#) is for repetition of fragments longer than two measures. In modern publishing practice, repeats of more than two measures are written out using repeat signs. This element is provided, however, for handling non-standard practices often found in manuscripts. The `@num` attribute on [multiRpt](#) records the number of preceding measures to be repeated.

All elements described in the following allow for the capture of the original symbol by using either the `@fac` or `@altsym` attribute, however. See [11 Facsimiles](#) and [22 User-defined Symbols](#) for further details. On all these elements the `@expand` attribute may be used to indicate whether to render the repeat symbol ("false"), or the repeated content ("true").

4 Mensural Notation

This chapter describes the module for encoding mensural notation from late 13th century to about 1600. Historically, mensural notation preceded the development of CMN and it included a wide range of features that persist in CMN and that can be encoded in a standard manner in MEI. In mensural notation, pitches are notated as in CMN, leaving out here the major exception of *musica ficta*. The pitch is given by the position of the note on the staff and the current clef as in CMN, and the mensural module introduces no modification to MEI regarding how pitches are encoded.

There are a certain number of differences, however, regarding the representation of duration in mensural notation. The mensural module introduces specific attribute values for notes and rests for appropriately encoding mensural durations. One of the main particularities is that the actual duration of a note is not given only by its symbol but also by position and the context in which the symbol appears. The general context is given by one of the 16 mensural *species* provide four levels of division: *modus major*, *modus minor*, *tempus* and *prolatio*. Depending on the context, certain rules must be applied in order to determine the duration of a note. In these cases, encoding both the sign and its actual duration is highly desirable.

Another particularity of mensural notation is the use of proportions that are indicated by numeric proportions or by specific mensuration signs. The proportions indicate that the durations have to be modified accordingly and they can be combined in a very complex manner. Over time, proportions and mensuration signs were simplified and became time signatures in CMN. The attributes and elements that are necessary for encoding proportions and mensural signs are made available by the module.

In mensural notation, notes can also be notated in ligatures that regroup two or more notes. Ligatures were a legacy from an earlier notation system that were still widely used in Renaissance music notation. They gradually disappeared during the seventeenth century. The mensural module provides multiple ways of encoding the ligatures.

4.1 Note and Rest Values

When the mensural module is included, @dur on [note](#), [rest](#), and other elements can take the following values:

- maxima
- longa
- brevis
- semibrevis
- minima
- semiminima
- fusa

- semifusa

4.1.1 Actual Duration with Alterations and Imperfections

In ternary divisions, the dichotomy between the duration sign of the notes and their actual duration requires specific attention. The rules of mensural notation can require the alteration or the imperfection of a note; that is, an increase or reduction in its performed duration. In these cases, if the encoding is intended to be suitable for more than just graphically representing the notation, encoding only the duration of the sign can quickly become insufficient. In that cases, it is recommended to make use of a feature of MEI that is not specific to mensural notation but particularly well-suited for it. It consists of encoding the sign in the @dur attribute and its performed duration in the @dur.gen attribute.

The following example illustrates an alteration (the second *brevis*) in *modus minor perfectus* and *tempus imperfectum*. The actual duration encoded in the @dur.gen attribute is given as a proportion of a whole note:

```
<note dur="longa" dur.gen="6/1"/>
<note dur="breviſ" dur.gen="2/1"/>
<note dur="breviſ" dur.gen="4/1"/>
<note dur="longa" dur.gen="6/1"/>
```

The following example illustrates an imperfection (the two *longae*) in *modus minor perfectus* and *tempus perfectum* with the same *longa-breviſ-breviſ-longa* sequence but with an additional *punctus divisionis* between the two *breves*:

```
<note dur="longa" dur.gen="6/1"/>
<note dur="breviſ" dur.gen="3/1"/>
<dot/>
<note dur="breviſ" dur.gen="3/1"/>
<note dur="longa" dur.gen="6/1"/>
```

4.2 Mensuration Signs

Using the mensural module, the mensuration signs can be indicated with the attributes available on the [staffDef](#) element.

The division levels corresponding to *modus maior*, *modus minor*, *tempus* and *prolatio* can be encoded in the @modusmaior, @modusminor, @tempus and @prolatio attributes respectively. Their value must be 3 (perfect) or 2 (imperfect).

The mensur signs themselves can be encoded in the @sign attribute with a possible value of "C" or "O". Its orientation can be encoded in the @orient attribute, for example, with the value "reversed" for a flipped C sign. The number of slashes (up to 6) can be given in the @slash attribute. There is also a @dot attribute for indicating the presence of a dot.

[mensur](#) elements can also be used instead of [staffDef](#) and its attributes.

4.3 Proportions

Proportions can also be indicated within the [staffDef](#) element. The @num and @numbase attributes are available for encoding the numerator and the denominator of the proportion respectively. There is also a [proport](#) element that can be used as an alternative.

4.4 Ligatures

Ligatures can be encoded using the [ligature](#) element. The @form attribute is available for specifying if the ligature is recta or obliqua.

Figure 19. Recta and obliqua ligatures



```
<ligature form="recta">
  <note dur="semibrevis" oct="4" pname="d"/>
  <note dur="semibrevis" oct="3" pname="g"/>
</ligature>
<ligature form="obliqua">
  <note dur="semibrevis" oct="3" pname="g"/>
  <note dur="semibrevis" oct="4" pname="c"/>
</ligature>
```

In cases where the ligature contains both recta and obliqua notes, the @lig attribute of the [note](#) element can be used to specify the form of the ligature at the note level.

Figure 20. Ligature with more than two notes with recta and obliqua



```
<ligature form="recta">
  <note dur="longa" oct="3" pname="a"/>
```

```
<note dur="longa" oct="4" pname="e"/>
<note
  dur="semibrevis"
  lig="obliqua"
  oct="4"
  pname="d"/>
<note
  dur="semibrevis"
  lig="obliqua"
  oct="4"
  pname="c"/>
<note dur="brevis" oct="3" pname="b"/>
<note dur="brevis" oct="4" pname="e"/>
</ligature>
```

4.5 Music Data Organization

The data organization based on [measure](#) elements that usually prevails in MEI is not appropriate for mensural notation because most music until 1600 was written in a non-measured manner. Even though it is not defined by the mensural module, a more suitable alternate data organization without measures is available: [staff](#) elements may occur directly within the [section](#) element without being organized into measures first. The organization of events (notes, rests, etc.) within the [staff](#) and [layer](#) elements remains unchanged.

```
<section>
<staff n="1">
  <layer>
    <note dur="longa" oct="5" pname="c"/>
    <note dur="brevis" oct="4" pname="g"/>
    <note dur="brevis" oct="4" pname="e"/>
  </layer>
</staff>
<staff n="2">
  <layer>
    <note dur="maxima" oct="3" pname="c"/>
  </layer>
</staff>
</section>
```

This feature may also be used to encode measured music without using the [measure](#) element. That is, the same data organization described above may be used, but with the addition of barlines, indicated by the [barLine](#) element, for those situations where a measure-by-measure organization is not appropriate, for example, when measures are not coincident in all the staves of a score.

4.6 Elements and Attributes from Other Modules

4.6.1 Accidentals

[explain that accidentals are usually encoded as independent elements and that accid.ges can be used within notes]

4.6.2 Coloration

[explain where/how coloration can be encoded]

4.6.3 Custos

[explain that there is a custos element available]

4.6.4 Dot

[explain that dots are independant elements in mensural music and that @dot of notes should not be used]

5 Neume Notation

This chapter describes the elements, model classes, and attribute classes that are part of the MEI.neumes module.

5.1 Overview of the Neumes Module

The module described in this chapter makes available the following components:

<[ineume](#)> (interrupted neume) – a graphically interrupted neume; that is, a neume which is logically a single entity but is written using multiple signs.

<[syllable](#)> – Neume notation can be thought of as "neumed text". Therefore, the syllable element provides high-level organization in this repertoire.

<[uneume](#)> (uninterrupted neume) – A graphically-uninterrupted neume sign.

5.2 Module Background

Neume encoding in MEI was initially developed as part of the Hildegard von Bingen project at the University of Tübingen. MEI was chosen as the basic representation format after a [comparison of existing music encoding formats](#). The initial work on this module was performed by Gregor Schröder ([Ein XML-Datenformat zur Repräsentation kritischer Musikedition unter besonderer Berücksichtigung von Neumennotation](#)), supervised by Prof. Stefan Morent.

This module was originally developed against version 1.8 of the MEI DTD, and has subsequently been translated to the TEI ODD schema.

5.3 Neume Notation

Most neume notation is used to set music to an existing text. The syllable is the fundamental unit of structure, with the neumes themselves serving as a means of "sonifying" the text. A syllable may be expressed via one or more neumes, with the particular neume shape chosen depending on the pitch contour that is being employed and the desired interpretation. For example, two pitches in rising succession might be encoded as a "podatus" (sometimes also called a "pes"), or it might be encoded as two separate punctums, depending on whether it should be sung smoothly connected or with a slight amount of space between the notes.

There are a limited number of possibilities for the most popular musical contours. In general, groups of two to four notes are given unique names, assigned depending on their contour. A "clivis" would be two joined descending notes, while a "podatus" is two joined ascending notes. Table 1 shows most of the named neume shapes. Neume groups of more than four notes are simply called "compound" neumes.

FIG. 1

	SANGALLIAN	FRENCH	AQUITANIAN	BENEVENTAN	NORMAN	MESSINE	GOTHIC	SQUARE	
SINGLE NOTES									
VIRGA	/		ˆ		ˆ	ˆ	↑	ˆ	ˆ
PUNCTUM	ˆ	.	.	ˆ
TWO-NOTE NEUMES									
PODATUS	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ
CLIVIS	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ
THREE-NOTE NEUMES									
SCANDICUS	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ
CLIMACUS	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ
TORCULUS	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ
PORRECTUS	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ
COMPOUND NEUMES									
PODATUS	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ
SUBBIPUNCTIS	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ
TORCULUS	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ
RESUPINUS	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ
PORRECTUS	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ
FLEXUS	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ
LIQUESCENT NEUMES									
EPIPHONUS	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ
CEPHALICUS	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ
STROPHIC NEUMES									
DISTROPHA & TRISTROPHA	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ
ORISCUS	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ
PRESSUS	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ
SPECIAL NEUMES									
SALICUS	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ
QUILISMA	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ

Table 1: Variant neume notation. (From Parrish, "The notation of medieval music," 6)
--

As shown in Table 1, it is possible to have many different styles of neume shapes, derived from local practices of regional groups. In general, these styles are all interpreted in a similar fashion; however, there is evidence that the performance practice of some styles of neume notation differed with regard to rhythm and cadence. This version of the MEI neumes module does not attempt to encode any rhythmic information present in the neume notation. While it may be possible to encode rhythmic values on [note](#) elements, this practice is highly discouraged and, if present, should be interpreted as a modern transcription not present in the original sources.

Neume notation existed before the invention of the staff. Staffless neume notation ("adiastemtic", "cheironomic" or "in campo aperto") existed primarily as a mnemonic device, reminding performers of the contour of the melody but lacking any absolute pitch information. These neumes were written above the text. With the invention of the staff lines and the clef, "heightened" or "diastematic" neume notation could be used to provide exact interval information. In some cases the staff lines are not actually drawn on the page, but their position relative to an imaginary line and initial clef is consistent.

The [syllable](#) element is used as the primary organizational element for neume notation within a [layer](#) element. Within [syllable](#), the [syl](#) element defined in the MEI.shared module is used for encoding the textual content, while the [uneume](#) and [ineume](#) elements are used to encode the neumes themselves. Within these neume module elements, other standard MEI mechanisms are available to accommodate, for example, editorial or critical markup.

5.4 Examples

Some of these examples are excerpts from works of Hildegard von Bingen, with the encoding performed by Stefan Morent and Gregor Schröder.

5.4.1 Basic Encoding

The example illustrates the most basic encoding of neume notation. Encoded here is the opening of Hildegard's "O Splendidissima Gemma" with the text "O splendidissima". Information about the staff has been omitted for brevity, but it was originally encoded on a 5-line staff with two clefs, a "C" and a "F" on lines 5 and 3, respectively.

```
<layer>
<syllable>
  <syl n="initial">
    <rend color="red">0</rend>
  </syl>
  <uneume name="porrectus">
    <note oct="3" pname="e"/>
    <note oct="3" pname="d"/>
    <note oct="3" pname="e"/>
  </uneume>
</syllable>
</layer>
```

```

<syl>splen_</syl>
<uneume name="clivis">
  <note oct="3" pname="g"/>
  <note oct="3" pname="e"/>
</uneume>
<uneume name="pes">
  <note oct="3" pname="d"/>
  <note oct="3" pname="e"/>
</uneume>
</syllable>
<syllable>
  <syl>di_</syl>
  <ineume name="climacus">
    <uneume name="virga">
      <note oct="3" pname="f"/>
    </uneume>
    <uneume name="punctum">
      <note oct="3" pname="d"/>
    </uneume>
    <uneume name="punctum">
      <note oct="3" pname="c"/>
    </uneume>
  </ineume>
</syllable>
<syllable>
  <syl>dis_</syl>
  <uneume name="virga">
    <note oct="3" pname="e"/>
  </uneume>
</syllable>
<syllable>
  <syl>si_</syl>
  <ineume name="scandicus">
    <uneume name="punctum">
      <note oct="2" pname="a"/>
    </uneume>
    <uneume name="punctum">
      <note oct="2" pname="b"/>
    </uneume>
    <uneume name="virga">
      <note oct="3" pname="c"/>
    </uneume>
  </ineume>
</syllable>
<syllable>
  <syl>ma</syl>
  <uneume name="clivis">
    <note oct="2" pname="b"/>
    <note oct="2" pname="a"/>
  </uneume>
</syllable>
</layer>

```

5.4.2 Encoding Variants

Variant readings across sources may be encoded. In this example, source "D" has a punctum on the syllable "so" that is not present in source "R".

```

<syllable>
  <syl>so_</syl>
  <uneume name="punctum" xml:id="neumes.d18e">
    <note oct="3" pname="g"/>

```

```
</uneume>
<app xml:id="neumes.app1">
  <rdg source="D">
    <uneume name="punctum" xml:id="neumes.d19e">
      <note oct="3" pname="g"/>
    </uneume>
  </rdg>
  <rdg source="R"/>
</app>
</syllable>
```

5.4.3 Supplied Notes

In the case of neume notation where no absolute pitch is indicated, you may use the [supplied](#) element to indicate an editorially-added pitch. This element's @source attribute may be used to supply a reference to a source with the absolute pitch provided.

```
<syllable>
  <syl>so_</syl>
  <uneume name="podatus" xml:id="neumes.d13">
    <supplied>
      <note oct="3" pname="g"/>
    </supplied>
  </uneume>
</syllable>
```


6 Analytical Information

This chapter describes the use of attributes that capture data which may be useful for analytical purposes. The analysis module provides attributes that record relationships between entities found in the encoding. These attributes may be used differently by different users, depending on the purpose of the analysis. These Guidelines recommend that encoders employ commonly accepted analytical practices, such as "functional analysis" or "Schenkerian analysis", and document their use in the [encodingDesc](#) described in section [2.2 Encoding Description](#). For general information on musical analysis, please consult Grove Music Online, "[Analysis](#)".

6.1 Relationships Between Elements

The relationships between event elements, such as note, chord, and rest, are the basic material of musical analysis; the attributes described below ensure a closed network of these relations and provide the opportunity to record data useful for common analytical tasks. In the context of a formal analysis, for instance, the attributes presented here can be useful in the capture information about the structure of a musical work.

The analysis module offers attributes in the [att.common.anl](#) class for the description of basic relationships:

[att.common.anl](#) Common analytical attributes. When the `meiLinkAlign` module is used, the `when` attribute is also a member of this attribute class.

@copyof points to an element of which the current element is a copy.

@corresp used to point to other elements that correspond to this one in a generic fashion.

@next used to point to the next event(s) in a user-defined collection.

@prev points to the previous event(s) in a user-defined collection.

@sameas points to an element that is the same as the current element but is not a literal copy of the current element.

@synch points to elements that are synchronous with the current element.

[att.alignment](#) Temporal alignment attributes.

@when indicates the point of occurrence of this feature along a time line. Its value must be the ID of a `<when>` element.

These attributes accommodate the encoding of linkages between the element carrying the attribute and one or more other elements. All of them use URIs to establish the connection. While the examples below illustrate relationships between musical events, their use is not restricted to musical events. On the contrary, these attributes can be used to capture information about relations between any elements.

The @copyof attribute points to an element of which the current element is a copy. It can be used to repeat a note, for example, without encoding the whole [note](#) element again. The copy is a 'deep' one; that is, the @copyof attribute copies all attributes and child elements which belong to the copied element, such as the @dur and @oct attributes of a copied [note](#). The value of the @copyof-attribute must be a URI, which usually refers to an element in the current document. The following example demonstrates the @copyof attribute:

```
<measure n="1">
  <staff n="1">
    <layer>
      <note
        dur="4"
        oct="4"
        pname="g"
        xml:id="analysis.note1_1"/>
    </layer>
  </staff>
</measure>
<measure n="2">
  <staff n="1">
    <layer>
      <note copyof="#analysis.note1_1"/>
    </layer>
  </staff>
</measure>
```

In this example, the [note](#) in the second measure would have exactly the same characteristics as the [note](#) in the first [measure](#).

Using @copyof is not limited to copying events. The @copyof attribute can also be used to copy an entire [measure](#) or [staff](#). When there are many repeated features, the use of the @copyof greatly reduces encoding effort. The image and the following encoding of the beginning of Schubert's *Erkönig* illustrates the benefit of using the @copyof attribute.

Figure 21. First measure of Schubert's *Erkönig*



```

<measure>
  <staff n="1">
    <layer>
      <mRest/>
    </layer>
  </staff>
  <staff n="2">
    <layer>
      <tuplet num="3" num.visible="true" xml:id="analysis.tup1">
        <chord dur="8">
          <note oct="3" pname="g"/>
          <note oct="4" pname="g"/>
        </chord>
        <chord dur="8">
          <note oct="3" pname="g"/>
          <note oct="4" pname="g"/>
        </chord>
        <chord dur="8">
          <note oct="3" pname="g"/>
          <note oct="4" pname="g"/>
        </chord>
      </tuplet>
      <tuplet copyof="#analysis.tup1" xml:id="analysis.tup2"/>
      <tuplet copyof="#analysis.tup1" xml:id="analysis.tup3"/>
      <tuplet copyof="#analysis.tup1" xml:id="analysis.tup4"/>
    </layer>
  </staff>
  <staff n="3">
    <layer>
      <mRest/>
    </layer>
  </staff>
</measure>

```

This example can be reduced further by using @copyof in the initial tuplet:

```

<measure>
  <staff n="1">
    <layer>
      <mRest/>
    </layer>
  </staff>
  <staff n="2">
    <layer>
      <tuplet num="3" num.visible="true" xml:id="analysis.tup5">
        <chord dur="8" xml:id="analysis.t1c1">
          <note oct="3" pname="g"/>
          <note oct="4" pname="g"/>
        </chord>
        <chord copyof="#analysis.t1c1"/>
        <chord copyof="#analysis.t1c1"/>
      </tuplet>
      <tuplet copyof="#analysis.tup5" xml:id="analysis.tup6"/>
      <tuplet copyof="#analysis.tup5" xml:id="analysis.tup7"/>
      <tuplet copyof="#analysis.tup5" xml:id="analysis.tup8"/>
    </layer>
  </staff>
  <staff n="3">
    <layer>
      <mRest/>
    </layer>
  </staff>
</measure>

```

While @copyof signifies a more-or-less duplicate copy of an element, the @sameas indicates that the current element represents exactly same entity as the one referenced in @sameas. Use of @sameas is used for describing the same entity from multiple perspectives, e.g., the same event in two layers. The following example illustrates the sharing of one note head between two voices:

Figure 22. Bach Chorale, *Ach Gott, vom Himmel sieh' darein*, m. 1-2



```
<measure
  left="invis"
  metcon="false"
  n="0"
  xml:id="analysis.mx_sc_14">
<staff n="1">
  <layer n="1">
    <note
      dur="4"
      oct="4"
      pname="b"
      xml:id="analysis.n_sc_21_3"/>
  </layer>
  <layer n="2">
    <note
      accid="s"
      dur="4"
      oct="4"
      pname="g"
      xml:id="analysis.n_sc_21_2"/>
  </layer>
</staff>
<staff n="2">
  <layer n="1">
    <note
      dur="4"
      oct="4"
      pname="e"
      xml:id="analysis.n_sc_21_1"/>
  </layer>
  <layer n="2">
    <note
      dur="4"
```

```
      oct="3"
      pname="e"
      xml:id="analysis.n_sc_21_0"/>
    </layer>
  </staff>
</measure>
<measure n="1" xml:id="analysis.m_sc_22">
  <staff n="1">
    <staff n="1">
      <layer n="1">
        <note
          dur="4"
          oct="5"
          pname="c"
          xml:id="analysis.n_sc_23_3"/>
        <note
          dur="4"
          oct="4"
          pname="b"
          xml:id="analysis.n_sc_24_3"/>
        <note
          dur="4"
          oct="4"
          pname="a"
          sameas="analysis.n_sc_25_2"
          xml:id="analysis.n_sc_25_3"/>
        <note
          dur="4"
          oct="5"
          pname="e"
          xml:id="analysis.n_sc_26_3"/>
      </layer>
    <layer n="2">
      <note
        dur="4"
        oct="4"
        pname="a"
        xml:id="analysis.n_sc_23_2"/>
      <note
        accid="s"
        dur="4"
        oct="4"
        pname="g"
        xml:id="analysis.n_sc_24_2"/>
      <note
        dur="4"
        oct="4"
        pname="a"
        sameas="analysis.n_sc_25_3"
        xml:id="analysis.n_sc_25_2"/>
    </layer>
  </staff>
  <beam>
    <note
      dur="8"
      oct="4"
      pname="g"
      xml:id="analysis.n_sc_26_2"/>
    <note
      dur="8"
      oct="4"
      pname="a"
      xml:id="analysis.n_sc_27_2"/>
  </beam>
</staff>
</staff>
<staff n="2">
  <layer n="1">
    <note
```

```
    dur="4"  
    oct="4"  
    pname="e"  
    xml:id="analysis.n_sc_23_1"/>  
<note  
  dur="4"  
  oct="4"  
  pname="d"  
  xml:id="analysis.n_sc_24_1"/>  
<note  
  dur="4"  
  oct="4"  
  pname="e"  
  xml:id="analysis.n_sc_25_1"/>  
<beam>  
  <note  
    dur="8"  
    oct="4"  
    pname="d"  
    xml:id="analysis.n_sc_26_1"/>  
  <note  
    dur="8"  
    oct="4"  
    pname="c"  
    xml:id="analysis.n_sc_27_1"/>  
</beam>  
</layer>  
<layer n="2">  
  <note  
    dur="4"  
    oct="3"  
    pname="a"  
    xml:id="n_sc_23_0"/>  
  <note  
    dur="4"  
    oct="3"  
    pname="b"  
    xml:id="n_sc_24_0"/>  
  <note  
    dur="4"  
    oct="4"  
    pname="c"  
    xml:id="n_sc_25_0"/>  
<beam>  
  <note  
    dur="8"  
    oct="3"  
    pname="b"  
    xml:id="n_sc_26_0"/>  
  <note  
    dur="8"  
    oct="3"  
    pname="a"  
    xml:id="n_sc_27_0"/>  
</beam>  
</layer>  
</staff>  
</measure>  
<measure n="2" xml:id="analysis.m_sc_28">  
  <staff n="1">  
    <layer n="1">  
      <beam>  
        <note  
          dur="8"  
          oct="5"  
          pname="e"  
          xml:id="analysis.n_sc_29_3"/>  
        <note
```

```

        dur="8"
        oct="5"
        pname="d"
        xml:id="analysis.n_sc_30_3"/>
</beam>
<note
  dur="4"
  oct="5"
  pname="c"
  xml:id="analysis.n_sc_31_3"/>
<note
  dur="4"
  fermata="above"
  oct="4"
  pname="b"
  xml:id="analysis.n_sc_33_3"/>
<note
  dur="4"
  oct="5"
  pname="d"
  xml:id="analysis.n_sc_34_3"/>
</layer>
<layer n="2">
  <note
    dur="4"
    oct="4"
    pname="b"
    xml:id="analysis.n_sc_29_2"/>
  <beam>
    <note
      dur="8"
      oct="4"
      pname="e"
      xml:id="analysis.n_sc_31_2"/>
    <note
      accid="s"
      dur="8"
      oct="4"
      pname="f"
      xml:id="analysis.n_sc_32_2"/>
  </beam>
  <note
    accid="s"
    dur="4"
    oct="4"
    pname="g"
    xml:id="analysis.n_sc_33_2"/>
  <note
    dur="4"
    fermata="below"
    oct="4"
    pname="g"
    xml:id="analysis.n_sc_34_2"/>
</layer>
</staff>
<staff n="2">
  <layer n="1">
    <note
      dur="4"
      oct="3"
      pname="b"
      xml:id="analysis.n_sc_29_1"/>
  <beam>
    <note
      dur="8"
      oct="4"
      pname="c"
      xml:id="analysis.n_sc_31_1"/>

```

```
<note
  dur="8"
  oct="4"
  pname="d"
  xml:id="analysis.n_sc_32_1"/>
</beam>
<note
  dur="4"
  fermata="above"
  oct="4"
  pname="e"
  xml:id="analysis.n_sc_33_1"/>
<note
  accid="n"
  dur="4"
  oct="4"
  pname="f"
  xml:id="analysis.n_sc_34_1"/>
</layer>
<layer n="2">
  <note
    accid="s"
    dur="4"
    oct="3"
    pname="g"
    xml:id="n_sc_29_0"/>
  <note
    dur="4"
    oct="3"
    pname="a"
    xml:id="n_sc_31_0"/>
  <note
    dur="4"
    fermata="below"
    oct="3"
    pname="e"
    xml:id="n_sc_33_0"/>
  <note
    dur="4"
    oct="2"
    pname="b"
    xml:id="n_sc_34_0"/>
</layer>
</staff>
</measure>
```

While @copyof and @sameas have defined semantics, the @corresp may be used to create user-defined relationships between elements. The example below demonstrates the encoding of a relationship between #note3 and the fermata, even though the fermata is not placed directly above the note.

```
<measure n="1" right="end">
  <staff n="1">
    <layer n="1">
      <note
        dur="4"
        oct="4"
        pname="c"
        xml:id="analysis.note1"/>
      <note
        dur="4"
        oct="4"
```



```

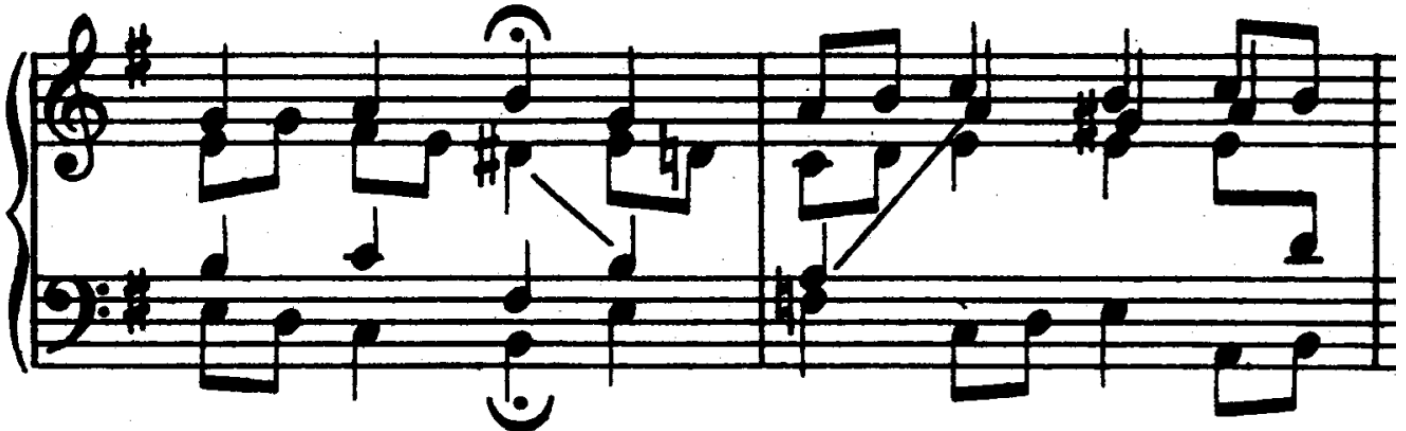
    pname="d"
    xml:id="analysis.note2"/>
<note
  dur="2"
  oct="4"
  pname="e"
  xml:id="analysis.note3"/>
</layer>
</staff>
<fermata corresp="#analysis.note3" place="above" tstamp="4.75"/>
</measure>

```

The @corresp attribute only marks the correspondence between the current element and one or more other entities. To describe the nature of the correspondence, one must use [annot](#).

The @next and @prev attributes point to elements which follow or precede the current element in some fashion other than that indicated by encoding order. The use of these attributes helps to avoid confusion in the sequence of events, for example, in voice leading across layers or staves when the encoding reflects the physical arrangement of voices. In the second measure of the following example, the target of the next attribute occurs after the pointing element in time, but before it in encoding order:

Figure 23. Bach Chorale, *Ach Gott, vom Himmel sieh' darein*, m. 6-7



```

<measure n="6" xml:id="analysis.m_sc_62">
  <staff n="1">
    <layer n="1">
      <note
        dur="4"
        oct="4"
        pname="g"
        xml:id="analysis.n_sc_63_3"/>
      <note
        dur="4"
        oct="4"
        pname="a"
        xml:id="analysis.n_sc_65_3"/>
      <note
        dur="4"

```

```
    fermata="above"
    oct="4"
    pname="b"
    xml:id="analysis.n_sc_67_3"/>
<note
  dur="4"
  oct="4"
  pname="g"
  xml:id="analysis.n_sc_68_3"/>
</layer>
<layer n="2">
  <beam>
    <note
      dur="8"
      oct="4"
      pname="e"
      xml:id="analysis.n_sc_63_2"/>
    <note
      dur="8"
      oct="4"
      pname="g"
      xml:id="analysis.n_sc_64_2"/>
    </beam>
  <beam>
    <note
      dur="8"
      oct="4"
      pname="f"
      xml:id="analysis.n_sc_65_2"/>
    <note
      dur="8"
      oct="4"
      pname="e"
      xml:id="analysis.n_sc_66_2"/>
    </beam>
  <note
    accid="s"
    dur="4"
    next="analysis.n_sc_67_0"
    oct="4"
    pname="d"
    xml:id="analysis.n_sc_67_2"/>
  <beam>
    <note
      dur="8"
      oct="4"
      pname="e"
      xml:id="analysis.n_sc_68_1"/>
    <note
      accid="n"
      dur="8"
      oct="4"
      pname="d"
      xml:id="analysis.n_sc_69_1"/>
    </beam>
  </layer>
</staff>
<staff n="2">
  <layer n="1">
    <note
      dur="4"
      oct="3"
      pname="b"
      xml:id="analysis.n_sc_63_1"/>
    <note
      dur="4"
      oct="4"
      pname="c"
```

```

    xml:id="analysis.n_sc_65_1"/>
  <note
    dur="4"
    oct="3"
    pname="f"
    xml:id="analysis.n_sc_67_1"/>
  <note
    dur="4"
    oct="3"
    pname="b"
    xml:id="analysis.n_sc_68_2"/>
</layer>
<layer n="1">
  <beam>
    <note
      dur="8"
      oct="3"
      pname="e"
      xml:id="n_sc_63_0"/>
    <note
      dur="8"
      oct="3"
      pname="d"
      xml:id="n_sc_64_0"/>
  </beam>
  <note
    dur="4"
    oct="3"
    pname="c"
    xml:id="n_sc_65_0"/>
  <note
    dur="4"
    fermata="below"
    oct="2"
    pname="b"
    xml:id="n_sc_67_0"/>
  <note
    dur="4"
    oct="3"
    pname="e"
    xml:id="n_sc_68_0"/>
</layer>
</staff>
</measure>
<measure n="7" xml:id="m_sc_70">
  <staff n="1">
    <layer n="1">
      <beam>
        <note
          dur="8"
          oct="4"
          pname="a"
          xml:id="analysis.n_sc_71_3"/>
        <note
          dur="8"
          oct="4"
          pname="b"
          xml:id="analysis.n_sc_72_3"/>
      </beam>
      <note
        dur="4"
        oct="5"
        pname="c"
        xml:id="analysis.n_sc_73_3"/>
      <note
        dur="4"
        oct="4"
        pname="b"

```

```
    xml:id="analysis.n_sc_75_3"/>
<beam>
  <note
    dur="8"
    oct="5"
    pname="c"
    xml:id="analysis.n_sc_76_3"/>
  <note
    dur="8"
    oct="4"
    pname="b"
    xml:id="analysis.n_sc_77_3"/>
</beam>
</layer>
<layer n="2">
  <beam>
    <note
      dur="8"
      oct="4"
      pname="c"
      xml:id="analysis.n_sc_71_1"/>
    <note
      dur="8"
      oct="4"
      pname="d"
      xml:id="analysis.n_sc_72_1"/>
  </beam>
  <note
    dur="4"
    oct="4"
    pname="a"
    xml:id="analysis.n_sc_73_2"/>
  <note
    accid="s"
    dur="4"
    oct="4"
    pname="g"
    xml:id="analysis.n_sc_75_2"/>
  <note
    dur="4"
    oct="4"
    pname="a"
    xml:id="analysis.n_sc_76_2"/>
</layer>
<layer n="3">
  <space dur="4"/>
  <note
    dur="4"
    oct="4"
    pname="e"
    xml:id="analysis.n_sc_73_1"/>
  <note
    dur="4"
    oct="4"
    pname="e"
    xml:id="analysis.n_sc_75_1"/>
  <beam>
    <note
      dur="8"
      oct="4"
      pname="e"
      xml:id="analysis.n_sc_76_1"/>
    <note
      dur="8"
      oct="4"
      pname="d"
      xml:id="analysis.n_sc_77_1"/>
  </beam>
```

```

</layer>
</staff>
<staff n="2">
  <layer n="1">
    <note
      dur="4"
      next="analysis.n_sc_73_2"
      oct="3"
      pname="a"
      xml:id="analysis.n_sc_71_2"/>
    </layer>
  <layer n="2">
    <note
      accid="n"
      dur="4"
      oct="3"
      pname="f"
      xml:id="n_sc_71_0"/>
    <beam>
      <note
        dur="8"
        oct="3"
        pname="c"
        xml:id="n_sc_73_0"/>
      <note
        dur="8"
        oct="3"
        pname="d"
        xml:id="n_sc_74_0"/>
    </beam>
    <note
      dur="4"
      oct="3"
      pname="e"
      xml:id="n_sc_75_0"/>
    <beam>
      <note
        dur="8"
        oct="2"
        pname="a"
        xml:id="n_sc_76_0"/>
      <note
        dur="8"
        oct="2"
        pname="b"
        xml:id="n_sc_77_0"/>
    </beam>
  </layer>
</staff>
</measure>

```

This attribute may also be useful to clarify a sequence of entites which occurs across some form of interruption, in this case, notes before and after a system or page break where there is no custos or direct in the source:

```

<measure n="1">
  <staff n="1">
    <layer>
      <note
        dur="4"
        next="analysis.m1s1e2"
        oct="4"
        pname="f"

```

```
    stem.dir="up"
    xml:id="analysis.m1s1e1"/>
</pb/>
<note
  dur="8"
  next="m1s1e3"
  oct="3"
  pname="b"
  prev="analysis.m1s1e1"
  stem.dir="up"
  xml:id="analysis.m1s1e2"/>
<note
  dur="8"
  oct="4"
  pname="c"
  prev="analysis.m1s1e2"
  stem.dir="up"
  xml:id="analysis.m1s1e3"/>
</layer>
</staff>
</measure>
```

There can be a one-to-many relationship between the current element and the entities being referred to.

The @synch attribute points to an element that is synchronous with, that is, begins at the same moment in time, as the current element. It is useful when the encoding order differs from the order in which entities occur in time.

The @when attribute may be used to indicate the point of occurrence of the feature bearing this attribute along a time line. Its value must be the ID of a <when> element. For more detailed information regarding the use of @when, please see [14 Linking and Alignment](#).

6.2 Event-Specific Analytical Information

In addition to the common analytical attributes, the analysis module also offers other, more specific attributes on certain musical elements:

[att.harmonicfunction](#) Attributes describing the harmonic function of a single pitch.

@hfunc describes harmonic function in any convenient typology.

[att.intervalharmonic](#) Attributes that describe harmonic intervals.

@inth encodes the harmonic interval between this note and other pitches occurring at the same time.

[att.intervallidesc](#) Attributes that provide for description of intervallic content.

@intm encodes the melodic interval from the previous pitch. The value may be a general directional indication (u, d, s) or a precise numeric value in half steps.

[att.melodicfunction](#) Attributes describing melodic function.

@mfunc describes melodic function in any convenient typology.

[**att.pitchclass**](#) Attributes that describe pitch class.

@pclass holds pitch class information.

[**att.solfa**](#) Attributes that specify pitch using sol-fa.

@psolfa contains sol-fa designation, e.g., do, re, mi, etc., in either a fixed or movable Do system.

The intention behind these attributes to provide the opportunity to refer to other events via a URI. Using these attributes makes it possible to create relationships between events, which are often widely-spaced in both encoded order and time. The attributes allow a large number of connections, enhancing the informational content, and therefore the potential usefulness, of the encoding.

6.2.1 Harmonic Function

This section makes recommendations regarding the use of the **@hfunc** attribute to describe the harmonic function of notes and chords.

[**att.harmonicfunction**](#) Attributes describing the harmonic function of a single pitch.

@hfunc describes harmonic function in any convenient typology.

The term functional harmony derives from Hugo Riemann and his textbooks on harmony in the late 19th century, but the basic principles of harmonic relationships between notes (and the chords built upon them) were described in Jean-Philippe Rameau's theoretical works. These principles serve as a comprehensive theoretical basis for understanding harmonic relationships typical of the Baroque, Classical and Romantic periods.

For further information about methods of harmonic analysis, please see:

- Grove Online. "Analysis, §I: General".
- Forte, A. "Schenker's Conception of Musical Structure." *Journal of Music Theory* 3(1):1-30.
- Pankhurst, Tom. "Schenker Guide: A Brief Handbook and a Website for Schenkerian Analysis". *Music Analysis*, 28: 145-151.

Since there are many approaches to harmonic analysis, the values chosen for **@hfunc** depend on the musical context and the intention of the encoder. For example, depending on context, a tonic chord may be labeled using natural language terms, such as "tonic"; abbreviations, such as "T" for "Tonika" (German); or Roman numerals, such as "I" or "vii". Therefore, **@hfunc** allows any string value drawn from any convenient typology. Of course, it is recommended that the **@hfunc** attribute be used in a consistent manner. The example below demonstrates labeling the harmonic function of notes and chords using Roman numerals.

The [harm](#) element, described in chapter [13 Harmony](#) should be used instead of @hfunc when the harmonic analysis occurs in the material being transcribed, as occurs in pedagogical editions or in music where the indication of harmony is integral to the notation. It should also be used when the harmonic label itself requires the use of markup, such as indications of superscript or subscript, as frequently occurs in music with a figured bass.

6.2.2 Harmonic Intervals

[att.intervalharmonic](#) Attributes that describe harmonic intervals.

@inth encodes the harmonic interval between this note and other pitches occurring at the same time.

The @inth is used to encode the harmonic interval between the current note and other pitches occurring at the same moment in time. The notes of interest may or may not be marked as a [chord](#). For example,

```
<measure>
<staff>
  <layer n="1">
    <note
      dur="4"
      inth="0"
      oct="4"
      pname="c"
      xml:id="analysis.e1"/>
  </layer>
  <layer n="2">
    <note
      dur="4"
      inth="3"
      oct="4"
      pname="e"
      xml:id="analysis.e2"/>
  </layer>
</staff>
<staff n="2">
  <layer n="3">
    <note
      dur="4"
      inth="5"
      oct="4"
      pname="g"
      xml:id="analysis.e3"/>
  </layer>
</staff>
</measure>
```

Use of the @inth permits detailed specification of intervallic information about every note and its function in relation to other simultaneously-occurring notes and hence about the harmonic nature of the musical work.

To describe the intervals between sequential notes, use the @intm, which is explained below.

6.2.3 Melodic Function

The @mfunc attribute describes melodic function of a [note](#) or [chord](#) in any convenient typology. For example, the values of this attribute could be a name or a number. @mfunc is best used for describing whether notes are harmonic or nonharmonic tones, such as a passing or neighboring note. It may sometimes be used to describe a chord as a 'passing chord'.

```
<measure n="2">
<staff n="1">
  <layer>
    <chord dur="4" stem.dir="up" xml:id="analysis.chord1">
      <note
        dur="4"
        mfunc="ct"
        oct="4"
        pname="f"
        xml:id="analysis.m2e1"/>
      <note
        dur="4"
        mfunc="ct"
        oct="4"
        pname="a"
        xml:id="analysis.m2e2"/>
      <note
        dur="4"
        mfunc="ct"
        oct="5"
        pname="c"
        xml:id="analysis.m2e3"/>
    </chord>
    <note
      accid="f"
      dur="4"
      mfunc="nt"
      oct="4"
      pname="b"
      stem.dir="down"
      xml:id="analysis.m2e4"/>
    </layer>
  </staff>
</measure>
<measure>
<staff n="1">
  <layer>
    <chord dur="4" stem.dir="up" xml:id="analysis.chord2">
      <note
        dur="5"
        mfunc="ct"
        oct="4"
        pname="c"
        xml:id="analysis.m2e5"/>
      <note
        dur="4"
        mfunc="ct"
        oct="4"
        pname="e"
        xml:id="analysis.m2e6"/>
      <note
        dur="4"
        mfunc="ct"
        oct="4"
        pname="g"
        xml:id="analysis.m2e7"/>
    </chord>
  </layer>
</staff>
</measure>
```

```
</staff>
</measure>
```

The attribute is also allowed on chords in order to describe those that do not have a harmonic function in the traditional sense:

```
<measure n="5">
  <staff n="1">
    <layer>
      <chord mfunc="Tristan_chord" n="1">
        <note
          dots="1"
          dur="2"
          oct="4"
          pname="f"/>
        <note
          dots="1"
          dur="2"
          oct="4"
          pname="b"/>
        <note
          accid="s"
          dots="1"
          dur="2"
          oct="3"
          pname="d"/>
        <note
          accid="s"
          dots="1"
          dur="2"
          pname="g"/>
      </chord>
    </layer>
  </staff>
</measure>
```

6.2.4 Melodic Intervals

The `@intm` attribute is used to encode the melodic interval coming from the previous pitch using a decimal number or the Parson's Code (d/u/s). The attribute is only permitted on the [note](#) and the `<uneueme>`. Signed integers may be used to record the difference in half steps between the previous pitch and the current one:

```
<measure>
  <staff>
    <layer>
      <note dur="4" oct="4" pname="c"/>
      <note
        dur="4"
        intm="1"
        oct="4"
        pname="d"/>
      <note
        dur="4"
        intm="8"
        oct="5"
```

```

    pname="d"/>
  <note
    dur="4"
    intm="-2"
    oct="5"
    pname="c"/>
</layer>
</staff>
</measure>

```

Decimal values allow the description of the interval in a more precise way, so that is also possible to encode microtonal intervals:

```

<measure>
<staff>
  <layer>
    <note dur="4" oct="4" pname="c"/>
    <note
      dur="4"
      intm="1.1"
      oct="4"
      pname="d"/>
    <note
      dur="4"
      intm="7.9"
      oct="5"
      pname="d"/>
    <note
      dur="4"
      intm="-2.334"
      oct="5"
      pname="c"/>
  </layer>
</staff>
</measure>

```

While decimal values permit very a detailed description of melodic intervals, Parsons Code allows for description of the contour of the melody in very general terms. The shortcuts are intended to give the direction of the melody (up, down or the same). For more information about the Parsons Code, please see the "The Directory of Tunes and Musical Themes" by Denys Parsons (2002). The next example shows interval relationships indicated by the Parsons Code.

```

<measure n="1">
<staff n="1">
  <layer>
    <note dur="4" oct="4" pname="c"/>
    <note
      dur="4"
      intm="u"
      oct="4"
      pname="d"/>
    <note
      dur="4"
      intm="u"
      oct="4"
      pname="e"/>
    <note

```

```
    dur="4"  
    intm="u"  
    oct="4"  
    pname="f"/>  
<note  
  dur="2"  
  intm="u"  
  oct="4"  
  pname="g"/>  
<note  
  dur="2"  
  intm="s"  
  oct="4"  
  pname="g"/>  
<note  
  dur="4"  
  intm="d"  
  oct="4"  
  pname="f"/>  
</layer>  
</staff>  
</measure>
```

Parsons Code is helpful for identifying musical works with clearly defined melodies and analyzing the relationship between successive notes of monophonic tunes.

6.2.5 Pitch Class

The @pclass attribute can be used to encode information about the pitch class to which a note belongs. The attribute's value must be an integer less than or equal to 11. It is only allowed on the [note](#) element. The @pclass attribute comes from "musical set theory" elaborated first by Howard Hanson and Allen Forte as a new method for organizing tones. It provides a concept for categorizing musical objects (notes) and describing their relationships. It is a kind of grouping and combining, mostly developed in connection with atonal music. However, the concept of set theory is general and can also be applied to tonal music. A pitch class means the summary of every pitch with specific characteristics that means a pitch class set is an unordered collection of pitches, e.g., every pitch with the name C.

A pitch class may contain a large number of pitches, because different octaves and enharmonic spellings of pitch make no difference. The notes C, E, and G would be 0, 4 and 7 in pitch class notation, for example, regardless of the octave in which they are performed. The example below contains the same pitch in four different enharmonic spellings, but all are part of the same pitch class.

```
<note  
  dur="4"  
  oct="4"  
  pclass="2"  
  pname="d"/>  
<note  
  dur="2"  
  oct="5"  
  pclass="2"  
  pname="d"/>  
<note
```

```

accid="ss"
dur="4"
pclass="2"
pname="c"/>
<note
  accid="ff"
  dur="1"
  pclass="2"
  pname="e"/>

```

For further information on pitch class set theory, please consult the following sources:

- http://www.mta.ca/faculty/arts-letters/music/pc-set_project/pc-set_new/pages/introduction/toc.html
- "Analyzing Atonal Music: Pitch Class Set Theory and its Contexts" by Michael Schuijler (2008)
- Cohen, Allen Laurence (2004). Howard Hanson in Theory and Practice

6.2.6 Solmization

Solmization is a system which associates a syllable with each note of a musical scale. There are various forms of solmization used throughout the world. In Europe and North America, solfège is the most common practice. In this system, the seven syllables for a major scale are do, re, mi, fa, so, la and ti. In the 'fixed-do' system, the syllable "do" is always associated with the pitch "c", while in the 'movable-do' system, "do" is associated with the tonic note. The @psolfa attribute is only allowed on [note](#) and [uneume](#) elements. Its value is unconstrained in order to accommodate various solmization systems.

```

<measure>
<staff n="1">
  <layer>
    <note
      dur="4"
      oct="4"
      pname="c"
      psolfa="do"/>
    <note
      dur="4"
      oct="4"
      pname="d"
      psolfa="re"/>
    <note
      dur="4"
      oct="4"
      pname="e"
      psolfa="mi"/>
    <note
      dur="4"
      oct="4"
      pname="f"
      psolfa="fa"/>
  </layer>
</staff>
</measure>

```

7 Common Music Notation Ornaments

This module includes elements and attributes for the encoding of ornaments typical of 'Common Music Notation' (CMN). Ornaments are formulae of embellishment that can be realized by adding supplementary notes to one or more notes of the melody. In written form, these are usually expressed as symbols written above or below a note, though some have a more complex written expression, such as those that involve multiple notes and/or include grace notes.

These symbols may have different resolutions depending on a large number of factors, such as historical context, national boundaries, composer, scribe, etc. The elements described here, therefore, are not bound to a specific symbol; they are, instead, meant to encode the encoder's interpretation of a symbol and its position on the staff.

Nonetheless, in order to establish common ground, the guidelines suggest commonly accepted symbols and realizations for the ornaments supported by MEI.

The following sections will introduce each element in detail for all types of ornaments supported.

7.1 Encoding Common To All Ornaments

Ornaments are typically encoded within a [layer](#) or within a [measure](#) and are connected to events on the staff via attributes. The @startid attribute is used to refer to the @xml:id of the starting note. Additionally, if the ornament involves more than one events on the staff, the @endid attribute can be used to anchor the ornament to a concluding event.

The following example demonstrates the encoding of an inverted mordent over a middle C:

```
<measure n="1">
  <staff n="1">
    <layer n="1">
      <note
        dur="4"
        oct="4"
        pname="c"
        xml:id="cmnOrnaments.co_1_n1"/>
    </layer>
  </staff>
  <mordent
    form="inv"
    place="above"
    staff="1"
    startid="co_1_n1"/>
</measure>
```

Alternatively or additionally, the relationship with a note can be expressed in terms of beats with the attribute @tstamp. If the ornament involves more than one event on the staff, the @dur attribute can be used to indicate the ending time stamp, as is explained in the section: [3.2.5 Timestamps and Durations](#).

The following example shows the use of @tstamp for an ornament. Assuming that the following measure is in 2/4, the ornament (in this case, a mordent) is related to the note on the second beat.

```
<measure n="1">
  <staff n="1">
    <layer n="1">
      <note dur="2" oct="4" pname="c"/>
      <note dur="2" oct="4" pname="c"/>
    </layer>
  </staff>
  <mordent
    form="inv"
    place="below"
    staff="1"
    tstamp="2"/>
</measure>
```

The relationship between an ornament and the notes on staff must always be encoded. It is, in fact, a semantic error not to specify a starting event or time stamp for an ornament.

In their resolution, ornaments will involve auxiliary notes, which typically follow the key signature or the scale of the current key. When the ornament involves other chromatic auxiliaries, an accidental is expressed next to or above the ornament sign. The attributes @accidlower and @accidupper, available on all ornaments described in this chapter, can be used to record this accidental. The attribute values 'upper' and 'lower' indicate whether the accidental is associated with an upper or lower auxiliary note, not the position of the accidental sign.

7.1.1 Overriding Default Resolutions

The symbols and sounded resolutions suggested for each ornament in this chapter are to be considered defaults. Nevertheless, because of the great historical and geographical variance in the notation of ornaments, the encoder is given methods to override the default resolutions.

It is possible, for example, to specify in the <meiHeader> a new default sounded resolution for an ornament. As discussed in the section [2.2 Encoding Description](#), the element [encodingDesc](#) holds a description (optional, but recommended) of the methods and editorial principles which govern the transcription or encoding of the source material. Let us take a trill as an example. The section regarding [trills](#) does not set a specific number of alternations between the principal and secondary notes; the encoder, however, may specify an exact number in the encoding description.

```
<encodingDesc>
  <editorialDecl>
    <p>All trills
      should be resolved by playing three alternations.</p>
  </editorialDecl>
</encodingDesc>
```

Alternatively, resolutions can be defined on a case-by-case basis by encoding a specific resolution using the [choice](#) element. See the section [7.3.1 Particular cases](#) below for an example of a specific resolution of a trill.

7.2 Mordents

A mordent is an ornament that involves an auxiliary note a step above or below the principal note. The presence of a mordent is encoded with the [mordent](#) element and its attributes:



<mordent/> – An ornament indicating rapid alternation of the main note with a secondary note, usually a step below, but sometimes a step above.

@form Traditionally, the 'normal' mordent is written as a short wavy line with a vertical line through it and the inverted mordent is written without the vertical line. However, the meaning of these signs is sometimes reversed. See Read, p. 245-246. Another attribute in the visual domain would be necessary in order to be completely explicit about which visual symbol is actually to be rendered.

@long When the long attribute is set to 'yes', a double or long mordent, consisting of 5 notes, is indicated.

It is recommended, but not required, to use the attribute @form to encode the typology of mordents. Two common types are supported: those mordents that involve a note lower than the principal note, and those that involve a note higher than the principal note.

The attribute @form accepts the following values:

- **norm** usually corresponding to the symbol: . This mordent is commonly performed as the principal note, followed by its lower neighbor, with a return to the principal note.
- **inv** usually corresponding to the symbol: . This mordent is commonly performed as the principal note, followed by its upper neighbor, with a return to the principal note.

The following example demonstrates the encoding of simple mordents:

Figure 24. Example of simple mordent



```
<measure n="1">
<staff n="1">
<layer n="1">
<note
dur="4"
oct="5"
pname="c"
stem.dir="down"/>
<note
dur="4"
oct="4"
pname="g"
stem.dir="up"/>
<note
dur="4"
oct="4"
pname="b"
stem.dir="down"/>
<note
dur="4"
oct="5"
pname="c"
stem.dir="down"/>
</layer>
</staff>
<mordent form="inv" staff="1" tstamp="1"/>
</measure>
```

Occasionally, mordents can be longer, employing five notes instead of three. The `<long>` attribute can be used to indicate this. The following example shows the encoding of a long mordent:

Figure 25. Example of a long mordent



```
<measure n="1">
<staff n="1">
  <layer n="1">
    <note
      dur="4"
      oct="5"
      pname="c"
      stem.dir="down"/>
    <note
      dur="4"
      oct="4"
      pname="g"
      stem.dir="up"/>
    <note
      dur="4"
      oct="4"
      pname="b"
      stem.dir="down"/>
    <note
      dur="4"
      oct="5"
      pname="c"
      stem.dir="down"/>
  </layer>
</staff>
<mordent
  form="inv"
  long="yes"
  staff="1"
  tstamp="1"/>
</measure>
```

7.3 Trills

Trills are a type of ornament that consists of a rapid alternation of a note with one a semitone or tone above. A trill is encoded with the [trill](#) element and its attributes:

<trill/> – Rapid alternation of a note with one (usually at the interval of a second) above.

att.ornamentaccid Accidentals associated with ornaments.

@accidlower records the written accidental associated with a lower neighboring note.

@accidupper records the written accidental associated with an upper neighboring note.

Trills in modern notation are usually expressed with the abbreviation "tr" above a note on the staff. Often the abbreviation is followed by a wavy line that indicates the length of the trill.

The following example demonstrates the encoding of simple trills:

Figure 26. Example of simple trills.



```

<measure n="1">
  <staff n="1">
    <layer n="1">
      <note
        dur="4"
        oct="4"
        pname="f"
        stem.dir="up"/>
      <note
        dur="4"
        oct="4"
        pname="a"
        stem.dir="up"/>
      <rest dur="8"/>
      <note
        dur="8"
        oct="5"
        pname="c"
        stem.dir="down"/>
      <note
        dur="4"
        oct="5"
        pname="e"
        stem.dir="down"/>
    </layer>
  </staff>
  <trill place="above" staff="1" tstamp="1"/>
  <trill
    accidupper="f"
    place="above"
    staff="1"
    tstamp="2"/>
  <trill place="above" staff="1" tstamp="3.5"/>
  <trill
    accidupper="s"
    place="above"
    staff="1"
    tstamp="4"/>
</measure>

```

It has been specified earlier that it is a semantic error not to encode a starting event or time stamp for an ornament. This starting point of a trill can be expressed with the @startid attribute and/or with the @tstamp attribute. Specifying the end point is not required, although the @dur attribute can be used to indicate the use of a wavy line extender as shown in this example:

Figure 27. Example of trills followed by wavy lines.



```

<scoreDef>
  <staffGrp>
    <staffDef
      clef.line="2"
      clef.shape="G"
      key.sig="2f"
      lines="5"
      n="1"/>
    </staffGrp>
  </scoreDef>
  <section>
    <measure n="1">
      <staff n="1">
        <layer n="1">
          <note
            dur="4"
            oct="4"
            pname="f"
            stem.dir="up"/>
          <note
            dur="4"
            oct="5"
            pname="d"
            stem.dir="up"/>
          <note
            dur="4"
            oct="5"
            pname="d"
            stem.dir="down"/>
          <note
            dur="4"
            oct="5"
            pname="g"
            stem.dir="down"/>
        </layer>
      </staff>
      <trill
        dur="2"
        place="above"
        staff="1"
        tstamp="1"/>
      <trill
        dur="3"
        place="above"
        staff="1"
        tstamp="2"/>
      <trill
        accidupper="n"
        dur="4"
        place="above"
        staff="1"
        tstamp="3"/>
      <trill
        accidupper="f"

```

```

    dur="5"
    place="above"
    staff="1"
    tstamp="4"/>
</measure>
</section>

```

The @dur attribute indicates the ending beat of the trill, not its duration in any kind of time units.

Alterations of auxiliary notes are occasionally expressed on the staff, as shown by the example below. The attribute @accidupper is still to be used to encode the alteration:

Figure 28. Example alterations expressed on the staff.



```

<measure n="1">
  <staff n="1">
    <layer n="1">
      <note
        dur="2"
        oct="4"
        pname="g"
        stem.dir="up"/>
    </layer>
  </staff>
  <trill
    accidupper="b"
    place="above"
    staff="1"
    tstamp="1"/>
</measure>

```

Some trills may be introduced by a turn or followed by an inverted turn leading to the next note (see Le garzantine, Musica 2003, p. 911). In such cases, the trill is encoded as in previous examples and associated with the principal note. Starting or concluding turns are notated on the staff (in [layer](#)) as [grace notes](#).

The following example, from a keyboard sonata by Joseph Haydn, shows a trill with concluding grace notes:

Figure 29. Haydn, Sonata in D major, Hoboken XVI:33 (Wiener Urtext no. 34), mvmt. 1.



```

<measure n="2" xml:id="cmnOrnaments.d1e412">
  <staff n="1">
    <layer n="1">
      <note
        accid.ges="s"
        dur="32"
        grace="unacc"
        oct="6"
        pname="c"
        stem.dir="up"
        xml:id="cmnOrnaments.d1e414"/>
      <note
        dur="2"
        dur.ges="16"
        oct="5"
        pname="b"
        stem.dir="down"
        xml:id="cmnOrnaments.d1e432"/>
      <beam>
        <note
          dur="32"
          grace="unacc"
          oct="5"
          pname="a"
          stem.dir="up"/>
        <note
          dur="32"
          grace="unacc"
          oct="5"
          pname="b"
          stem.dir="up"/>
      </beam>
    </layer>
  </staff>
  <trill
    dur="2.5"
    ho="+1"
    place="above"
    staff="1"
    tstamp="1"
    vo="6.5"/>
</measure>

```

7.3.1 Particular cases

Symbols and abbreviations for trills have changed and evolved considerably throughout history. Strategies to clarify the encoding and interpretation of ornaments have been discussed in section [7.1.1 Overriding Default Resolutions](#) above. However, in order to aid the encoder in making educated choices in the encoding of non-standard trills, this section shows two examples diverging from modern standard use.

The abbreviation "tr" followed by a wavy line spanning multiple notes is sometimes used to indicate multiple trills:

Figure 30. Example of multiple trills.



The encoding of this kind of trill may vary depending on the purpose of the encoding. For representation of the source, a single trill is sufficient:

```
<measure n="1">
  <staff n="1">
    <layer n="1">
      <note
        dur="4"
        oct="4"
        pname="f"
        stem.dir="up"/>
      <note
        dur="4"
        oct="4"
        pname="a"
        stem.dir="up"/>
      <rest dur="8"/>
      <note
        dur="8"
        oct="5"
        pname="c"
        stem.dir="down"/>
      <note
        dur="4"
        oct="5"
        pname="e"
        stem.dir="down"/>
    </layer>
  </staff>
  <trill
    dur="0m+4"
    place="above"
```

```
    staff="1"  
    tstamp="1"/>  
</measure>
```

To support analytical and aural rendering applications, however, each trill may be explicitly encoded, as the following example demonstrates:

```
<measure n="1">  
  <staff n="1">  
    <layer n="1">  
      <note  
        dur="4"  
        oct="4"  
        pname="f"  
        stem.dir="up"/>  
      <note  
        dur="4"  
        oct="4"  
        pname="a"  
        stem.dir="up"/>  
      <rest dur="8"/>  
      <note  
        dur="8"  
        oct="5"  
        pname="c"  
        stem.dir="down"/>  
      <note  
        dur="4"  
        oct="5"  
        pname="e"  
        stem.dir="down"/>  
    </layer>  
  </staff>  
  <trill place="above" staff="1" tstamp="1"/>  
  <trill  
    accidupper="f"  
    place="above"  
    staff="1"  
    tstamp="2"/>  
  <trill place="above" staff="1" tstamp="3.5"/>  
  <trill  
    accidupper="s"  
    place="above"  
    staff="1"  
    tstamp="4"/>  
</measure>
```

However, when it is necessary to support multiple outputs, use of the [choice](#) element and appropriate sub-elements is recommended. In this case, the [orig](#) and [reg](#) elements can be used to represent the original source and a regularization provided by the editor, respectively:

```
<choice>  
  <orig>  
    <trill  
      dur="0m+4"  
      place="above"  
      staff="1"  
      tstamp="1"/>  
  <reg>
```



```

</orig>
<reg>
  <trill place="above" staff="1" tstamp="1"/>
  <trill
    accidupper="f"
    place="above"
    staff="1"
    tstamp="2"/>
  <trill place="above" staff="1" tstamp="3.5"/>
  <trill
    accidupper="s"
    place="above"
    staff="1"
    tstamp="4"/>
</reg>
</choice>

```

Another situation that requires disambiguation of an ornament's name and its potential rendition is due to the fact that the symbols for trills and mordents have been often used interchangeably in the past. The following example, taken from *Klavierbüchlein für Wilhelm Friedemann Bach* (1720), shows a trill ('Trillo') identified by the symbol associated with a mordent in modern practice. Nonetheless, J.S. Bach's suggested resolution should be encoded with a variant of the procedure presented above. In the example below, the child elements of [choice](#); that is, [orig](#) and [reg](#), represent non-exclusive options; that is, both may be processed by applications that aim to support both visual and aural renditions.

Figure 31. Trill transcribed from J.S. Bach's *Klavierbüchlein für Wilhelm Friedemann Bach* (1720)



```

<measure n="1">
  <staff n="1">
    <layer n="1">
      <note
        dur="4"
        oct="5"
        pname="c"
        stem.dir="down"/>

```

```
</layer>
</staff>
<choice>
  <orig>
    <trill place="above" staff="1" tstamp="1"/>
  </orig>
  <reg>
    <note dur="32" oct="5" pname="d"/>
    <note dur="32" oct="5" pname="c"/>
    <note dur="32" oct="5" pname="d"/>
    <note dur="32" oct="5" pname="c"/>
    <note dur="32" oct="5" pname="d"/>
    <note
      dots="1"
      dur="8"
      oct="5"
      pname="c"/>
  </reg>
</choice>
</measure>
```

7.4 Turns

A turn is an ornament that typically consists of four notes: the upper neighbor of the principal note, the principal note, the lower neighbor, and the principal note again.

The presence of a turn is encoded with the [turn](#) element and its attributes:



<turn/> – An ornament consisting of four notes — the upper neighbor of the written note, the written note, the lower neighbor, and the written note.

@form indicates the style of the turn.

@delayed When the delayed attribute is set to 'true', the turn begins on the second half of the beat. See Read, p. 246.

It is recommended, but not required, to use the attribute @form to encode the typology of the turn.

The attribute @form accepts the following values:

- **norm** usually corresponding to the symbol: . This turn is commonly performed beginning on a note higher than the principal note.
- **inv** usually corresponding to the symbol: . This turn is commonly performed beginning on a note lower than the principal note.

The following example shows the encoding of simple turns:

Figure 32. Example of a simple turn.



```
<measure n="1">
  <staff n="1">
    <layer n="1">
      <note
        dur="4"
        oct="5"
        pname="c"
        stem.dir="down"/>
      <note
        dur="4"
        oct="5"
        pname="d"
        stem.dir="down"/>
      <note
        dur="4"
        oct="5"
        pname="e"
        stem.dir="down"/>
      <note
        dur="4"
        oct="5"
        pname="c"
        stem.dir="down"/>
    </layer>
  </staff>
  <turn form="norm" staff="1" tstamp="1"/>
</measure>
```

Turns can sometimes be performed after the principal note (usually on the second half of the beat, see Read 1979, p. 246) and leading to the following event. To indicate this, the turn symbol is typically written in between the principal note and the next. These kind of turns are encoded with the attribute `@delayed`.

The following example from Beethoven's piano sonata no. 1 in F minor, op. 2, no. 1, mvmt. 2 demonstrates the encoding of turns with the `@delayed` attribute. Note that the `@tstamp` attribute indicates the actual starting point in time, while `@startid` points to the principal note.

Figure 33. Delayed turn.



```

<measure>
  <staff n="1">
    <layer n="1">
      <note
        dots="1"
        dur="4"
        oct="5"
        pname="g"
        stem.dir="down"
        tie="i"/>
      <beam>
        <note
          dots="1"
          dur="16"
          oct="5"
          pname="g"
          stem.dir="down"
          tie="t"/>
        <note
          dur="32"
          oct="5"
          pname="a"
          stem.dir="down"/>
      </beam>
    </layer>
  </staff>
  <turn
    accidlower="s"
    place="above"
    staff="1"
    tstamp="2.75"/>
</measure>

```

7.5 Ornaments in Combinations

Particularly in baroque keyboard music, but also in the early classical period, different ornaments can be found written in combination. They are to be played in sequence and are usually written on top of each other.

The following example from C.P.E. Bach's sonata W.62/1 shows a turn followed by a inverted mordent:

Figure 34. Example of multiple ornaments. From C.P.E. Bach's sonata W.62/1.



When encoding the example above, both ornaments will be positioned above the same note. The encoded order of the elements, moreover, should correspond to the performed sequence, which in this example is top to bottom: first the turn, then the mordent.

```
<measure n="3">
  <staff n="1">
    <layer n="1">
      <note
        dur="8"
        grace="unknown"
        oct="5"
        pname="f"
        stem.dir="up"/>
      <note
        dur="4"
        oct="5"
        pname="e"
        stem.dir="down"
        xml:id="cmnOrnaments.co_m_1_n1"/>
      <beam>
        <note
          dur="16"
          oct="5"
          pname="d"
          stem.dir="up"/>
        <note
          accid="s"
          dur="16"
          oct="4"
          pname="f"
          stem.dir="up"/>
        <note
          dur="16"
          oct="4"
          pname="g"
          stem.dir="up"/>
        <note
          dur="16"
          oct="5"
          pname="e"
          stem.dir="up"/>
      </beam>
      <note
        dur="8"
        grace="unknown"
        oct="5"
        pname="d"
        stem.dir="up"/>
      <note
        dur="4"
```

```
      oct="5"  
      pname="c"  
      stem.dir="up"  
      xml:id="cmnOrnaments.co_m_1_n2"/>  
    </layer>  
  </staff>  
  <turn form="norm" staff="1" startid="#co_m_1_n1"/>  
  <mordent form="inv" staff="1" startid="#co_1_m_n1"/>  
  <turn form="norm" staff="1" startid="#co_m_1_n2"/>  
  <mordent form="inv" staff="1" startid="#co_m_1_n2"/>  
</measure>
```

8 Musical Corpora

The term corpus may refer to any collection of musical data, although it is often reserved for collections which have been organized or collected with a particular end in view, generally to illustrate a particular characteristic of, or to demonstrate the variety found in, a group of related texts. The principal distinguishing characteristic of a corpus is that its components have been selected or structured according to some conscious set of design criteria.

In MEI, a corpus is regarded as a composite text because, although each discrete document in a corpus clearly has a claim to be considered as a text in its own right, it is also regarded as a subdivision of some larger object, if only for convenience of analysis. In corpora, the component samples are clearly distinct texts, but the systematic collection, standardized preparation, and common markup of the corpus often make it useful to treat the entire corpus as a unit, too. Corpora share a number of characteristics with other types of composite texts, including anthologies and collections. Most notably, different components of composite texts may exhibit different structural properties, thus potentially requiring elements from different MEI modules.

Aside from these high-level structural differences, and possibly differences of scale, the encoding of language corpora and the encoding of individual texts present identical sets of problems. Therefore, any of the encoding techniques and elements presented in other chapters of these Guidelines may therefore prove relevant to some aspect of corpus encoding and may be used in corpora.

8.1 Corpus Module Overview

The `meiCorpus` module defines a single element:

<meiCorpus> (MEI corpus) – A group of related MEI documents, consisting of a header for the group, and one or more `<mei>` elements, each with its own complete header.

The `meiCorpus` element is intended for the encoding of corpora, though it may also be useful in encoding any collection of disparate materials. The individual samples in the corpus are encoded as separate `mei` elements, and the entire corpus is enclosed in an `meiCorpus` element. Each sample has the usual structure for a `mei` document, comprising an `meiHead` followed by a `music` element. The corpus, too, has a corpus-level `meiHead` element, in which the corpus as a whole, and encoding practices common to multiple samples may be described. The overall structure of an MEI-conformant corpus is thus:

```
<meiCorpus>
  <meiHead type="corpus">
    <!--
      metadata for the corpus -->
  </meiHead>
  <mei>
    <meiHead type="text">
```

```
<!-- metadata for sample 1
-->
</meiHead>
<music>
<!-- the encoding of
sample 1 -->
</music>
</mei>
<mei>
<meiHead type="text">
<!--
metadata for sample 2 -->
</meiHead>
<music>
<!-- the encoding of sample 2 -->
</music>
</mei>
</meiCorpus>
```

This two-level structure allows for metadata to be specified at the corpus level, at the individual text level, or at both. However, metadata which relates to the whole corpus rather than to its individual components should be removed from the individual component metadata and included only in the [meiHead](#) element prefixed to the whole.

In some cases, the design of a corpus is reflected in its internal structure. For example, a corpus of musical incipits might be arranged to combine all compositions of one type (symphonies, songs, chamber music, etc.) into some higher-level grouping, possibly with sub-groups for date of publication, instrumentation, key, etc. The [meiCorpus](#) element provides no support for reflecting such internal structure in the markup: it treats the corpus as an undifferentiated series of components, each tagged with an [mei](#) element.

If it is essential to reflect the organization of a corpus into sub-components, then the members of the corpus should be encoded as composite texts instead, using the [group](#) element described in section [1.1.2 Music Element](#). The mechanisms for corpus characterization described in this chapter, however, are designed to reduce the need to do this. Useful groupings of components may easily be expressed using the classification and identification elements described in section [2.3.7 Classification](#), and those for associating declarations with corpus components described in section [2.1.7.1 Associating Metadata and Data](#). These mechanisms also allow several different methods of text grouping to co-exist, each to be used as needed at different times. This helps minimize the danger of cross-classification and mis-classification of samples, and helps improve the flexibility with which parts of a corpus may be characterized for different applications.

All composite texts share the characteristic that their different component texts may be of structurally similar or dissimilar types. If all component texts may all be encoded using the same module, then no problem arises. If however they require different modules, then the various modules must all be included in the schema.

8.2 Combining Corpus and Text Headers

An MEI-conformant document may have more than one header only in the case of a TEI corpus, which must have a header in its own right, as well as the obligatory header for each text. Every element specified in a corpus-header is understood as if it appeared within every text header in the corpus. An element specified in a text header but not in the corpus header supplements the specification for that text alone. If any element is specified in both corpus and text headers, the corpus header element is over-ridden for that text alone.

The [titleStmt](#) for a corpus text is understood to be prefixed by the [titleStmt](#) given in the corpus header. All other optional elements of the [fileDesc](#) should be omitted from an individual corpus text header unless they differ from those specified in the corpus header. All other header elements behave identically, in the manner documented in chapter [2 The MEI Header](#). This makes it possible to state information which is common to the whole of the corpus in the corpus header, while still allowing for individual texts to vary from this common metadata.

For example, the following markup shows the structure of a corpus consisting of three texts, the first and last of which share the same encoding description. The second one has its own encoding description.

```
<meiCorpus>
  <meiHead>
    <fileDesc>
      <!-- corpus file description -->
    </fileDesc>
    <encodingDesc>
      <!-- default encoding
           description -->
    </encodingDesc>
    <revisionDesc>
      <!-- corpus revision
           description -->
    </revisionDesc>
  </meiHead>
  <mei>
    <meiHead>
      <fileDesc>
        <!-- file description for this
             corpus text -->
      </fileDesc>
    </meiHead>
    <music>
      <!-- first corpus text -->
    </music>
  </mei>
  <mei>
    <meiHead>
      <fileDesc>
        <!-- file description for this corpus text
             -->
      </fileDesc>
      <encodingDesc>
        <!-- encoding
             description for this corpus text, over-riding the default -->
      </encodingDesc>
    </meiHead>
    <music>
      <!-- second corpus text -->
```

```
</music>
</mei>
<mei>
  <meiHead>
    <fileDesc>
      <!-- file description for third corpus text
            -->
    </fileDesc>
  </meiHead>
  <music>
    <!-- third corpus text
            -->
  </music>
</mei>
</meiCorpus>
```

8.3 Recommendations for the Encoding of Large Corpora

These Guidelines include proposals for the identification and encoding of a far greater variety of textual features and characteristics than is likely to be either feasible or desirable in any one corpus, however large and ambitious. For most large-scale corpus projects, it will therefore be necessary to determine a subset of recommended elements appropriate to the anticipated needs of the project; these mechanisms include the ability to exclude selected element types, add new element types, and change the names of existing elements.

Because of the high cost of identifying and encoding many textual features, and the difficulty in ensuring consistent practice across very large corpora, encoders may find it convenient to divide the set of elements to be encoded into the following four categories:

- **required** texts included within the corpus will always encode textual features in this category, should they exist in the text
- **recommended** textual features in this category will be encoded wherever economically and practically feasible; where present but not encoded, a note in the header should be made.
- **optional** textual features in this category may or may not be encoded; no conclusion about the absence of such features can be inferred from the absence of the corresponding element in a given text.
- **proscribed** textual features in this category are deliberately not encoded; they may be transcribed as unmarked up text, or represented as [gap](#) elements, or silently omitted, as appropriate.

9 Critical Apparatus

This chapter describes how to encode differences between different exemplars of the same musical work (often referred to in MEI as 'sources'). The mechanisms and elements described in this chapter are closely related to their counterparts in the TEI guidelines. It is also important to refer to chapter [10 Editorial Markup](#) of these guidelines, especially the [choice](#) element described therein.

9.1 General Usage

The following elements are defined in the critApp Module:

- [<app>](#) (apparatus) – Contains one or more alternative encodings.
- [<lem>](#) (lemma) – Contains the lemma, or base text, of a textual variation.
- [<rdg>](#) (reading) – Contains a single reading within a textual variation.

An [app](#) element always encapsulates the differences between varying sources. Therefore, it must contain at least two child elements. Possible child elements are [lem](#) and [rdg](#), which use the same model, but have a different meaning: Whereas [lem](#) is used for prioritizing one alternative, a [rdg](#) has no such additional meaning and simply indicates a reading as found in one or more sources. Accordingly, [lem](#) is allowed only once in [app](#), whereas [rdg](#) may appear as often as necessary.

```
<app>
  <lem>
    <!-- preferred reading -->
  </lem>
  <rdg>
    <!-- alternative reading -->
  </rdg>
  <rdg>
    <!-- alternative reading -->
  </rdg>
</app>
```

The [rdg](#) (and [lem](#)) elements use the @source attribute to point to one or more descriptions of the bibliographic sources containing the material they mark:

```
<!-- In the document content: --><app>
  <rdg source="#critApp.source1">
    <!-- reading of source 1 -->
  </rdg>
  <rdg source="#critApp.source2 #critApp.source3">
    <!-- reading of sources 2 *and* 3 -->
  </rdg>
```

```
</app>
<!-- Earlier in the document header:
-->
<sourceDesc>
  <source xml:id="critApp.source1">
    <!-- bibliographic
         description of source 1 -->
  </source>
  <source xml:id="critApp.source2">
    <!-- bibliographic description of source 2 -->
  </source>
  <source xml:id="critApp.source3">
    <!-- bibliographic description of source 3 -->
  </source>
</sourceDesc>
```

The @seq attribute may be used on [lem](#) or [rdg](#) to record the sequence of a series of readings. In the following example, the material in source B is marked as sequential to (and perhaps derived from) the reading in source A:

```
<app>
  <rdg seq="1" source="#critApp.sourceA">
    <!-- material in
         source 1 -->
  </rdg>
  <rdg seq="2" source="#critApp.sourceB">
    <!-- material in source 2 -->
  </rdg>
</app>
```

If a source has additional content that is not found in other sources, an empty [rdg](#) element may be used to indicate the lack of material in the other sources. In the following example, source 1 includes material that is not found in sources 2 and 3:

```
<app>
  <rdg source="#critApp.source1">
    <!-- additional content of source 1 -->
  </rdg>
  <rdg source="#critApp.source2
             #critApp.source3"/>
</app>
```

When working with a large number of sources, it might seem tedious to provide references for all sources. However, it is not recommended to use a [rdg](#) element without @source as a "fallback" for all sources otherwise unassigned, as such an encoding is not explicit and is difficult to process.

9.2 Variants in Musical Content

The [app](#) element may be used to accommodate textual variation at nearly any point in a musical text. For example, it may be used to indicate minor differences like stem directions:

```

<layer>
  <!-- preceding notes
        -->
  <app>
    <rdg source="#critApp.source1">
      <note
        dur="2"
        oct="4"
        pname="b"
        stem.dir="down"/>
    </rdg>
    <rdg source="#critApp.source2">
      <note
        dur="2"
        oct="4"
        pname="b"
        stem.dir="up"/>
    </rdg>
  </app>
  <!-- following notes
        -->
</layer>

```

or to indicate more significant differences, such as the insertion of extra measures:

```

<section>
  <measure/>
  <measure/>
  <app>
    <rdg source="#critApp.source1"/>
    <rdg source="#critApp.source2">
      <!-- source 2 has 2
            measures not found in source 1 -->
      <measure/>
      <measure/>
    </rdg>
  </app>
  <measure/>
</section>

```

However, the flexibility in the location of [app](#) places a burden on the encoder to ensure that the [app](#), [rdg](#), and [lem](#) elements are used correctly; that is, the content of every [rdg](#) and [lem](#) has to be a valid replacement for its parent [app](#).

9.3 Variants in Score Definitions

In addition to its use for differentiation of the musical content of multiple sources, [app](#) may also be utilized to describe the layout of different scores, even when the musical content itself remains the same. An example of this is two sources that have the same content, but different order of staves. By definition, the order of staves is derived from the order of [staffDef](#) elements in [scoreDef](#), not from the order of [staff](#) elements within a [measure](#). The [staff](#) element in a measure points to its corresponding [staffDef](#) using either 1) the same value for @n on both elements, or 2) a value in @def which is an explicit reference to a particular [staffDef](#) in its @xml:id value.

When using the first of these two approaches, it is possible to point dynamically to the correct staff definition for a given source. The following example demonstrates how this can be accomplished for two sources, both presenting a two-staff score, but with differing staff order:

```
<score>
  <app>
    <rdg source="#critApp.source1">
      <scoreDef>
        <staffGrp>
          <staffDef n="1"/>
          <staffDef n="2"/>
        </staffGrp>
      </scoreDef>
    </rdg>
    <rdg source="#critApp.source2">
      <scoreDef>
        <staffGrp>
          <!-- The order of
              <staffDef> elements defines score order, not its @n attribute!
              -->
          <staffDef n="2"/>
          <staffDef n="1"/>
        </staffGrp>
      </scoreDef>
    </rdg>
  </app>
  <section>
    <measure>
      <staff n="1"/>
      <staff n="2"/>
    </measure>
  </section>
</score>
```

In the example above, no further [app](#) element is necessary within the [measure](#) to describe the alternative score order of the sources.

This mechanism may also be used to describe not only differing page orientations, formats and margins, but also clefs and keys.

Using unique values for @n on [layerDef](#) and [layer](#), it is also possible to reallocate layers.

9.4 Nesting Apparati

In some situations, musical sources will agree at one level while differing at a lower level. For these cases, [app](#) elements may be nested to any level necessary. In the following example, there are three sources, two of which agree on the addition of a measure, but differ in the content of the added measure:

```
<measure/>
<app>
  <rdg source="#critApp.source1"/>
  <rdg source="#source2 #source3">
    <!-- whereas source1 omits it, source2 and source3 have an additional measure
        -->
```

```
<measure>
  <staff>
    <layer>
      <app>
        <!-- while source2 provides a measure rest, source3 has a whole note
             -->
          <rdg source="#critApp.source2">
            <mRest/>
          </rdg>
          <rdg source="#critApp.source3">
            <note dur="1" oct="3" pname="g"/>
          </rdg>
        </app>
      </layer>
    </staff>
  </measure>
</rdg>
</app>
</measure/>
```

When nesting [app](#) elements, it is important that the pointers in the child [rdg](#) element's @source attribute must be a strict subset of the ancestor [rdg](#) element's @source value.

10 Editorial Markup

It is often necessary to render an account of any changes made to a musical text during its creation (and any subsequent editing) and to accommodate editorial comment necessitated by an editorial process. The elements and attributes described in this chapter may be used to record such editorial interventions, whether made by the composer, the copyists of the manuscript, the editor of a earlier edition used as a copy text, or the current encoder/editor.

The scope of the elements described herein is therefore the description of features relating to the genesis, later revision and editorial interpretation of a text. Mechanisms for describing multiple sources are described in chapter [9 Critical Apparatus](#) of these Guidelines.

The elements described in this chapter may be contained by a wide range of other MEI elements and, in turn, may contain a variety of elements. The encoder must assume responsibility for the appropriateness of the markup; that is, a great many combinations of editorial and transcriptional markup are technically possible, but care must be taken to see that the encoding does not contravene the rationale of these Guidelines.

For most of the elements discussed here, some encoders may wish to indicate both a responsibility; that is, a coded value indicating the person or agency responsible for making the editorial intervention in question, and an indication of the degree of certainty which the encoder wishes to associate with the intervention. Because these requirements are common to many of the elements discussed in this section, they are provided by an attribute class, [att.edit](#), to which these elements subscribe. Any of the elements discussed here thus may potentially carry the following optional attributes:

[att.edit](#) Attributes describing the nature of an encoded scholarly intervention or interpretation.

@cert signifies the degree of certainty or precision associated with a feature.

[att.responsibility](#) Attributes capturing information regarding responsibility for some aspect of the text's creation, transcription, editing, or encoding.

@resp captures information regarding responsibility for some aspect of the text's creation, transcription, editing, or encoding. Its value must point to one or more identifiers declared in the document header.

Many of the elements discussed here can be used in two ways. Their primary purpose is to indicate that their content represents an editorial intervention (or, in some cases, the lack of intervention) of a specific kind. Sometimes, pairs or other meaningful groupings of such elements can be recorded, wrapped within the special purpose [choice](#) element:

[`<choice>`](#) – Groups a number of alternative encodings for the same point in a text.

Wrapping elements this way enables the encoder to represent, for example, a text in its ‘original’, uncorrected form alongside the same text in one or more ‘edited’ forms. Making use of this style of representation, software may dynamically switch between the Urtext ‘view’ of the text and one or more ‘views’ of the text after the application of the encoded editorial interventions.

Elements which can be combined in this way constitute the [model.choicePart](#) class. The default members of this class are [sic](#), [corr](#), [reg](#), [orig](#), [unclear](#), [add](#), and [del](#); their functions and usage are described in greater detail below.

Three categories of editorial intervention are discussed by the remainder of this chapter:

- indication or correction of apparent errors;
- indication of regularization of variant, irregular, non-standard, or eccentric forms; and
- editorial additions, suppressions, and omissions.

10.1 Abbreviations

MEI offers methods for marking abbreviations. This includes abbreviations in text, as in the following example:

```
... the next passage shall be
      performed in
<abbr>pno:</abbr> ...
```

or abbreviations in the music itself, as in the following example:

```
<abbr>
<note
  dur="4"
  oct="5"
  pname="c"
  stem.mod="2slash"/>
</abbr>
```

The type attribute may be used to classify the abbreviation according to a convenient typology. Sample values include:

- **suspension** - the abbreviation provides the first letter(s) of the word or phrase, omitting the remainder;
- **contraction** - the abbreviation omits some letter(s) in the middle;
- **brevigraph** - the abbreviation comprises a special symbol or mark;

- **superscription** - the abbreviation includes writing above the line;
- **acronym** - the abbreviation comprises the initial letters of the words of a phrase;
- **title** - the abbreviation is for a title of address (Dr, Ms, Mr, ...);
- **organization** - the abbreviation is for the name of an organization;
- **geographic** - the abbreviation is for a geographic name.

This tag is the mirror image of the [expan](#) tag (not to be confused with the [expansion](#) element described in [1.1.2.3 Content of Musical Divisions](#)). Both [abbr](#) and [expan](#) allow the encoder to transcribe an abbreviation and its expansion. In the case of [abbr](#), the original is transcribed as the content of the element and the expansion as an attribute value, while [expan](#) reverses this. The choice between the two is up to the user. For example:

```
<!--  
    using abbr --><p>... the next passage shall  
    be performed in <abbr expan="piano">pno:</abbr> ...</p>  
<!-- using expan  
    -->  
<p>... the next passage shall be  
    performed in <expan abbr="pno:">piano</expan> ...</p>
```

The [abbr](#) tag is not required; if appropriate, the encoder may transcribe abbreviations in the source text silently, without tagging them. If abbreviations are not transcribed directly but expanded silently, then the MEI header should indicate this is the case. The @cert attribute signifies the degree of certainty ascribed to the expansion of the abbreviation. The @expan attribute gives an expansion of the abbreviation. The @resp attribute contains an ID reference to an element containing the name of the editor or transcriber responsible for supplying the expansion of the abbreviation.

When the content of the @abbr or @expan attributes requires additional markup, an attribute cannot be used. In this case, the abbreviated and expanded forms must be presented within elements. Furthermore, as alternatives to each other, the [abbr](#) and [expan](#) elements must be wrapped by the [choice](#) element, as described above. The previous example, where the 'o:' in 'pno:' is written as superscript, would be encoded as:

```
<p>... the next passage shall be performed in <choice>  
  <abbr>pn<rend rend="sup">o:</rend>  
</abbr>  
  <expan>piano</expan>  
</choice>  
</p>
```

10.2 Apparent Errors

When the source material to be encoded is manifestly faulty, an encoder or transcriber may elect simply to correct it without comment, although for scholarly purposes it will often be more generally useful to record both the correction and the original state of the text. The elements described here

enable all three approaches, and allows the last to be done in such a way as make it easy for software to present either the original or the correction.

[<sic>](#) – Contains apparently incorrect or inaccurate material.

[<corr>](#) (correction) – Contains the correct form of an apparent erroneous passage.

The following examples show alternative treatment of the same material. The text to be encoded contains a chord (c4, e4, g4, a4), where c4, e4, and a4 are quarter notes, but g4 is a half note.

An encoder may choose to silently correct the engraver's error:

```
<chord>
<note dur="4" oct="4" pname="c"/>
<note dur="4" oct="4" pname="e"/>
<note dur="4" oct="4" pname="g"/>
<note dur="4" oct="4" pname="a"/>
</chord>
```

or the correction may be made explicit:

```
<chord>
<note dur="4" oct="4" pname="c"/>
<note dur="4" oct="4" pname="e"/>
<corr>
<note dur="4" oct="4" pname="g"/>
</corr>
<note dur="2" oct="4" pname="a"/>
</chord>
```

Alternatively, the encoder may simply record the typographic error without correcting it, either without comment or with a [<sic>](#) element to indicate the error is not a transcription error in the encoding:

```
<chord>
<note dur="4" oct="4" pname="c"/>
<note dur="4" oct="4" pname="e"/>
<sic>
<note dur="2" oct="4" pname="g"/>
</sic>
<note dur="4" oct="4" pname="a"/>
</chord>
```

If the encoder elects to record the original source text and provide a correction for the sake of transparency, both [<sic>](#) and [<corr>](#) may be used, wrapped in a [<choice>](#) element. The order of the [<sic>](#) and [<corr>](#) elements is not significant:

```
<chord>
  <note dur="4" oct="4" pname="c"/>
  <note dur="4" oct="4" pname="e"/>
  <choice>
    <sic>
      <note dur="2" oct="4" pname="g"/>
    </sic>
    <corr>
      <note dur="4" oct="4" pname="g"/>
    </corr>
  </choice>
  <note dur="4" oct="4" pname="a"/>
</chord>
```

An indication of the person or agency responsible for the emendation can be provided as follows:

```
<!--
  .... --><chord>
  <note dur="4" oct="4" pname="c"/>
  <note dur="4" oct="4" pname="e"/>
  <choice>
    <sic>
      <note dur="2" oct="4" pname="g"/>
    </sic>
    <corr resp="#JK">
      <note dur="4" oct="4" pname="g"/>
    </corr>
  </choice>
  <note dur="4" oct="4" pname="a"/>
</chord>
<!-- within the
      header for this document: -->
<respStmt>
  <name role="editor" xml:id="editTrans.JK">Johannes Kepper</name>
</respStmt>
```

Here the @resp attribute has been used to indicate responsibility for the correction. Its value (#editTrans.JK) is an example of the pointer values discussed in section [19 Pointers and References](#). In this case, the @resp attribute points to a [name](#) element within the metadata header, but any element might be indicated in this way, if the correction has been taken from some other source. The @resp attribute is available for all elements which are members of the [att.responsibility](#) class. The [att.edit](#) class makes available a @cert attribute, which may be used to indicate the degree of editorial confidence in a particular correction, as in the following example:

```
<chord>
  <note dur="4" oct="4" pname="c"/>
  <note dur="4" oct="4" pname="e"/>
  <choice>
    <sic>
      <note dur="2" oct="4" pname="g"/>
    </sic>
    <corr cert="high">
      <note dur="4" oct="4" pname="g"/>
    </corr>
  </choice>
```

```
<note dur="4" oct="4" pname="a"/>
</chord>
```

Where, as here, the correction takes the form of amending information present in the text being encoded, the encoder should use the [corr](#) element. Where the correction is present in the text being encoded, and consists of some combination of visible additions and deletions, the elements [add](#) or [del](#) should be used. For additional information on the use of [add](#) and [del](#), see section [10.4.2 Additions and Deletions](#) below. Where the correction takes the form of an addition of material not present in the original because of physical damage or illegibility, the [supplied](#) element may be used. Where the 'correction' is simply a matter of expanding abbreviated notation, the [expan](#) element may be used.

10.3 Regularization and Normalization

When the musical source makes extensive use of unusual symbol shapes or non-standard notation features, it may be desirable for a number of reasons to regularize it; that is, provide 'standard' or 'regularized' forms that are equivalent to the non-standard forms.

As with other such changes to the source text, the changes may be made silently (in which case the MEI header should still specify the types of silent changes made) or may be explicitly marked using the following elements:

[<reg>](#) (regularization) – Contains material which has been regularized or normalized in some sense.

[<orig>](#) (original) – Contains material which is marked as following the original, rather than being normalized or corrected.

[<choice>](#) – Groups a number of alternative encodings for the same point in a text.

Consider this traditional soprano clef appearing somewhere in the course of a musical piece:

An encoder may choose to preserve this original clef, but flag it as nonstandard from the perspective of current practice by using the [orig](#) element with no attributes specified, as follows:

```
<orig>
  <clef line="2" shape="C"/>
</orig>
```

Alternatively, the encoder may indicate that the clef has been modernized into a G-clef by using the [reg](#) element with no attributes specified, as follows:

```
<reg>
  <clef line="2" shape="G"/>
</reg>
```

As another alternative, the encoder may encode both the old and modernized shapes, so that applications may render both at the reader's will:

```
<choice>
  <orig>
    <clef line="2" shape="C"/>
  </orig>
  <reg>
    <clef line="2" shape="G"/>
  </reg>
</choice>
```

As described above, the @resp attribute may be used to specify the agent responsible for the regularization.

10.4 Additions, Deletions, and Omissions

The following elements are used to indicate when single notational symbols have been omitted from, added to, or marked for deletion from, a musical text. Like the other editorial elements described in this chapter, they allow for a wide range of editorial practices:

<gap/> – Indicates a point where material has been omitted in a transcription, whether as part of sampling practice or for editorial reasons described in the MEI header.

@reason holds a short phrase describing the reason for missing textual material (gap), why material is supplied (supplied), or why transcription is difficult (unclear).

<unclear> – Contains material that cannot be transcribed with certainty because it is illegible or inaudible in the source.

@reason holds a short phrase describing the reason for missing textual material (gap), why material is supplied (supplied), or why transcription is difficult (unclear).

<add> (addition) – Marks an addition to the text.

**** (deletion) – Contains information deleted, marked as deleted, or otherwise indicated as superfluous or spurious in the copy text by an author, scribe, annotator, or corrector.

10.4.1 Omissions, Unclear Readings, Damage, and Supplied Readings

Encoders may choose to omit parts of the source for reasons ranging from illegibility, (making transcription difficult or impossible), to editorial policy, e.g., systematic exclusion of poetry or prose from an encoding. The full details of the policy decisions concerned should be documented in the MEI

header (see section [2.2 Encoding Description](#)). Each place in the text at which omission has taken place should be marked with a [gap](#) element, optionally with further information about the reason for the omission, its extent, and the person or agency responsible for it, as in the following examples:

```
<gap quantity="2" reason="illegible" unit="quarter"/>
```

```
<gap extent="several notes" reason="overwriting illegible"/>
```

Note that the extent of the gap may be marked precisely using attributes @unit and @quantity, or more descriptively using the @extent attribute.

Unlike TEI, MEI does not offer a *desc* element for further description of the reason for a gap. Instead, an [annot](#) may refer to the gap via its @startid, @endid, or @plist attributes and provide additional information.

The [unclear](#) element is used to mark passages in the original which cannot be read with confidence, or about which the transcriber is uncertain for other reasons, as for example when transcribing a illegible source. Its @reason and @resp attributes are used, as with the [gap](#) element, to indicate the cause of uncertainty and the person responsible for the conjectured reading.

```
<note dur="4" oct="4" pname="c">
  <unclear reason="ink
    blot">
    <artic artic="acc"/>
  </unclear>
</note>
```

Where the difficulty in transcription arises from an identifiable cause, the @agent attribute signifies the causative agent. The @cert attribute signifies the degree of certainty ascribed to the transcription of the text contained within the [unclear](#) element. Where the difficulty in transcription arises from action (partial deletion, etc.) assignable to an identifiable hand, the @hand attribute may record the hand responsible for the action.

When the reason for a gap in the encoding is damage of the document carrier (the paper on which the document is written, for example), the [damage](#) element should be used instead of the [gap](#) element. In the case of damage resulting from an identifiable cause, the @agent attribute signifies the causative agent. The @degree attribute signifies the degree of damage according to a convenient scale. A [damage](#) tag with this attribute should only be used where the text may be read with some confidence; data supplied from other sources should be tagged as [supplied](#). The @extent attribute indicates approximately how much text is in the damaged area, in notes, measures, inches, or any appropriate unit, where this cannot be deduced from the contents of the tag. For example, the damage may span structural divisions in the text so that the tag must then be empty of content. In

the case of damage (deliberate defacement, etc.) assignable to an identifiable hand, the @hand attribute signifies the hand responsible for the damage.

Sometimes the editor provides information not present in the source material. These conjectures or emendations are marked up in MEI using the [supplied](#) element.

The following example demonstrates the use of the [supplied](#) element in combination with [choice](#) and [gap](#):

```
<beam>
  <note dur="4" oct="3" pname="c"/>
  <note dur="4" oct="3" pname="d"/>
  <choice>
    <gap extent="two eighth
              notes" reason="missing
              notes"/>
    <supplied>
      <note dur="4" oct="3" pname="e"/>
      <note dur="4" oct="3" pname="f"/>
    </supplied>
  </choice>
  <note dur="4" oct="3" pname="g"/>
  <note dur="4" oct="3" pname="a"/>
</beam>
```

When the presumed loss of text arises from an identifiable cause, @agent signifies the causative agent. When the presumed loss of text arises from action (partial deletion, etc.) assignable to an identifiable hand, the @hand attribute signifies the hand responsible for the action. The @reason attribute indicates why the text has to be supplied, e.g. 'overbinding', 'faded ink', 'lost folio', 'omitted in original', etc. The @source attribute contains the source of the supplied text. The editor(s) responsible for supplied material may be recorded in the @resp attribute. The value of @resp must point to one or more identifiers declared in the document header. The @cert attribute signifies the degree of certainty ascribed to the supplied material.

10.4.2 Additions and Deletions

The [add](#) and [del](#) elements may be used to record where material has been added or deleted in the source material.

The following example demonstrates the usage of [add](#) to mark up a note being added to an existing chord:

```
<chord>
  <note pname="c"/>
  <note pname="e"/>
  <note pname="g"/>
  <add>
    <note accid="f" pname="b"/>
  </add>
</chord>
```


The next example shows how [del](#) may be used to capture the information that two measures have been cancelled. As seen in this example, the @rend attribute is used to specify the method of deletion.

```
<measure>
<!-- ... -->
</measure>
<measure>
<!-- ... -->
</measure>
<del rend="strikethrough">
  <measure>
    <!-- ... -->
  </measure>
  <measure>
    <!-- ... -->
  </measure>
</del>
<measure>
  <!-- ... -->
</measure>
```

Additional information for both elements may be specified using attributes. Whereas the @hand attribute marks responsibility for the textual change, the @resp attribute is used to refer to the editor who identified this textual change as such. The @cert attribute signifies the degree of certainty ascribed to the identification of the hand of the deletion or addition.

The [add](#) element should not be used to mark editorial changes, such as supplying a note omitted by mistake from the source text or a passage present in another source. In these cases, either the [corr](#) or [supplied](#) tags should be used instead.

10.4.3 Substitutions, Restorations, and Handshifts

When several interventions to the musical text are to be regarded as a single action, they may be grouped using the [subst](#) element. The most common combination is a replacement of portions of the musical text using both the [add](#) and [del](#) element, as seen in the following example:

```
<layer>
<!-- preceding
      content -->
  <subst>
    <del>
      <note dur="4" oct="4" pname="c"/>
    </del>
    <add>
      <beam>
        <note dur="8" oct="4" pname="c"/>
        <note dur="8" oct="4" pname="d"/>
      </beam>
    </add>
  </subst>
<!-- subsequent content -->
</layer>
```

An intervention closely related to substitution is the restoration of a previously deleted section. For this purpose MEI offers the [restore](#) element, which may contain a [del](#) or other content directly.

The following example illustrates an instance where a lyric which was cancelled and later restored by overwriting it:

```
<note dur="4" oct="4" pname="c">
  <syl>
    <restore desc="overwritten">
      <del>God</del>
    </restore>
  </syl>
</note>
```

The @desc attribute gives a prose description of the means of restoration. The @cert attribute signifies the degree of certainty ascribed to the identification of the hand of the restoration. The @type attribute may be used to indicate the action cancelled by the restoration. The @resp attribute contains an ID reference to an element containing the name of the editor or transcriber responsible for identifying the hand of the restoration. The @hand attribute signifies the hand of the agent which made the restoration.

MEI offers a [handShift](#) milestone element that can be used to mark a change of scribe or scribal style.

The @character attribute describes characteristics of the hand, particularly those related to the quality of the writing, e.g., 'shaky', 'thick', 'regular'. A description of the tint or type of ink, e.g., 'brown' or the writing medium, e.g., 'pencil', may be placed in the @medium attribute.

```
<layer>
  <note/>
  <note/>
  <handShift medium="blue ink"/>
  <note/>
  <note/>
</layer>
```

The new hand may be identified using the @new attribute, while the previous hand may be recorded in the @old attribute. The @resp attribute contains an ID reference to an element containing the name of the editor or transcriber responsible for identifying the change of hand. The @cert attribute signifies the degree of certainty ascribed to the identification of the new hand.

When using this element within a layer, it is important to ensure that all layers and staves are considered. Every [handShift](#) affects only the content of its own layer and staff, even in the following measures. Therefore, there must be a separate [handShift](#) for every [staff](#) and [layer](#). This mechanism allows the description of shifts at timestamps that differ between each staff.

11 Facsimiles

Most often, MEI is used for the preparation of a digital musical text based on an existing music document, or with the intention of rendering the encoded notation into a document or audio rendition. MEI can, however, be used to provide a different kind of digital reproduction of a source document, which relies on the description and provision of digital imagery. Both approaches may be combined, so that the encoding of the musical content and digital facsimiles may add different facets to the same MEI document.

11.1 Elements of the Facsimile Module

This module makes available the following elements for encoding facsimiles:

<facsimile> – Contains a representation of some written source in the form of a set of images rather than as transcribed or encoded text.

<surface> – Defines a writing surface in terms of a rectangular coordinate space, optionally grouping one or more graphic representations of that space, and rectangular zones of interest within it.

<zone> – Defines an area of interest within a surface or graphic file.

These element are used to add a separate subtree to MEI, starting with the [facsimile](#) element inside [music](#), as seen in the following example:

```
<mei>
  <meiHead>
    <!-- metadata
      header -->
  </meiHead>
  <music>
    <facsimile>
      <!-- The facsimile subtree
        starts here. -->
    </facsimile>
    <body>
      <!-- The encoding of the musical content goes here.
        -->
    </body>
  </music>
</mei>
```

It is possible to have more than one [facsimile](#) element in this location. This is especially useful when multiple sources are encoded in the same file using the mechanisms described in chapter [10 Editorial Markup](#) of these Guidelines. In this case, the @decls (declarations) attribute of [facsimile](#) may be used to refer to a source defined in the document's header, as seen in the following example:

```
<meiHead>
  <source xml:id="facsimile.source1">
    <!-- description of
           source -->
  </source>
</meiHead>
<music>
  <facsimile decls="#facsimile.source1">
    <!-- facsimile content -->
  </facsimile>
</music>
```

Within a [facsimile](#) element, each page of the source is represented by a [surface](#) element. Each surface may be assigned an identifying string utilizing the @label attribute. In addition, it may encapsulate more detailed metadata about itself in a [figDesc](#) element. The coordinate space of the surface may be recorded in abstract terms in the @ulx, @uly, @lrx, and @lry attributes. For navigation purposes, [surface](#) has a @startid attribute that accommodates pointing to the first object appearing on this particular writing surface.

```
<facsimile>
  <surface
    label="page
           1"
    lrx="2000"
    lry="3000"
    startid="#measure1"
    ulx="0"
    uly="0"/>
</facsimile>
```

Within [surface](#) elements, one may nest one or more [zone](#) elements

Within [surface](#) elements, one may nest one or more [graphic](#) elements, each providing a reference to an image file that represents the writing surface. Multiple [graphic](#) elements are permitted in order to accommodate alternative versions (different resolutions or formats, for instance) of the surface image. In spite of changes in resolution or format, all images must contain the same content, i.e., the entire writing surface.

```
<facsimile>
  <surface>
    <graphic
      height="2000"
      target="image1.jpg"
      unit="px"
      width="3000"/>
    <graphic
      height="1000"
      target="image1smaller.jpg"
      unit="px"
      width="1500"/>
    <graphic
      height="200"
      target="image1smallest.png"
      unit="px"
```

```

    width="300"/>
</surface>
</facsimile>

```

The preceding markup will provide the basis for most page-turning applications. Often, however, it is desirable to focus attention on particular areas of the writing surface. The [zone](#) element fulfills this purpose:

```

<surface
  lrx="3000"
  lry="2000"
  ulx="0"
  uly="0">
  <graphic
    height="2000"
    target="image1.jpg"
    unit="px"
    width="3000">
    <zone
      lrx="370"
      lry="410"
      ulx="300"
      uly="200"/>
    <zone
      lrx="439"
      lry="410"
      ulx="367"
      uly="200"/>
    <zone
      lrx="512"
      lry="410"
      ulx="436"
      uly="200"/>
    </graphic>
    <zone
      lrx="370"
      lry="410"
      ulx="300"
      uly="200"/>
    <zone
      lrx="439"
      lry="410"
      ulx="367"
      uly="200"/>
    <zone
      lrx="512"
      lry="410"
      ulx="436"
      uly="200"/>
  </surface>

```

```

<surface>
  <graphic
    height="2000"
    target="image1.jpg"
    unit="px"
    width="3000"/>
  <zone
    lrx="370"

```

```
lry="410"  
ulx="300"  
uly="200"/>  
<zone  
lrx="439"  
lry="410"  
ulx="367"  
uly="200"/>  
<zone  
lrx="512"  
lry="410"  
ulx="436"  
uly="200"/>  
</surface>
```

In the following example, the surface is defined as rectangle that is 3000 units wide and 2000 units tall. The graphic that represents the surface, however, is only 2995 units wide and 1995 units tall; that is, the graphic has been ‘cropped’ with respect to the writing surface.

```
<surface  
lrx="3000"  
lry="2000"  
ulx="0"  
uly="0">  
<graphic  
height="1995"  
target="image1.jpg"  
unit="px"  
width="2995"/>  
</surface>
```

The coordinates of each zone *define a space relative to the coordinate space of its parent surface*. Note that this is not necessarily the same coordinate space defined by the width and height attributes of the graphic that represents the surface.

The earlier point bears repeating — the zone coordinates in the preceding example do not represent regions within the graphic, but rather regions of the writing surface. When agreement between the coordinate systems of a surface and a graphic is desired,

Because the coordinate space of a zone is defined relative to that of a surface, it is possible to provide multiple graphic elements *and* multiple zone elements within a single surface. In the following example, the

```
<surface  
lrx="3000"  
lry="2000"  
ulx="0"  
uly="0">  
<graphic  
height="2000"  
target="image1.jpg"  
unit="px"  
width="3000"/>  
<graphic
```

```

height="1995"
target="image1cropped.jpg"
unit="px"
width="2995"/>
<zone
  lrx="370"
  lry="410"
  ulx="300"
  uly="200"/>
</surface>

```

A [zone](#) element may contain [figDesc](#) or [graphic](#) elements that provide detailed descriptive information about the zone and additional images, e.g., at a different/higher resolution, of the rectangle defined by the zone. The data objects contained within the zone may also be specified through the use of the @data attribute, which contains ID references to one more elements in the content tree of the MEI file, such as a [note](#), [measure](#), etc.

```

<!--
    In the facsimile subtree: --><zone data="#facsimile.measure1" xml:id="facsimile.zone1"/>
<!-- somewhere in the content: -->
<measure xml:id="facsimile.measure1">
  <!-- measure
    content -->
</measure>

```

Conversely, an element in the content may refer to the [facsimile](#) subtree using its @facs attribute, which is made available by the [att.facsimile](#) attribute class. The last example could therefore be encoded with pointers in the other direction:

```

<!--
    In the facsimile subtree: --><zone xml:id="facsimile.zone2"/>
<!-- somewhere in the content: -->
<measure facs="#facsimile.zone2" xml:id="facsimile.measure2">
  <!-- measure content -->
</measure>

```

The [pb](#) element defined in the [shared module](#) makes special use of the @facs attribute, in that it does not point to a [zone](#), but a [surface](#) element instead. A [pb](#) marks the beginning of a page, so it can be concluded that all elements in the content tree which are encoded between any two [pbs](#) encode musical symbols written on the page ([surface](#)) referenced by the first of these two [pbs](#) @facs attribute.

12 Figures and Tables

Apart from music and text, musical documents, both historical and contemporary, may also contain material in graphical or tabular format. In such materials, details of layout and presentation may also be of comparatively greater significance or complexity than they are for running text. Although some types of graphical material can be represented directly with markup, it is more common practice to include such information by using a reference to an external entity (typically a URL) encoded in a suitable graphical format.

The module defined by this chapter defines special purpose ‘container’ elements that can be used to encapsulate occurrences of such data within an MEI-conformant document in a portable way. Specific recommendations for the encoding of figures, figure descriptions and graphics as well as tables with their sub-elements [tr](#), [td](#) and [th](#) are provided at the beginning of this chapter. As there exists a wide variety of different graphic formats, a short list of formats that are widely used at the present time, is given in section [12.1.2 Images](#). Each one includes a very brief description. The chapter closes with attribute and model classes which are defined by the module.

The module described in this chapter makes available the following components:

12.1 Figures

The [fig](#) element groups elements representing or containing graphic information such as an illustration or figure. This element is modelled on the figure element in the Text Encoding Initiative (TEI). The [fig](#) element is used to contain images, captions, and textual descriptions of the pictures. The images themselves are specified using the graphic element, whose @target attribute provides the location of an image. For example:

```
<figure>
  <graphic
    target="../../samples/snippets/mei2012-30shortexamples/beam-grace/grace-300.png"/>
</figure>
```

The graphic element may occur multiple times within the markup of the figure in order to indicate the availability of different image formats or resolutions:

```
<figure>
  <graphic
    target="../../samples/snippets/mei2012-30shortexamples/beam-grace/grace-72.png"/>
  <graphic
    target="../../samples/snippets/mei2012-30shortexamples/beam-grace/grace-300.png"/>
  <graphic
    target="../../samples/snippets/mei2012-30shortexamples/beam-grace/grace-600.png"/>
</figure>
```


12.1.1 Figure Captions and Descriptions

The element [caption](#) may be used to transcribe (or supply) a title or descriptive heading for the graphic itself, as in the following example:

```
<figure>
  <caption>Grace
    notes</caption>
  <graphic
    target="../../samples/snippets/mei2012-30shortexamples/beam-grace/grace-300.png"/>
</figure>
```

The figure description ([figDesc](#)) element usually contains a brief prose description of the appearance or content of a graphic figure, for use when documenting an image, perhaps without displaying it. This element is intended for use as an alternative to the content of its parent `<figure>` element; for example, for display when the equipment in use cannot display graphic images. It may also be used for indexing or documentary purposes, in which case best practice suggests the use of controlled vocabulary terms.

```
<figure>
  <graphic target="emblem1.png"/>
  <caption>Emblemi d'Amore</caption>
  <figDesc>A pair of
    naked winged cupids, each holding a flaming torch, in a rural
    setting.</figDesc>
</figure>
```

Occasionally, a figure description may have a complex structure. In this case, one or more textual component elements (`<paragraph>`, [table](#), [list](#), [quote](#), or [lg](#)) may be used to model the internal structure of the description:

```
<figure>
  <caption>Grace notes</caption>
  <figDesc>
    <p>The example shows
      grace notes within beams ...</p>
    <p>This illustration was created by ...</p>
  </figDesc>
  <graphic
    target="../../samples/snippets/mei2012-30shortexamples/beam-grace/grace-300.png"/>
</figure>
```

12.1.2 Images

The [graphic](#) element indicates the location of an inline graphic, illustration, or figure. As noted above, there exists a wide variety of different graphics formats, and the following list is in no way exhaustive. Moreover, inclusion of any format in this list should not be taken as indicating endorsement by the MEI of this format or any products associated with it. Some of the formats listed

here are proprietary to a greater or lesser extent and cannot therefore be regarded as standards in any meaningful sense. They are, however, widely used by many different vendors. The following formats are widely used at the present time, and are likely to remain supported by more than one vendor's software:

- BMP: Microsoft bitmap format
- CGM: Computer Graphics Metafile
- GIF: Graphics Interchange Format
- JPEG: Joint Photographic Expert Group
- PBM: Portable Bit Map
- PCX: IBM PC raster format
- PICT: Macintosh drawing format
- PNG: Portable Network Graphics format
- Photo-CD: Kodak Photo Compact Disk format
- QuickTime: Apple real-time image system
- SMIL: Synchronized Multimedia Integration Language format
- SVG: Scalable Vector Graphics format
- TIFF: Tagged Image File Format

Brief descriptions of all the above are given below. Where possible, current addresses or other contact information are shown for the originator of each format. Many formal standards, especially those promulgated by the ISO and many related national organizations (ANSI, DIN, BSI, and many more), are available from those national organizations. Addresses may be found in any standard organizational directory for the country in question.

12.1.2.1 Vector Graphic Formats

- **CGM: Computer Graphics Metafile** This vector graphics format is specified by an ISO standard, ISO 8632:1987, amended in 1990. It defines binary, character, and plain-text encodings; the non-binary forms are safer for blind interchange, especially over networks. Documentation is available from ISO and from its member national bodies, such as AFNOR, ANSI, BSI, DIN, JIS, etc.
- **SVG: Scalable Vector Graphics format** SVG is a language for describing two-dimensional vector and mixed vector or raster graphics in XML. It is defined by the Scalable Vector Graphics (SVG) 1.0 Specification, W3C Recommendation, 04 September 2001, available at <http://www.w3.org/TR/2001/REC-SVG-20010904/>.
- **PICT: Macintosh drawing format** This format is universally supported on Macintosh (tm) systems, and readable by a limited range of software for other systems. Documentation is available from Apple Computer, Cupertino, California USA.

12.1.2.2 Raster Graphic Formats

- **PNG: Portable Network Graphics format** PNG is a non-proprietary raster format currently widely available. It provides an extensible file format for the losslessly compressed storage of raster images. Indexed-color, grayscale, and true-color images are supported, plus an optional alpha channel. Sample depths range from 1 to 16 bits. It is defined by IETF RFC 2083, March 1997.
- **TIFF: Tagged Image File Format** Currently the most widely supported raster image format, especially for black and white images, TIFF is also one of the few formats commonly supported on more than one operating system. The drawback to TIFF is that it actually is a wrapper for several formats, and some TIFF-supporting software does not support all variants. TIFF files may use LZW, CCITT Group 4, or PackBits compression methods, or may use no compression at all. Also, TIFF files may be monochrome, greyscale, or polychromatic. All such options should be specified in prose at the end of the [encodingDesc](#) section of the MEI header for any document including TIFF images. TIFF is owned by Aldus Corporation. Documentation on TIFF is available from the owner at Craigcook Castle, Craigcook Road, Edinburgh EH4 3UH, Scotland, or 411 First Avenue South, Seattle, Washington 98104 USA.
- **GIF: Graphics Interchange Format** Raster images are widely available in this form, which was created by CompuServe Information Services, but has by now been implemented for many other systems as well. Documentation is copyright by, and is available from, CompuServe Incorporated, Graphics Technology Department, 5000 Arlington Center Boulevard, Columbus, Ohio 43220 USA.
- **PBM: Portable Bit Map** PBM files are easy to process, eschewing all compression in favor of transparency of file format. PBM files can, of course, be compressed by generic file-compression tools for storage and transfer. Public domain software exists which will convert many other formats to and from PBM. Documentation of PBM is copyright by Jeff Poskanzer, and is available widely on the Internet.
- **PCX: IBM PC raster format** This format is used by most IBM PC paint programs, and supports both monochrome and polychromatic images. Documentation is available from ZSoft Corporation, Technical Support Department, ATTN: Technical Reference Manual, 450 Franklin Rd. Suite 100, Marietta, GA 30067 USA.
- **BMP: Microsoft bitmap format** This format is the standard raster format for computer using Microsoft Windows (tm) or Presentation Manager (tm). Documentation is available from Microsoft Corporation.

12.1.2.3 Photographic and Motion Video Formats

- **JPEG: Joint Photographic Experts Group** This format is sponsored by CCITT and by ISO. It is ISO/IEC Draft International Standard 10918-1, and CCITT T.81. It handles monochrome and polychromatic images with a variety of compression techniques. JPEG per se, like CCITT Group IV, must be encapsulated before transmission; this can be done via TIFF, or via the JPEG File Interchange Format (JFIF), as commonly done for Internet delivery.
- **Photo-CD: Kodak Photo Compact Disk format** This format was introduced by Kodak for rasterizing photographs and storing them on CD-ROMs (about one hundred 35mm film images

fit on one disk), for display on televisions or CD-I systems. Information on Photo-CD is available from Kodak Limited, Research and Development, Headstone Drive, Harrow, Middlesex HA1 4TY, UK.

12.2 Tables

The element [table](#) contains text displayed in tabular form, i.e., in rows and columns. A table is the least 'graphic' of the elements discussed in this chapter. Almost any text structure can be presented as a series of rows and columns: one might, for example, choose to show a glossary or other form of list in tabular form, without necessarily regarding it as a table. When tabular presentation is regarded as of less intrinsic importance, it is correspondingly simpler to encode descriptive or functional information about the contents of the table, for example to identify one cell as containing a name and another as containing a date, though the two methods may be combined.

The [table](#) element may appear both within other components (such as paragraphs), or between them, provided that the module defined in this chapter has been enabled. It is to a large extent arbitrary whether a table should be regarded as a series of rows or as a series of columns. For compatibility with currently available systems, however, these Guidelines require a row-by-row description of a table.

While rows and columns are always encoded in top-to-bottom, left-to-right order, formatting properties such as those provided by CSS may be used to specify that they should be displayed differently.

12.2.1 Rows

The [tr](#) (table row) element is a formatting element that contains one or more [td](#) or [th](#) elements (cells) in a [table](#). A cell is the intersection of a row and a column. The precise rendition of the table and its cells should be specified in a style sheet.

```
<table>
<tr>
  <th colspan="7">Besetzungen der Triosonate und ihrer
    Nachfolger</th>
</tr>
<tr>
  <td/>
  <td>Triosonate<lb/>Standardbes.</td>
  <td>Triosonate für<lb/>Orgel
    (Bach)</td>
  <td>Sonate mit obl.<lb/>Cembalo
    (Bach)</td>
  <td>Klaviertrio</td>
  <td>Streichquartett</td>
  <td>Streichtrio</td>
</tr>
<tr>
  <td>1. Oberstimme</td>
  <td>1. Violine</td>
  <td>Orgel
    r.H.</td>
  <td>Violine<lb/>(Flöte, Gambe)</td>
```

```

<td>Violine</td>
<td>1. Violine</td>
<td>1. Violine</td>
</tr>
<tr>
<td>2. Oberstimme</td>
<td>2. Violine</td>
<td>Orgel
      1.H.</td>
<td>Cembalo r.H.</td>
<td>Klavier r.H.</td>
<td>2. Violine</td>
<td/>
</tr>
<tr>
<td>harmonische Füllung</td>
<td>Cembalo r.H.</td>
<td/>
<td/>
<td/>
<td>Bratsche</td>
<td>Bratsche</td>
</tr>
<tr>
<td>Bass-Stimme</td>
<td>Cello</td>
<td>Orgel Pedal</td>
<td>Cello</td>
<td>Cello</td>
<td>Cello</td>
<td>Cello</td>
</tr>
</table>

```

12.2.2 Cells

The [td](#) (table data) element designates a table cell that contains data as opposed to a cell that contains column or row heading information. The @colspan and @rowspan attributes provide tabular rendering information. They indicate that a particular cell or row of a table spans more than one row or column.

```

<table>
<tr>
<td colspan="2" rowspan="2">unmittelbares Schlagen</td>
<td colspan="2" rowspan="2">mittelbares Schlagen</td>
</tr>
<tr>
<td>Gegenschlag</td>
<td>Aufschlag</td>
<td>Schütteln</td>
<td>Schräpen</td>
</tr>
<tr>
<td>1. Stäbe</td>
<td>1.
      Stäbe</td>
<td>1. Rahmen</td>
<td>1. Raspeln</td>
</tr>
<tr>
<td>2.

```

```
        Platten</td>
<td>2. Röhren</td>
<td>2. Gefäße</td>
<td>2. Räder</td>
</tr>
<tr>
<td/>
<td>3.
        Platten</td>
<td>3. Reihen</td>
<td/>
</tr>
<tr>
<td/>
<td>4.
        Gefäße</td>
<td/>
<td/>
</tr>
</table>
```

The [th](#) (table header) element designates a table cell containing column or row heading information as opposed to one containing data. The @colspan and @rowspan attributes tabular display rendering information. They indicate that a particular cell or row of a table spans more than one row or column.

```
<table>
<tr>
<th colspan="4">Systematische Einteilung der Idiophone</th>
</tr>
<tr>
<td colspan="2">unmittelbares Schlagen</td>
<td colspan="2">mittelbares Schlagen</td>
</tr>
<tr>
<td>Gegenschlag</td>
<td>Aufschlag</td>
<td>Schütteln</td>
<td>Schräpen</td>
</tr>
<tr>
<td>1. Stäbe</td>
<td>1.
        Stäbe</td>
<td>1. Rahmen</td>
<td>1. Raspeln</td>
</tr>
<tr>
<td>2.
        Platten</td>
<td>2. Röhren</td>
<td>2. Gefäße</td>
<td>2. Räder</td>
</tr>
<tr>
<td/>
<td>3.
        Platten</td>
<td>3. Reihen</td>
<td/>
</tr>
<tr>
```

```

<td/>
<td>4.
    Gefäße</td>
<td/>
<td/>
</tr>
</table>

```

13 Harmony

This chapter describes the encoding of indications of harmony occurring within a music text, e.g., chord names, tablature grids, figured bass, or signs for harmonic analysis, and the methods by which these indications can be connected with their interpretations.

13.1 Overview of the Harmony Module

The module makes available the following components:

13.1.1 Elements

The following elements are provided by the harmony module:

[`<barre/>`](#) – An indication of fingering in a chord tablature grid.

[`<chordDef>`](#) (chord definition) – Chord tablature definition.

[`<chordMember/>`](#) – An individual pitch in a chord defined by a `<chordDef>` element.

[`<chordTable>`](#) – Chord/tablatue look-up table.

[`<f>`](#) (figure) – Single element of a figured bass indication.

[`<fb>`](#) (figured bass) – Symbols added to a bass line that indicate harmony. Used to improvise a chordal accompaniment. Sometimes called Generalbass, thoroughbass, or basso continuo.

[`<harm>`](#) (harmony) – An indication of harmony, e.g., chord names, tablature grids, harmonic analysis, figured bass.

13.1.2 Attribute Classes

The harmony module contains the following attribute classes:

[`att.fretlocation`](#) Attributes that describe a fret location.

[`att.harm.anl`](#) Analytical domain attributes.

[`att.harm.ges`](#) Gestural domain attributes.

[`att.harm.log`](#) Logical domain attributes.

[`att.harm.vis`](#) Visual domain attributes.

13.1.3 Model Classes

The following model classes are enabled by the harmony module:

[model.chordTableLike](#) groups elements that group playable chord definitions.

[model.controleventLike.harmony](#) groups elements that function as control events; that is, those events that modify or otherwise depend on the existence of notated events.

[model.figbassLike](#) groups elements that record figured bass.

[model.fLike](#) groups elements that represent single figured bass elements.

[model.harmLike](#) groups elements that record harmony.

13.2 Indications of Harmony

On the most basic level, chords in the musical text can be encoded using the [chord](#) element:

<chord> – A simultaneous sounding of two or more notes in the same layer *with the same duration*.

Additional information on the use of the [chord](#) element is available in [1.2.3 Basic Music Events](#) and [3.2.4 Notes, Chords and Rests in CMN](#).

With only this kind of markup, harmonic information is implicit in the notes themselves. The elements and attributes of this module, however, provide for the encoding of explicit indications of harmony, such as chord symbols, tablature grids, figured bass signs, and the symbols of harmonic analysis like Roman numerals and their interpretation.

13.2.1 Interpreted Chord Data in scoreDef

An harmonic label, such as "7", may occur many times throughout an MEI instance. Where the goal is diplomatic transcription, simply recording the uninterpreted label is sufficient. Recording the precise meaning of such a label requires storing an interpretation. But, including the interpretation at every point of occurrence of the label would swell the size of the file and complicate the markup for those users who are not interested in the interpretation. Therefore, MEI separates the encoding of harmonic labels from the encoding of the interpretation of those labels.

The following elements enable the creation and re-use of interpreted chord data:

<chordTable> – Chord/tablatue look-up table.

<chordDef> (chord definition) – Chord tablature definition.

@pos records the fret position at which the chord tablature is to be played.

<chordMember/> – An individual pitch in a chord defined by a **<chordDef>** element.

@inth encodes the harmonic interval between this note and other pitches occurring at the same time.

@fing indicates which finger, if any, should be used to play an individual string. The values 'x' and 'o' indicated muffled and open strings, respectively.

@fret records the location at which a string should be stopped against a fret.

<barre/> – An indication of fingering in a chord tablature grid.

@fret records the location at which a string should be stopped against a fret.

The [chordTable](#) element is a container for a set of chord definitions, while the [chordDef](#) element defines a single chord. Chord definitions may be created *a priori* or as the result of analysis of the pitch content of the music at hand, for instance, by examination of the notes occurring on the downbeat of each measure. In this way, the chord definitions serve as a record of the analysis.

Even though it is not required by the schema, an @xml:id attribute on [chordDef](#) is necessary to permit the creation of associations between harmonic indications in the musical text with the chord defined here. The @xml:id attribute provides a unique identifier for the chord definition that can be referenced by the [harm](#) element's @chordref attribute.

Individual pitches of a chord are encoded using [chordMember](#). The @inth attribute provides the means for indicating the number of half steps of the chord note above the bass note.

These simple resources allow for the detailed specification and interpretation of harmonic indications found in the musical text. For example, the harmonic label 'A' can be equated with a fully spelled-out indication of functional harmony that can be substituted for the harmonic label, say, in an aural rendition:

```
<!-- Chord defined in scoreDef --><chordDef xml:id="harmonychordA">
  <chordMember oct="2" pname="a"/>
  <chordMember oct="3" pname="e"/>
  <chordMember accid.ges="s" oct="4" pname="c"/>
  <chordMember oct="4" pname="e"/>
  <chordMember oct="4" pname="a"/>
</chordDef>
<!-- Later in musical text -->
<harm chordref="#harmonychordA" tstamp="1">A</harm>
```

Alternatively, the non-bass chord tones may be indicated, not with pitch names, but with their intervallic distance above the bass note. Therefore, the example above may also be encoded:

```
<chordDef xml:id="harmonychordA2">
  <chordMember oct="2" pname="a"/>
```

```
<chordMember inth="7"/>
<chordMember inth="16"/>
<chordMember inth="19"/>
<chordMember inth="24"/>
</chordDef>
```

The preceding encoding possibilities provide the detailed information necessary to create playable chord annotations. For more generic uses, however, the encoding can be taken one step further; that is, it can be reduced to its minimum intervallic content by eliminating octave duplications and expressing all chord members, including the bass note, using intervals above the bass. Of course, the @inth attribute for the bass note itself should be set to '0'. For example:

```
<chordDef xml:id="harmonychordA3">
  <chordMember inth="0"/>
  <chordMember inth="4"/>
  <chordMember inth="7"/>
</chordDef>
```

13.2.2 Chord Tablature Grids

The @pos attribute on [chordDef](#), the @fing and @fret attributes on [chordMember](#), and the [barre](#) element child of [chordDef](#) are provided in order to create displayable and performable chord tablature grids for guitar and other fretted string instruments. The fret at which a finger should be placed is recorded in the @fret attribute, while @fing indicates which finger, if any, should be used to play an individual string. The values 'x' and 'o' are used to indicate muffled and open strings, respectively.

The [chordDef](#) element may contain [barre](#) sub-elements when a single finger is used to stop multiple strings. Here the @fret attribute gives the fret position at which the barre should be created, while the @startid and @endid attributes are used to indicate the [chordMember](#) elements on which the barre starts and finishes.

13.2.3 Indications of Harmony in the Music Text

With regard to indications of harmony, MEI attempts to strike a balance between very precise (interpreted) and very loose (uninterpreted) markup needs. Therefore, various kinds of harmonic labels are accommodated by the [harm](#) element. While some are more 'structured' than others, in the final analysis they all function as *labels*. Therefore, MEI provides only a single element for the capture of harmonic indications of all kinds:

<harm> (harmony) – An indication of harmony, e.g., chord names, tablature grids, harmonic analysis, figured bass.

@extender indicates the presence of an extension symbol, typically a dash or underscore, drawn from the end of the harmonic indication to the point indicated by the **dur** attribute.

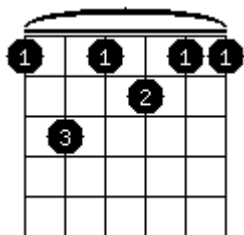
@rendgrid describes how the harmonic indication should be rendered.

The [harm](#) element can be used to capture chord labels that consist entirely of text:

```
<harm tstamp="1">Cmaj</harm>
<harm tstamp="2">ii6</harm>
```

or labels that are chord tablature grids:

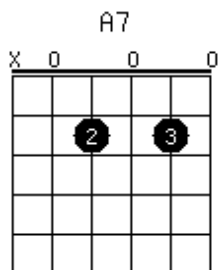
Figure 35. Chord grid without label



```
<harm chordref="#harmonychordA" tstamp="1"/>
```

or labels that mix these styles:

Figure 36. Chord grid with label



```
<harm chordref="#harmonychordA" rendgrid="gridtext" tstamp="1">A7</harm>
```

The [harm](#) element must define a point of attachment using one of the following attributes: @startid, @tstamp, @tstamp.ges or @tstamp.real. The most commonly-used of these are @startid and @tstamp.

The @dur attribute encodes the logical and visual duration of the harmony. Please note that the @dur attribute here is not a true duration, but rather a time stamp for the end point of the harmony.

Precise placement of the harmonic label can be controlled through the use of attributes in the [att.harm.vis](#) attribute class.

13.2.3.1 Figured Bass

Figured bass is a specialized form of harmonic indication. In order to support the capture of the semantics of figured bass, and not just its visual representation, MEI provides the following elements:

[<fb>](#) (figured bass) – Symbols added to a bass line that indicate harmony. Used to improvise a chordal accompaniment. Sometimes called Generalbass, thoroughbass, or basso continuo.

[<f>](#) (figure) – Single element of a figured bass indication.

@extender indicates the presence of an extension symbol, typically a dash or underscore, drawn from the end of the harmonic indication to the point indicated by the dur attribute.

Figured bass, consisting as it does of text, can always be represented purely visually. This is probably how an OMR program or other naive encoder might deal with the markup of figured bass:

Figure 37. Figured bass



```
<harm place="above" staff="1" tstamp="1">6</harm>
```

However, this kind of approach fails to recognize that a figured bass is being used and not some other system of harmonic indications. To capture this knowledge, the preceding example can also be marked more explicitly with:

```
<harm place="above" staff="1" tstamp="1">
  <fb>
    <f>6</f>
  </fb>
</harm>
```

In order to provide greater control over the individual components of the figured bass, each component can be treated as a figure. The natural symbol is encoded using the Unicode MUSIC NATURAL SIGN character.

Figure 38. Figured bass with accidental



```
<harm place="above" staff="1" tstamp="1">
  <fb>
    <f>7</f>
    <f>♮</f>
  </fb>
</harm>
```

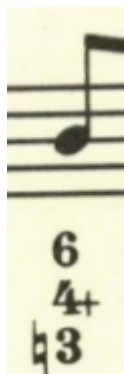
Encoding order of the component **f** elements is significant as is the encoding order of the characters within each component. In the preceding example, the entire figured bass sign is encoded from top to bottom, in other words, just as the figure appears on the page. In the following examples, the encoding order of the characters in **f** explicitly locates the accidentals:

Figure 39. Figured bass with chromatically altered figure



```
<harm place="below">
<fb>
  <f>7♭</f>
</fb>
</harm>
```

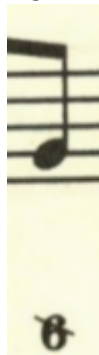
Figure 40. Figured bass with chromatically altered figures



```
<harm>
<fb>
  <f>6</f>
  <f>4+</f>
  <f>♭3</f>
</fb>
</harm>
```

Characters with combining slashes can be handled using the Unicode characters COMBINING REVERSE SOLIDUS OVERLAY (ⷀ) and COMBINING LONG SOLIDUS OVERLAY (ⷁ). The combining nature of these Unicode characters indicates very clearly that they "overstrike" the preceding character. The usual convention for slashes; that is, '6\' and '6/' for backslash and slash, respectively, may also be followed:

Figure 41. Figured bass with chromatically altered figure



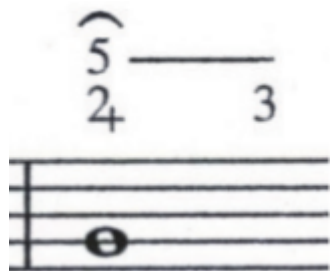
```

<harm>
  <fb>
    <f>6</f>
    <!-- or -->
    <f>6\</f>
  </fb>
</harm>

```

Each component of the figured bass sign may use the @extender attribute to indicate that horizontal lines are used to mark the extent of the figure's harmonic influence. The @altsym attribute can be used to point to a user-defined symbol that better represents the figure component, for example, the combined "2" and "+" below. Similar to the slash in the preceding example before, the small curve over the "5" in example 6 can be represented by the Unicode COMBINING INVERTED BREVE.

Figure 42. Figured bass with alternative sign



```

<harm tstamp="1">
  <fb>
    <f>5</f>
    <f extender="true">5</f>
    <f altsym="combo2plus">2+</f>
  </fb>
</harm>
<harm tstamp="3">
  <fb>
    <f>3</f>
  </fb>
</harm>

```

Because the repertoire of signs is so large, figures which consist entirely of a mark indicating repetition of the preceding figure, should be represented by the character appearing in the document. For example, in some notational styles, the repetition sign is a dash ('-'), while in others it is a solidus ('/'). Using characters like this is also consistent with other existing figured bass encoding schemes.

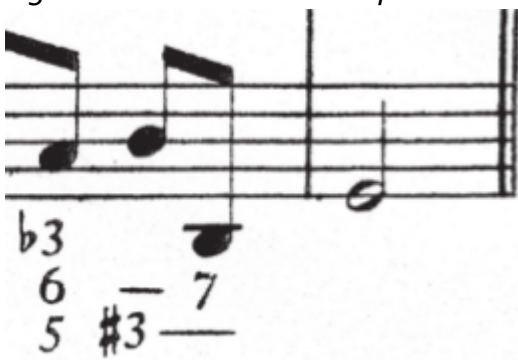
Figure 43. Figured bass repetition



```
<harm tstamp="1.5">
  <fb>
    <f>-</f>
  </fb>
</harm>
```

Often, the distinction between extending lines and repetition signs is unclear. Treating what at first appear to be extenders as repetition signs, however, can sometimes help to simplify the required markup and to make the intent of the signs explicit. For example, in the following example the dashes on beat 4 and 4.5 are treated as repetition signs:

Figure 44. Extenders and repetition



```
<harm tstamp="3.5">
  <fb>
    <f>b3</f>
    <f>6</f>
    <f>5</f>
  </fb>
</harm>
<harm tstamp="4">
  <fb>
    <f>-</f>
    <f>#3</f>
  </fb>
</harm>
<harm tstamp="4.5">
  <fb>
    <f>7</f>
```

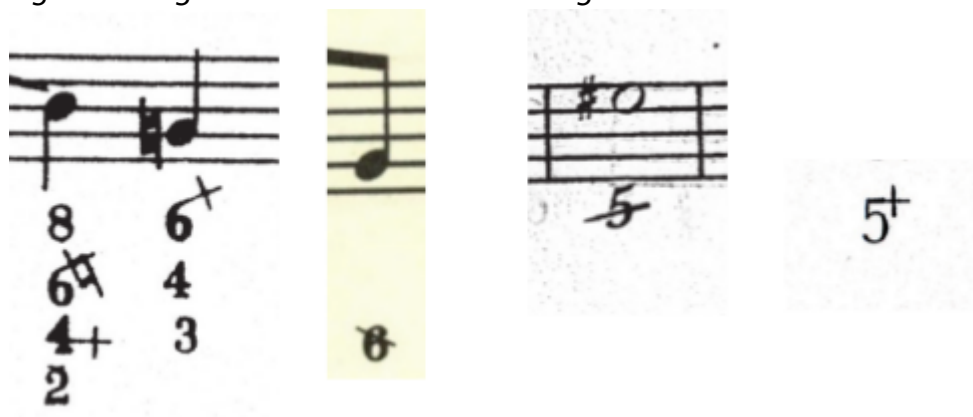
```
<f>-</f>
</fb>
</harm>
```

Using @extender attributes for this example may make it easier to render the figured bass symbol, but it is less explicit with regard to the intended harmony. For example, it is difficult to ascertain what harmony should be sounding on beat 4 and its after-beat.

```
<harm tstamp="3.5">
  <fb>
    <f>b3</f>
    <f extender="true">6</f>
    <f>5</f>
  </fb>
</harm>
<harm tstamp="4">
  <fb>
    <f extender="true">#3</f>
  </fb>
</harm>
<harm tstamp="4.5">
  <fb>
    <f>7</f>
  </fb>
</harm>
```

The primary goal of [fb](#) is not the capture all the visual idiosyncracies that can be found in printed and manuscript scores throughout the centuries, but to provide a more-or-less standardized label. The markup below, or any markup in fact, cannot capture the exact look of the figured bass signs. The @altsym attribute may be used to provide access to a user-defined symbol for precise rendition. Similarly, the @facs attribute may be employed to point to the symbol as it occurs in the encoding source material.

Figure 45. Figured bass with alternative sign



```
<!-- Ex. a --><harm tstamp="3">
<fb>
  <f>8</f>
  <f altsym="#my6_1" facs="#source6_1">6i</f>
  <f>4+</f>
  <f>2</f>
</fb>
</harm>
<harm tstamp="4">
<fb>
  <f altsym="#my6_2" facs="#source6_2">6\</f>
  <f>4</f>
  <f>3</f>
</fb>
</harm>
<!-- Ex. b -->
<harm tstamp="4.5">
<fb>
  <f>6\</f>
</fb>
</harm>
<!-- Ex. c -->
<harm tstamp="1">
<fb>
  <f>5</f>
</fb>
</harm>
<!-- Ex. d -->
<f altsym="#my5" facs="#source5">5+</f>
```

14 Linking and Alignment

The linkAlign module makes it possible to align recorded media (audio, video) with elements in the musical domain. This allows for synchronization between the encoded notation and one or many media.

14.1 Overview of the Linkalign Module

The module described in this chapter makes available the following components:

14.1.1 Elements

[<timeline>](#) – Provides a set of ordered points in time to which musical elements can be linked in order to create a temporal alignment of those elements.

[<when/>](#) – Indicates a point in time either absolutely (using the absolute attribute), or relative to other elements in the same timeline element (using the interval and since attributes).

14.2 Linking and Alignment Examples

The [timeline](#) element contains a reference to an external file using the @avref attribute. The path to this external file may be a location on a hard disk or a URL. The @origin attribute specifies the [when](#) element corresponding to the beginning of the timeline.

The [when](#) element specifies timestamped locations on the referenced media file. These may be defined using either an absolute time stamp (specified in ISO 24-hour time format, HH:MM:SS.ss), or using a combination of the @interval, @inttype, and @since attributes.

```
<music>
<timeline
  avref="http://example.com/mediafile.mp3"
  origin="linkAlign.e1t2w1"
  xml:id="linkAlign.e1t1w1">
<when absolute="0:00.0" xml:id="linkAlign.e1t2w1"/>
<when
  interval="0:01.0"
  inttype="time"
  since="linkAlign.e1t2w1"
  xml:id="linkAlign.e1t2w2"/>
<when
  interval="128"
  inttype="midi"
  since="linkAlign.e1t2w2"
  xml:id="linkAlign.e1t2w3"/>
</timeline>
</music>
```

Musical elements can reference specific time points using the @when attribute. This is available on most musical elements, e.g., [note](#), [rest](#), [measure](#), etc.

```
<music>
  <scoreDef>
    <timeline
      avref="http://example.com/mediafile.mp3"
      origin="linkAlign.e2t1w1">
        <when absolute="0:00.0" xml:id="linkAlign.e2t2w1"/>
        <when
          interval="0:01.0"
          inttype="time"
          since="linkAlign.e2t2w1"
          xml:id="linkAlign.e2t2w2"/>
        <when
          interval="128"
          inttype="midi"
          since="linkAlign.e2t2w2"
          xml:id="linkAlign.e2t2w3"/>
        </when>
      </timeline>
    </scoreDef>
    <mdiv>
      <score>
        <measure when="linkAlign.e2t2w1" xml:id="linkAlign.e2m1"/>
        <measure when="linkAlign.e2t2w2" xml:id="linkAlign.e2m2"/>
        <measure when="linkAlign.e2t2w3" xml:id="linkAlign.e2m3"/>
      </score>
    </mdiv>
  </music>
```

15 Vocal Text

This chapter describes how to encode words and syllables in vocal notation. This text is typically written under a staff to indicate the text to be vocally performed. As such, this text should not be confused with other text on the score, for which see [1.3 Shared Textual Elements](#) and [21 Text in MEI](#)

These guidelines suggest two methods for encoding text in vocal notation: encoding syllables [under each note](#) and encoding performed text [after the notes](#) (and other staff events) either within [layer](#) elements or within [measure](#) elements when available (for example in a Common Music Notation context). Each method may be more convenient depending on the source text and on the textual phenomena that the encoding intends to record.

Both methods eventually rely on the [syl](#) element, which is part of the ‘shared’ module and is therefore available in all MEI files. The following sections will begin by introducing the general use of [syl](#) and then show in detail the two different encoding methods.

15.1 Lyric Syllables

By ‘lyric syllable’, these guidelines mean a word or portion of a word that is to be performed vocally. Each syllable is encoded with the [syl](#) element, with which it is also possible to specify the position of the syllable in a word, the type of connectors between syllables, alignment adjustments, and the formatting for each syllable. These are the key components:

[<syl>](#) (syllable) – Individual lyric syllable.

[@con](#) describes the symbols typically used to indicate breaks between syllables and their functions.

The attribute [@wordpos](#) is used to specify the position of the marked-up lyric syllable in a word. It allows the following values:

- **i** Indicates that the current syllable's position is *initial*; that is, at the beginning of a word;
- **m** Indicates that the current syllable is in the *middle* of a word;
- **t** Indicates that the syllable's position is *terminal*; that is, at the end of a word.

When a syllable is at the beginning or in the middle of a word (in which case it will have the [@wordpos](#) attribute set to ‘i’ or ‘m’), it is recommended to specify the type of connector written between the current and the following syllable. This is expressed with the [@con](#) attribute, which takes the following values:

- **s** A space is used as connector between syllables;
- **d** A *dash* is used as connector between syllables;

- **u** An underscore sign (indicating prologation of the syllable) is used as connector between syllables;
- **t** A tilde is used to indicate elision with the following syllable. This is typically rendered as a small curved line between the syllables.

Occasionally, a word or a final syllable needs to be extended across multiple notes. In this case an 'extender' is provided. An extender is a continuous line drawn at the text's baseline from the end of the syllable associated with the first note until the last note to be sung with the syllable. The

The use of [syl](#) described in this section is common to CMN and other notation systems, such as mensural notation. Other uses specific to certain types of notation and repertoires are addressed in other chapters. See for example [neumes1.2](#).

15.2 Vocally Performed Text Encoded Within Notes

Each lyric syllable can be encoded directly within an associated note, either by using the @syl attribute on [note](#) or the [verse](#) element.

Using the @syl attribute on notes is the simplest way of encoding vocally performed text and is recommended only for simple situations or for those encodings which do not focus on vocally performed text.

The following example from Handel's *Messiah* (HWV 56) shows the use of @syl:

Figure 46. Handel, *Messiah* HWV 56, *Halleluja*



```
<measure>
<staff>
<layer>
<note
  dots="1"
  dur="4"
  oct="5"
  pname="c"
  syl="Hal-" />
```

```
<note
  dur="8"
  oct="4"
  pname="g"
  syl="le-" />
<beam>
  <note
    dur="8"
    oct="4"
    pname="a"
    syl="lu-" />
  <note
    dur="8"
    oct="4"
    pname="g"
    syl="jah," />
</beam>
<rest dur="4" />
</layer>
</staff>
</measure>
```

When there are multiple lines of vocally performed text, or the encoder wishes to be more specific about connectors, etc., the use of [verse](#) and [syl](#) is recommended.

<verse> – Lyric verse.

@rhythm used to specify a rhythm for the lyric syllables that differs from that of the notes on the staff, e.g. '4,4,4,4' when the rhythm of the notes is '4.,8,4.,8'.

The following example from Handel's *Messiah* (HWV 56) shows the use of [verse](#):

```
<measure>
<staff>
  <layer>
    <note
      dots="1"
      dur="4"
      oct="5"
      pname="c">
      <verse n="1">
        <syl con="d" wordpos="i">Hal</syl>
      </verse>
    </note>
    <note dur="8" oct="4" pname="g">
      <verse n="1">
        <syl con="d" wordpos="m">le</syl>
      </verse>
    </note>
    <beam>
      <note dur="8" oct="4" pname="a">
        <verse n="1">
          <syl con="d" wordpos="m">lu</syl>
        </verse>
      </note>
      <note dur="8" oct="4" pname="g">
        <verse n="1">
          <syl wordpos="t">jah,</syl>
        </verse>
```



```

</note>
</beam>
<rest dur="4"/>
</layer>
</staff>
</measure>

```

As it is common practice in written text, it is assumed that a space separates words. Many vocal texts, however, introduce elisions and connect two syllables into one unit. For example, the vocal text from Mozart's *Don Giovanni* sung by Don Giovanni in Finale II, 'Ho fermo il core in petto' introduces an elision between the word 'fermo' and 'il' and between 'core' and 'in'. An elision can be indicated by placing both syllables within the same [note](#) and setting the [syl](#) element's @con attribute value to 't':

```

<note>
  <verse>
    <syl con="t" wordpos="t">re</syl>
    <syl wordpos="i">in</syl>
  </verse>
</note>

```

When there is more than one line of text, more than one [verse](#) element can be used. The following example from a piano reduction of Wagner's *Rheingold* has two lines of text, with an English translation on the second line. Note the use of the @xml:lang attribute to differentiate the two languages:

Figure 47. Example from Wagner's *Rheingold* with translated text.

```

<scoreDef>
  <staffGrp>
    <staffDef
      clef.line="4"
      clef.shape="F"
      key.sig="4s"
      lines="5"
      n="1"/>
    </staffGrp>
  </scoreDef>
  <section>
    <measure>
      <staff n="1">
        <layer n="1">
          <note
            dur="2"
            oct="3"
            pname="f"
            stem.dir="down">
            <verse n="1" xml:lang="ger">
              <syl con="d" wordpos="i">Rei</syl>
            </verse>
            <verse n="2" xml:lang="eng">
              <syl>thinks</syl>
            </verse>
          </note>
          <note
            dur="8"
            oct="3"

```

```
    pname="f"
    stem.dir="down">
<verse n="1">
  <syl wordpos="t">fes</syl>
</verse>
<verse n="2">
  <syl>it</syl>
</verse>
</note>
<note
  dur="8"
  oct="3"
  pname="f"
  stem.dir="down">
<verse n="1">
  <syl>zu</syl>
</verse>
<verse n="2">
  <syl>were</syl>
</verse>
</note>
</layer>
</staff>
</measure>
<measure>
<staff n="1">
  <layer>
    <note
      dur="4"
      oct="3"
      pname="b"
      stem.dir="down">
<verse n="1">
  <syl con="d" wordpos="i">wal</syl>
</verse>
<verse n="2">
  <syl>wise</syl>
</verse>
</note>
    <note
      dur="4"
      oct="3"
      pname="d"
      stem.dir="down">
<accid accid="n"/>
<verse n="1">
  <syl wordpos="t">ten,</syl>
</verse>
<verse n="2">
  <syl>now</syl>
</verse>
</note>
    <rest dur="4" dur.ges="8"/>
  </layer>
</staff>
</measure>
</section>
```

Optionally, it is possible to include an [lb](#) element within [verse](#) to explicitly encode line and line group endings. This is specifically meant to facilitate karaoke applications.

Finally, the `@rhythm` attribute can be used to specify a rhythm for the syllable that differs from that of the notes on the staff.

15.3 Vocally Performed Text Encoded Separately

Vocally performed text may also be encoded separately from the notes with the [lyrics](#) element. These are the main components:

[<lyrics>](#) – Vocally performed 'text' of a musical composition, such as a song or opera.

Since this element is separated from the encoding of the notes, it must be associated with a staff that will provide rhythm information when required for automated processing. The `@staff` attribute gives the associated staff and if there is more than one layer on that staff, the `@layer` attribute may be used to indicate the layer from which the rhythm should be taken. If there is any divergence between the rhythm of the vocally performed text and the notes, the `@rhythm` attribute on [verse](#) may be used to specify the text's rhythm.

The following example from Carl Maria von Weber's *Der Freischütz* illustrates this encoding method:

Figure 48. Weber, *Der Freischütz*

```
<measure>
  <staff n="1">
    <layer n="1">
      <note
        dots="1"
        dur="4"
        oct="3"
        pname="a">
        <artic artic="acc"/>
      </note>
      <note
        dots="1"
        dur="4"
        oct="3"
        pname="a">
        <artic artic="acc"/>
      </note>
    </layer>
  </staff>
  <lyrics staff="1">
    <verse>
      <syl>Sturm</syl>
      <syl>und</syl>
    </verse>
  </lyrics>
</measure>
<measure>
  <staff n="1">
    <layer n="1">
      <note
        dots="1"
        dur="2"
        oct="3"
        pname="g"
        tie="i"/>
    </layer>
  </staff>
  <lyrics staff="1">
    <verse>
```

```
<syl>Nacht!</syl>
</verse>
</lyrics>
</measure>
<measure>
  <staff n="1">
    <layer n="1">
      <note
        dots="1"
        dur="2"
        oct="3"
        pname="g"
        tie="t"/>
    </layer>
  </staff>
</measure>
```

In this encoding style, a [syl](#) element with its @con attribute set to 't' and the following syllable are presumed to be associated with a single note. In the following example, the first two syllables occur on the first note and the third syllable occurs on the second note.

```
<staff>
  <layer>
    <note dur="2" oct="3" pname="g"/>
    <note dur="2" oct="3" pname="f"/>
  </layer>
</staff>
<!-- later -->
<lyrics staff="1">
  <verse>
    <syl con="t" wordpos="t">re</syl>
    <syl wordpos="i">il</syl>
    <syl wordpos="i">pet</syl>
  </verse>
</lyrics>
```

16 MIDI

This chapter describes the MIDI encoding functionality present in MEI. The purpose of this module is to allow for integrating MIDI data into MEI-encoded notation, to both aid software in translating MEI to MIDI, and to permit the capture of information in files that have been translated from MIDI to MEI. The MIDI model in MEI is similar to that of Mup, and the user is directed to the [Mup User Guide](#) for further reading.

The MIDI module defines certain generally-accepted MIDI units that may be used outside of a MIDI context. For example, the @dur.ges attribute accepts MIDI ppq (Pulses Per Quarter) as a valid measurement of duration. Similarly, the @pnun attribute allows MIDI note numbers for specifying a pitch value.

16.1 PPQ in scoreDef and staffDef

To define the MIDI resolution of a score, the @ppq attribute may be used on the [scoreDef](#) element. This value can be used to interpret the values found in the @dur.ges attribute on elements in the [att.duration.performed](#) class.

```
<scoreDef
  key.sig="1f"
  meter.count="4"
  meter.sym="common"
  meter.unit="4"
  ppq="48">
<staffGrp>
  <staffDef
    clef.line="2"
    clef.shape="G"
    key.sig="1f"
    lines="5"
    n="1"
    xml:id="midi.P1"/>
  <staffDef
    clef.line="4"
    clef.shape="F"
    key.sig="1f"
    lines="5"
    n="2"
    xml:id="midi.P2"/>
  <staffDef
    clef.line="4"
    clef.shape="F"
    key.sig="1f"
    lines="5"
    n="3"
    xml:id="midi.P3"/>
</staffGrp>
</scoreDef>
<!-- snip -->

<note
  dur="8"
  dur.ges="24"
  oct="5"
```

```
  pname="a"
  stem.dir="up"
  xml:id="midi.d1e40"/>
<!-- 8th note -->
<rest
  dur="32"
  dur.ges="6"
  vo="4"
  xml:id="midi.d1e58"/>
<!-- 32nd note -->
<!-- snip -->
```

The @ppq attribute is also available on the [staffDef](#) element in order to aid in the conversion to MEI from other representations that allow a different time base for each staff. However, these independent values for @ppq are only interpretable in terms of a common time base. Therefore, the @ppq attribute is required on [scoreDef](#) when the values of @ppq on the staff definitions differ. In the following example, the values of the @ppq attributes on the [staffDef](#) elements are all factors of the value of @ppq attached to [scoreDef](#).

```
<scoreDef
  key.sig="1f"
  meter.count="4"
  meter.sym="common"
  meter.unit="4"
  ppq="48">
  <staffGrp>
    <staffDef
      clef.line="2"
      clef.shape="G"
      key.sig="1f"
      lines="5"
      n="1"
      ppq="2"
      xml:id="midi.P1"/>
    <staffDef
      clef.line="4"
      clef.shape="F"
      key.sig="1f"
      lines="5"
      n="2"
      ppq="16"
      xml:id="midi.P2"/>
    <staffDef
      clef.line="4"
      clef.shape="F"
      key.sig="1f"
      lines="5"
      n="3"
      ppq="24"
      xml:id="midi.P3"/>
  </staffGrp>
</scoreDef>
```

16.2 Recording General MIDI Instrumentation

The [instrDef](#) element can be used to record MIDI instrument names or numbers using the @midi.instrname and @midi.instrnum attributes. The @midi.instrname attribute must contain an instrument name from the list provided by the data.MIDINAMES data type. By default, data.MIDINAMES contains General MIDI Instrument designations.

```
<scoreDef
  key.sig="1f"
  meter.count="4"
  meter.sym="common"
  meter.unit="4"
  ppq="48">
<staffgrp>
  <staffDef
    clef.line="2"
    clef.shape="G"
    lines="5"
    n="1"
    xml:id="midi.P5">
    <instrDef midi.instrname="Violin"/>
  </staffDef>
  <staffDef
    clef.line="2"
    clef.shape="G"
    lines="5"
    n="2"
    xml:id="midi.P6">
    <instrDef midi.instrname="Violin"/>
  </staffDef>
  <staffDef
    clef.line="3"
    clef.shape="C"
    lines="5"
    n="3"
    xml:id="midi.P7">
    <instrDef midi.instrname="Viola"/>
  </staffDef>
  <staffDef
    clef.line="4"
    clef.shape="F"
    lines="5"
    n="3"
    xml:id="midi.P8">
    <instrDef midi.instrname="Cello"/>
  </staffDef>
</staffgrp>
</scoreDef>
```

The @midi.instrnum is provided for those cases when an instrument number is needed. It must contain valid MIDI values; that is, 0-127. In these cases, a General MIDI Instrument name is redundant.

```
<scoreDef
  key.sig="1f"
  meter.count="4"
  meter.sym="common"
  meter.unit="4"
  ppq="48">
<staffgrp>
```

```
<staffDef
  clef.line="2"
  clef.shape="G"
  lines="5"
  n="1"
  xml:id="midi.P5">
  <instrDef midi.instrnum="41"/>
</staffDef>
<staffDef
  clef.line="2"
  clef.shape="G"
  lines="5"
  n="2"
  xml:id="midi.P6">
  <instrDef midi.instrnum="41"/>
</staffDef>
<staffDef
  clef.line="3"
  clef.shape="C"
  lines="5"
  n="3"
  xml:id="midi.P7">
  <instrDef midi.instrnum="42"/>
</staffDef>
<staffDef
  clef.line="4"
  clef.shape="F"
  lines="5"
  n="3"
  xml:id="midi.P8">
  <instrDef midi.instrnum="43"/>
</staffDef>
</staffgrp>
</scoreDef>
```

16.3 Recording MIDI Event Data

MIDI messages are encapsulated in the [midi](#) element, which is typically used in contexts like [layer](#) and [measure](#). In earlier versions of MEI, the [noteOn](#) and [noteOff](#) elements were used to record MIDI note on/off events. The use of these elements is now discouraged in favor of using the [note](#) element directly. MIDI duration should be recorded using the @dur.ges attribute, and MIDI pitch information should be recorded using the @pnum attribute.

MIDI control changes ([cc](#)) are encoded using the @num and @val attributes. Control change numbers are specified in the General MIDI documentation. In the example below, the [cc](#) elements encode increasing controller event 7 (volume) values, or in musical terms, a crescendo. Other MIDI event messages follow this same pattern, using the @num and @val attributes to record the raw MIDI data.

```
<measure>
<staff>
  <layer>
    <note dur.ges="8" pnum="45"/>
    <note dur.ges="8" pnum="42"/>
    <note dur.ges="8" pnum="43"/>
    <note dur.ges="8" pnum="44"/>
  </layer>
</staff>
<midi layer="1" staff="1">
```



```
<cc num="7" tstamp=".5" val="50"/>
<cc num="7" tstamp="1.5" val="55"/>
<cc num="7" tstamp="2" val="60"/>
<cc num="7" tstamp="2.5" val="65"/>
</midi>
</measure>
```

In the preceding example, each control change is associated with a time stamp. The @tstamp attribute is required in order to indicate when the MIDI event should take place. It is often necessary to indicate a time stamp slightly earlier than the affected notes to compensate for MIDI delay.

For better legibility and error checking, the [midi](#) element may be used, as in the following example, to group MIDI parameter changes. Even so, the @tstamp attribute is required on all parameters in order to associate them with their point of actuation:

```
<midi layer="1" staff="1">
  <cc num="7" tstamp=".5" val="50"/>
  <cc num="64" tstamp=".5" val="64"/>
</midi>
```

16.4 MIDI in Mensural and Neume Notation

In mensural, neume, and other historical or non-Western repertoires, there is often no measure-based time stamp with which to associate MIDI controller data. Therefore, in these notations MIDI controller data is assumed to be associated with the event that immediately follows in the same layer. Thus, a crescendo in mensural notation may be encoded like so:

```
<staff>
  <layer>
    <midi>
      <cc num="7" val="50"/>
    </midi>
    <note dur="fusa" dur.ges="8" pnum="42"/>
    <midi>
      <cc num="7" val="55"/>
    </midi>
    <note dur="fusa" dur.ges="8" pnum="43"/>
    <midi>
      <cc num="7" val="60"/>
    </midi>
    <note dur="fusa" dur.ges="8" pnum="44"/>
    <midi>
      <cc num="7" val="65"/>
    </midi>
    <note dur="fusa" dur.ges="8" pnum="45"/>
  </layer>
</staff>
```

17 Names and Dates

This chapter describes the MEI module used for the encoding of names (names of persons or corporations/organizations) or descriptive phrases for styles, periods or geographical indications. In section [1.3.4 Names, Dates, Numbers, Abbreviations, and Addresses](#) it was noted that the elements provided in the core module allow an encoder to specify that a given text segment is a proper noun. The elements provided by the present module allow the encoder to supply a detailed sub-structure for such proper nouns, and to distinguish explicitly between persons and organizations, and between stylistic, periodical or geographical indications.

The chapter begins by discussing the elements provided for the encoding of names ([name](#)) and dates ([date](#)) in general and finishes by addressing more specific elements for corporate names ([corpName](#)), geographic names ([geogName](#)), period names ([periodName](#)), personal names ([persName](#)) and style names ([styleName](#)). In general it is recommended to use standardized forms of proper nouns and to record the names and web-accessible locations of the controlled vocabularies used. There are several commonly-referenced authority files, especially for geographical, organizational and personal names, such as the Gemeinsame Normdatei (GND), the Library of Congress Authorities, the Getty Thesaurus of Geographic Names (TGN), and the MARC code list for relators. Recommendations on which standards could be used can be found in the descriptions of the individual elements.

The basic elements for capturing names and dates are defined in the shared module:

[<name>](#) – Proper noun or noun phrase.

[<date>](#) – A string identifying a point in time or the time period between two such points.

The [name](#) element contains the name of an entity that is difficult to tag more specifically as a [corpName](#), [geogName](#), [persName](#), or [title](#). In section [1.3.4 Names, Dates, Numbers, Abbreviations, and Addresses](#) it was noted that the [name](#) element may be used in place of the more specific elements when it is not known what kind of name is being described or when a high degree of precision is not necessary. For example, the [name](#) element might be used when it is not clear whether the name "Bach" refers to a person or a geographic feature. When name parts are needed, use [name](#) sub-elements. The recommended values for the @type attribute are:

- 'pers' a personal name
- 'corp' the name of a corporate entity
- 'place' a geographic name
- 'process' the name of a process or mechanical agent

The date sub-element is available within [name](#) in order to record any dates associated with the name, for example, creation and dissolution in the case of a corporate entity or place or birth and death dates in the case of an individual. The name of the list from which a controlled value is taken, such as the Library of Congress Name Authority File (LCNAF), may be recorded using the authority attribute.

Examples of the use of the [name](#) element:

```
<name type="pers">Henry VIII, King of
    England</name>
<name type="corp">The Beatles</name>
<name type="place">Orbach</name>
<name type="process">OMR software</name>
```

The element [date](#) contains a date in any format, including a date range. A date range may be expressed as textual content or, when intervening punctuation is present, as a combination of date sub-elements and text.

```
<date>5/3/05</date>
<date>May 30, 2012</date>
<date>March 1-21, 1812</date>
<date>
    <date>March 1, 1812</date> - <date>March 21,
        1812</date>
</date>
```

To be more specific about the date, the attributes in the [att.dateable](#) class can be used:

- **@startdate** contains the starting point of a date range in standard ISO form
- **@enddate** contains the end point of a date range in standard ISO form
- **@notbefore** contains a lower boundary for an uncertain date
- **@notafter** contains an upper boundary for an uncertain date
- **@isodate** gives the value of a textual date in standard ISO form
- **@calendar** indicates the system or calendar to which a date belongs, for example, Gregorian, Julian, Roman, Mosaic, Revolutionary, Islamic, etc.
- **@cert** signifies the degree of certainty or precision associated with a feature (high, medium, low, unknown)

In the following example, the ambiguous date text "5/3/05" is resolved using the **@isodate** attribute:

```
<date reg="1905-05-03">5/3/05</date>
<date reg="2005-03-05">5/3/05</date>
```

17.1 Specialized Name and Date Elements

In addition to the generic [name](#) and [date](#) elements provided by the shared module, the `namesDates` module provides for the markup of the specialized cases described below.

17.1.1 Corporate Names

<corpName> (corporate name) – Identifies an organization or group of people that acts as a single entity.

Corporate names are non-personal names which refer to structured bodies of one or more persons that act as a single entity. Typical examples include associations, businesses, projects or institutions (e.g., 'the Royal College of Music' or 'the BBC'), but also racial or ethnic groupings or political factions where these are regarded as forming a single agency. Organization names typically include some type of indicator or pattern or words that help identify them as non-personal names.

The [corpName](#) element is frequently used within the [header](#) of an MEI document. It is typically found in the [respStmt](#) element:

```
<respStmt>
  <corpName>Library of
    Congress</corpName>
</respStmt>
```

It may also be used wherever it is necessary to mark a corporate name, for example when a corporation is responsible for a certain event in the history of a musical work:

```
<history>
  <eventList>
    <event> First performance by <corpName>The Boston Symphony Orchestra</corpName>,
      <date>October 22,
        1881</date>. </event>
  </eventList>
</history>
```

When it is necessary to provide structure for a name, the separate parts of the name may be encoded in [corpName](#) sub-elements, for example:

```
<corpName>Federal Research
  Division, <corpName>Library of Congress</corpName>
</corpName>
```

Standard designations for corporate bodies can be taken from a controlled vocabulary, such as the Gemeinsame Normdatei (GND). If a controlled value is used, the list from which it is taken should be recorded. In this case, the following attributes are particularly relevant:

- **@authority** to record the list from which a controlled value is taken,

- **@authURI (authority URI)** to record the web-accessible location of the controlled vocabulary from which the value is taken,
- **@dbkey (database key)** to record a value which serves as a primary key in an external database.

17.1.2 Geographic Names

<geogName> (geographic name) – The proper noun designation for a place, natural feature, or political jurisdiction.

Geographic names are proper noun designations for places (e.g., Baltimore, Maryland), natural features (e.g., Black Forest) or political jurisdictions (e.g., Quartier Latin, Paris).

The element can be used, e.g., to label geographical names in titles:

```
<title>
  <geogName>Bohemia</geogName>: Folk
    Songs
</title>
<title>Music in the <geogName>German
  Democratic Republic</geogName>
</title>
```

Geographic name sub-parts may be encoded in [geogName](#) sub-elements. For example:

```
<geogName>
  <geogName>Baltimore</geogName>, <geogName>Maryland</geogName>
</geogName>
<geogName>
  <geogName>French
    Quarter</geogName>, <geogName>New Orleans,
  </geogName>
  <geogName>Louisiana</geogName>
</geogName>
```

To enable localization of an organization, or to specify names of places with identical names, the use of controlled vocabulary is recommended for names of administrative divisions, such as cities, states, and countries. In this case, the following attributes are particularly relevant:

- **@authority** records the list from which a controlled value is taken, e.g., the Thesaurus of Geographic Names (TGN),
- **@authURI (authority URI)** records the web-accessible location of the controlled vocabulary from which the value is taken,
- **@dbkey (database key)** records a value which serves as a primary key in an external database.

The encoder may use these attributes in combination. In case of the German city of Frankfurt, for example, a clarification whether Frankfurt am Main or Frankfurt an der Oder is meant can be achieved by referring to the ID of the TGN entry:

```
<!-- Frankfurt am Main --><geogName
  authURI="www.getty.edu/research/tools/vocabularies/tgn"
  authority="TGN"
  dbkey="7005293">Frankfurt</geogName>
<!-- Frankfurt an der Oder
      -->
<geogName
  authURI="www.getty.edu/research/tools/vocabularies/tgn"
  authority="TGN"
  dbkey="7005972">Frankfurt</geogName>
```

The names of places given within addresses can be marked with [geogName](#) elements, for example:

```
<corpName authURI="http://d-nb.info/gnd" authority="GND" dbkey="2007744-0">German
  Research
  Foundation</corpName>
<address>
  <addrLine>Kennedyallee 40</addrLine>
  <addrLine>53175
    <geogName
      authURI="www.getty.edu/research/tools/vocabularies/tgn"
      authority="TGN"
      dbkey="7005090">Bonn</geogName>
    </addrLine>
  <addrLine>
    <geogName
      authURI="www.getty.edu/research/tools/vocabularies/tgn"
      authority="TGN"
      dbkey="7000084">Germany</geogName>
    </addrLine>
  </address>
```

17.1.3 Time Period Names

[<periodName>](#) (period name) – A label that describes a period of time, such as 'Baroque' or '3rd Style period'.

The [periodName](#) element is for names which describe a particular period of time, for example, those which characterize obvious similarities in style, such as 'Baroque' or '3rd Style Period':

```
<periodName>Baroque</periodName>
```

The date sub-element is available within [periodName](#) in order to record any dates associated with the name that should be captured in the text, for example, start and end dates of the named period:

```
<periodName>Baroque (<date>1600</date>-<date>1750</date>)</periodName>
```

Recording start and end points of a certain period using the @startdate and @enddate attributes may prove to be better for machine processing:

```
<periodName enddate="1750" startdate="1600">Baroque</periodName>
```

If a controlled value is used, the list from which it is taken should be recorded. In this case the following attributes are relevant:

- **@authority** to record the list from which a controlled value is taken,
- **@authURI (authority URI)** to record the web-accessible location of the controlled vocabulary from which the value is taken,
- **@dbkey (database key)** to record a value which serves as a primary key in an external database.

17.1.4 Personal Names

<persName> (personal name) – Designation for an individual, including any or all of that individual's forenames, surnames, honorific titles, and added names

Personal names within an MEI document may simply be marked with the [persName](#) element containing a proper noun or proper noun phrase referring to an individual. Personal names, however, often consist of several components, like forenames and surnames, but also other components, such as inherited or life-time titles of nobility, honorific or academic prefixes, military ranks or traditional descriptive phrases. These components may be marked using [name](#) sub-elements, the function of which may be indicated using the @type attribute. In this case, @type attribute may take the following values:

- **'forename'** contains a forename, given or baptismal name.
- **'surname'** a family (inherited) name, as opposed to a given, baptismal, or nick name.
- **'rolename'** contains a name component which indicates that the referent has a particular role or position in society, such as an official title or rank.
- **'addname'** (additional name) contains an additional name component, such as a nickname, epithet, or alias, or any other descriptive phrase used within a personal name.
- **'namelink'** (name link) contains a connecting phrase or link used within a name but not regarded as part of it, such as *van der* or *of*.
- **'genname'** (generational name) contains a name component used to distinguish otherwise similar names on the basis of the relative ages or generations of the persons named.

```
<persName>
  <name type="forename">Henry</name>
  <name type="genname">VIII</name>, <name type="rolename">King of England</name>,
<date>1491-1547</date>
</persName>
<persName>
  <name type="surname">Kilmarnock</name>, <name type="forename">William</name>
  <name type="forename">Boyd</name>, <name type="rolename">Earl of</name>
</persName>
```

The [persName](#) element is often enclosed in the [respStmt](#) element which may occur within [titleStmt](#), [pubStmt](#), [seriesStmt](#) and [change](#). This usage of the [persName](#) element typical looks like this:

```
<sourceDesc>
  <source>
    <titleStmt>
      <title>Im
        wunderschönen Monat Mai</title>
      <respStmt>
        <persName>Robert Schumann</persName>
      </respStmt>
    </titleStmt>
  </source>
</sourceDesc>
```

Apart from the composer or originator of a musical work, however, there could be many other persons involved in the genesis of a musical work, such as librettists, lyricists, arrangers, editors, transcribers, printers, publishers, etc. The special roles of these persons may be marked using the @role attribute on [persName](#). For example:

```
<persName role="arranger">Wolfgang Amadeus Mozart</persName>
```

```
<persName role="lyricist">Heinrich Heine</persName>
```

The [Marc code list for relators](#) offers a variety of controlled terms that may serve as values for this use of @role.

For names in the metadata header, the use of a controlled list, such as the Gemeinsame Normdatei (GND) or the Library of Congress Name Authorities, is recommended. The name and web-accessible location of the list may be recorded using the @authority and @authURI attributes, respectively. To record a value which serves as a primary key in an external database, the @dbkey attribute may be used.

For maximal machine-processability, these three attributes may be used in combination. For example:


```
<persName
  authURI="http://d-nb.info/gnd"
  authority="GND"
  dbkey="118584596"
  role="composer">Wolfgang Amadeus Mozart</persName>
```

17.1.5 Style Names

<styleName> (style name) – A label for a characteristic style of writing or performance, such as 'bebop' or 'rock-n-roll'.

Music can be divided into different styles, genres, and forms. The term style denotes a mode of expression, or more particularly, the manner in which a work of art is executed:

"In the discussion of music, which is orientated towards relationships rather than meanings, the term raises special difficulties; it may be used to denote music characterized of an individual composer, of a period, of a geographical area or center, or of a society or social function. For the aesthetician style concerns surface or appearance, though in music appearance and essence are ultimately inseparable. For the historian a style is a distinguishing and ordering concept, both consistent of and denoting generalities; he or she groups examples of music according to similarities between them." (Source: "Style", Grove Music Online, accessed: April 27, 2012)

The name of a musical style can be marked by the [styleName](#) element, for example:

```
<styleName>bebop</styleName>
```

It may be, e.g., used for recording a style name within a title:

```
<title>La voix du <styleName>bebop</styleName>
</title>
```

or to record a style of a certain epoch by using the [styleName](#) sub-element:

```
<periodName>Modern <styleName>Jazz</styleName>
</periodName>
```

If a controlled value is used, the list, from which it is taken should be recorded. In this case the following attributes are particularly relevant:

- @authority: records the list from which a controlled value is taken,

- @authURI (authority URI): indicates the web-accessible location of the controlled vocabulary from which the value is taken,
- @dbkey (database key): holds a value which serves as a primary key in an external database.

Musical forms and genres must be distinguished from musical style. Form and genre are typically indicated using the [classification](#) element, described in chapter [2.3.7 Classification](#).

18 Performances

This chapter describes the ‘performance’ module, which can be used for organizing audio and video files of performances of a musical work. The elements provided allow the encoder to group different recordings of the same performance, identify temporal segments within the recordings and encode simple alignments with a music text.

The following elements are available to encode performances:

[<performance>](#) – A presentation of one or more musical works.

[<recording>](#) – A recorded performance.

[<avFile>](#) (audio/video file) – References an external digital audio or video file.

[<clip>](#) – Defines a time segment of interest within a recording or within a digital audio or video file.

The [performance](#) element begins a subtree of the [music](#) element and appears alongside with, or instead of, [body](#) (described in [1.1.2 Music Element](#) and [facsimile](#) (described in [11 Facsimiles](#)). A [performance](#) element represents one performance of a work; each performance, therefore, should be represented by a different [performance](#) element. As a performance may be recorded in multiple formats or by different personnel or equipment, the [performance](#) element may group one or more recordings of the event.

The [@decls](#) attribute can be used to point to performance medium metadata for the performed work. See [2.3.5 Performance Medium](#) for more details.

The [recording](#) element identifies an audio recording of a performance or a temporal segment of the performance. In the simplest case, a recording will contain one [avFile](#) element identifying an audio or video file:

```
<performance>
  <recording>
    <avFile mimeType="audio/aiff" target="concert.aiff"/>
  </recording>
</performance>
<performance>
  <recording>
    <avFile mimeType="audio/aiff" target="movement1.aiff"/>
  </recording>
  <recording>
    <avFile mimeType="audio/aiff" target="movement2.aiff"/>
  </recording>
</performance>
```

Use of the @mimetype attribute is recommended for the avFile element. The value should be a valid MIME media type defined by the Internet Engineering Task Force in RFC 2046.

The [recording](#) element identifies an absolute temporal space in an audio or video file. The class contains the attributes that can be used to define this space:

[att.mediabounds](#) attributes that establish the boundaries of a media object.

- @begin** specifies a point where the relevant content begins. A numerical value must be less and a time value must be earlier than that in the end attribute.
- @end** specifies a point where the relevant content ends. If not specified, the end of the content is assumed to be the end point. A numerical value must be greater and a time value must be later than that in the begin attribute.
- @betype** type of values used in the begin/end attributes. The begin and end attributes can only be interpreted meaningfully in conjunction with this attribute.

Consider, for example, a complete work recorded as multiple digital files. A series of [recording](#) elements may be used to identify each movement in the piece and give start and end times for the movements in relation to the temporal space of the complete work. In this case, the @begin attribute's value must be equal to or greater than the value of the @end attribute of the preceding recording.

```
<performance>
  <recording
    begin="00:00:00.00"
    betype="time"
    end="00:07:00.00"
    n="mov1">
    <avFile mimetype="audio/aiff" target="movement01.aiff"/>
  </recording>
  <recording
    begin="00:07:00.00"
    betype="time"
    end="00:12:03.00"
    n="mov2">
    <avFile mimetype="audio/aiff" target="movement02.aiff"/>
  </recording>
</performance>
```

If an encoding of the musical text is included in the MEI file, it is possible to use the @startid attribute to indicate the first element in the sequence of events to which the recording corresponds:

```
<performance>
  <recording
    begin="00:00:00.00"
    betype="time"
    end="00:07:00.00"
    n="mov1"
    startid="performance.m1_1">
    <avFile mimetype="audio/aiff" target="fullpiece.aiff"/>
  </recording>
```

```

</performance>
<!-- ... -->
<music>
<!-- ... -->
<measure n="1" xml:id="performance.m1_1">
<!-- ... -->
</measure>
</music>

```

A [recording](#) element can also contain one or more [clip](#) elements, each of which represents a temporal region within the space identified by its parent [recording](#). A [clip](#) may be used to define any region of interest, such as a cadenza or a modulation, a sung verse, etc. The following example shows the use of [clip](#) and the attributes from to identify significant sections of the recording:

```

<performance>
  <recording begin="00:00:00.00" betype="time" end="00:05:21.00">
    <avFile
      mimetype="audio/aiff"
      target="ABeethovenPianoSonata-Mov1.aiff"/>
    <!--
      Exposition -->
    <clip begin="00:00:00.00" betype="time" end="00:01:41.00"/>
    <!-- Development -->
    <clip begin="00:01:41.00" betype="time" end="00:03:14.00"/>
    <!-- Recapitulation -->
    <clip begin="00:03:14.00" betype="time" end="00:04:28.00"/>
    <!-- Coda -->
    <clip begin="00:04:28.00" betype="time" end="00:05:21.00"/>
  </recording>
</performance>

```

Like recordings, clips can also be aligned with components of the musical text encoded in the [body](#). The @startid attribute can be used to specify the starting element in the sequence of events to which the clip corresponds. The following example shows the encoding of a clip identifying the exposition of the first movement from Beethoven's piano sonata Op. 14 N. 2 and its concluding 'codetta':

```

<performance>
  <recording begin="00:00:00.00" betype="time" end="00:05:21.00">
    <avFile mimetype="audio/aiff" target="BeethovenOp14N2-Mov1.aiff"/>
    <!-- Exposition -->
    <clip
      begin="00:00:00.00"
      betype="time"
      end="00:01:41.00"
      startid="#performance.m1"/>
    <!-- Exposition's "codetta" -->
    <clip
      begin="00:01:31.00"
      betype="time"
      end="00:01:41.00"
      startid="#performance.m48"/>

```

```
</recording>
</performance>
<!-- ... -->
<music>
  <measure n="1" xml:id="performance.m1">
    <!-- ... -->
  </measure>
  <!-- ... -->
  <measure n="48" xml:id="performance.m48">
    <!-- ... -->
  </measure>
</music>
```

19 Pointers and References

This chapter describes the use of elements for linking and referencing.

19.1 Links

An element is a 'link' when it has an attribute whose value is a reference to the ID of one or more other elements. The links discussed in this chapter are the [ptr](#) and the [ref](#) elements. These elements indicate an association between themselves (or one of their ancestors) and one or more other entities, either inside the same document or elsewhere. An association between two elements in the same document is said to be an 'internal' link, while an association that involves an entity outside the current document is called an 'external' link. However, either element can be used for either purpose.

The two elements share a set of common attributes that are inherited from the [att.pointing](#) class:

- **target** allows the use of one or more previously-undeclared URIs to identify an external electronic object.
- **targettype** in contrast with the role attribute, allows the target resource to be characterized using any convenient classification scheme or typology.
- **xlink:actuate** defines whether a link occurs automatically or must be requested by the user.
- **xlink:show** defines how a remote resource is rendered.
- **xlink:title** contains a human-readable description of the entire link.
- **xlink:role** indicates a property of the entire link. The value of the role attribute must be a URI.

The @target attribute specifies the destination of a pointer or reference using a method standardized by the W3C consortium, known as the XPointer mechanism. The XPointer framework is described at <http://www.w3.org/TR/xptr-framework/>. This mechanism permits a range of complexity, from the very simple (a reference to the value of the target element's @xml:id attribute) to the more complex usage of a full URI with embedded XPointers:

```
<!--
    element ID --><ptr target="#SA"/>
<!--
    relative URL -->
<ptr target="myFile.xml"/>
<!-- absolute URL -->
<ptr
  target="http://www.w3.org/TR/xptr-framework/" />
<!-- URL with fragment identifier -->
<ptr
  target="http://www.w3.org/TR/xptr-xpointer/#xpointer(id('chum')/quote)"/>
<!-- URN -->
<ref
  target="urn:isan:0000-0000-9E59-0000-0-0000-0000-2">Spider-Man</ref>
```

The @targettype attribute allows the target resource to be characterized using any convenient classification scheme or typology. This is often useful when the target requires special processing, e.g., for display purposes. The two pointers in the example below may be formatted differently, e.g., the bibliographic citation may result in special typography while the pointer to the audio file may be used to embed an audio player:

```
<ptr target="#cit1" targettype="biblioCitation"/>
<ptr
  target="http://path.to.resource/myAudio.aiff"
  targettype="audioClip"/>
```

The @xlink:actuate and @xlink:show attributes are used in conjunction to determine the link's behavior. The attribute @xlink:actuate defines whether the resolution of a link occurs automatically or must be requested by the user.

The following values are allowed for the @xlink:actuate attribute:

- **'onLoad'** load the target resource immediately
- **'onRequest'** load the target resource upon user request, e.g., after a mouse click
- **'other'** traversal behavior is unconstrained; application should look for other markup to determine appropriate behavior
- **'none'** traversal behavior is unconstrained; no other markup is provided to determine appropriate behavior

The value "none" may be used to indicate that the link is un-traversable; it may or may not render the link invisible to the user. When the value of @xlink:actuate is "other", an application must base a determination of appropriate behavior on factors other than the value of @xlink:actuate.

The @show attribute defines how a remote resource is to be rendered. The following values are permitted:

- **'new'** target of the link appears in a new window
- **'replace'** target of the link replaces the current resource
- **'embed'** the content of the target appears at the point of the link
- **'other'** traversal behavior is unconstrained; application should look for other markup to determine appropriate behavior
- **'none'** traversal behavior is unconstrained; no other markup is provided to determine appropriate behavior

When the value of @xlink:show is "other", an application must base a determination of appropriate behavior on factors other than the value of @xlink:show. The value "none" may be used to indicate a link that is not displayed or is not displayable.

The following example illustrates a pointer that results in the automatic creation of a new window with the content of the target loaded in it:

```
<ptr
  actuate="onLoad"
  mimeType="text"
  show="new"
  target="http://www.ietf.org/rfc/rfc2046.txt"/>
```

The @xlink:title and @xlink:role attributes describe the meaning of resources within the context of a link. The @xlink:title attribute is used to label or describe a link or resource in a human-readable fashion. The value here is highly dependent on the kind of processing being done. It may be used, for example, to make link titles available to applications used by visually impaired users, or to create a table of links, or to present help text that appears when a user's mouse hovers over the link.

```
<ptr
  target="http://www.music-encoding.org"
  title="homepage of the MEI Project"/>
```

The attribute @xlink:role serves a similar function to that of @xlink:title. Whereas the value of @xlink:title may be any string, the value of @xlink:role must be an absolute URI reference as defined in IETF RFC 3986, available at <http://tools.ietf.org/html/rfc3986>. The URI reference identifies a resource that describes the intended property. When no value is supplied, no particular role value is to be inferred.

```
<ptr
  role="http://www.example.com/linkprops/student"
  target="joe.xml"
  xlink:title="Click here"/>
<ptr
  role="http://www.example.com/linkprops/instructor"
  target="joe.xml"
  xlink:title="Click here"/>
```

In the preceding example, the value of the @xlink:role attribute may be used to re-write the value of @xlink:title, depending on the target resource role.

In addition to the attributes in the [att.pointing](#) class, the @mimetype attribute is also available on [ptr](#) and [ref](#). The function of the @mimetype attribute is similar to that of @targettype in that they both allow classification of the destination. Unlike @targettype, however, @mimetype explicitly defines the destination type using a standard taxonomy. Its value should be a valid MIME (Multimedia Internet Mail Extension) type defined by the Internet Engineering Task Force in RFC 2046, available at <http://www.ietf.org/rfc/rfc2046.txt>. The following are all valid mimetype values:

```
<ptr mimetype="application/pdf" target="my.pdf"/>
<ptr mimetype="text/xml" target="my.xml"/>
<ptr mimetype="image/png" target="my.png"/>
```

The @mimetype attribute is particularly useful for documenting the nature of the destination when the value of @target does not provide a filename extension or when the destination is a non-standard file type:

```
<ptr mimetype="application/pdf" target="myFile1"/>
<ptr
  mimetype="application/x-myApplicationSpecificFile"
  target="myFile2"/>
```

19.1.1 Difference between Pointers and References

The [ptr](#) element is an empty linking element that uses only attributes to provide for movement from one place to another. Unlike the [ref](#) element, it cannot contain text or sub-elements to describe the referenced object. Its primary function is simply to point to another location. The next example shows targets that are page numbers; or more precisely, the targets are page break elements bearing these identifiers:

```
<list>
  <item>
    <!-- item description -->
    <ptr target="#p123"/>
  </item>
  <item>
    <!-- item description -->
    <ptr target="#p124"/>
  </item>
</list>
```

As shown above, the [ptr](#) element can be used to ‘point to’ a digital image. However, when the intention is to *display* a digital image as part of the rendering of an MEI file, the [graphic](#) element provides a convenient and recommended alternative:

```
<graphic mimetype="image/png" target="myPic.png"/>
```

While [ptr](#) cannot contain other markup, the [ref](#) element can include text and sub-elements that name or describe the destination:

```
<repository>
  <ref target="http://path.to.target/rep01.xml">
```

```
<title>...</title>  
<address>...</address>  
<identifier>...</identifier>  
</ref>  
</repository>
```

The @target attribute is not required in order to mark the textual content as a cross-reference, as demonstrated in the example below; however, without this attribute the reference will not be resolvable.

```
<p>See <ref>Hankinson,  
    Roland, Fujinaga (2011)</ref>.</p>
```

20 Tablature Notation

This chapter describes the attribute classes that are part of the MEI.tablature module.

20.1 Overview of the Tablature Module

The tablature module is used to record basic tablature notation. It is designed primarily for guitar and similar plucked-string instruments.

The @lines attribute on the [staffDef](#) element is used to define the number of lines, courses, or strings, present in the tablature. The @tab.strings attribute is then used to enumerate the pitches of the open strings. It is important to note that this is given using the written pitch, not the sounding pitch. For example, the Western 6-string guitar, in standard tuning, sounds an octave below written pitch.

The @tab.strings attribute gives the string tuning, ordered from highest to lowest pitch.

For standard guitar tuning, the [staffDef](#) element might look like this:

```
<staffDef lines="6" n="1" tab.strings="e5 b4 g4 d4 a3  
e3"/>
```

Chromatic alteration of the open string's pitch may be indicated with the '-' or 'f' (flat), or the '#' or 's' (sharp). Multiple sharps and flats are not permitted.

A guitar in E-flat tuning might look like this:

```
<staffDef lines="6" n="1" tab.strings="ef5 bf4 gf4  
df4 af3 ef3"/>
```

Some instruments, like the 12-string guitar, have the four lowest strings tuned an octave above but are still written on a 6-line tablature staff. In this case, you may enumerate the open string pitches while maintaining 6 lines.

```
<staffDef lines="6" n="1"  
tab.strings="e4  
e3 a4 a3 d4 d3 g5 g4 b4 b4 e5 e5"/>
```

The [note](#) element is used to capture the specific events in the tablature. The @tab.string attribute is used to capture which string the note is to be played on. String order is the same as that given in the @tab.strings attribute. This attribute takes a positive integer in the range of 1-9.

```
<note
  dur="4"
  oct="3"
  pname="a"
  tab.string="3"/>
```

In the case of fretted instruments, the fret number may be captured using the @tab.fret attribute. An open string may be indicated using the value "o".

```
<note
  dur="4"
  oct="2"
  pname="a"
  tab.fret="5"
  tab.string="6"/>
<note
  dur="4"
  oct="2"
  pname="a"
  tab.fret="o"
  tab.string="5"/>
```

21 Text in MEI

This chapter describes methods for encoding textual content with MEI. Textual information on scores has several different uses, although some text is closer to music notation than other kinds. For example, tempo marks, directives and lyrics are directly related to the functionality of the notated music and are, therefore, described in other chapters (see for example [15 Vocal Text](#) and [1.2.5.1 Text Directives](#)). This chapter, on the other hand, focuses on the text that accompanies the score, i.e., paratext (prefatory material, title pages, back matter, appendices, etc.), titles, prose, poetry, etc.

Most of the elements described here take inspiration from encoding formats that deal primarily with text, such as HTML and the Text Encoding Initiative (TEI). These elements are provided to encode relatively basic textual information. For deeper encoding of text, these Guidelines recommend consideration of other text-specific encoding formats with embedded MEI markup.

21.1 Organizing Text into Divisions

Text can be organized in different parts, for example in chapters or sections. The [div](#) element is used to encode such structural divisions.

<div> (division) – Major structural division of text, such as a preface, chapter or section.

@type characterizes the element in some sense, using any convenient classification scheme or typology.

@subtype provide any sub-classification for the element, additional to that given by its type attribute.

For example, printed scores, before the actual notation, can have text that can be organized in multiple sections (e.g. a preface, a critical report, performance instructions, etc. for which see the following sections); each of these sections should be identified by a different [div](#) element. Text might also occur in between music sections (see [1.1.2.3 Content of Musical Divisions](#)), for example in a collection of romantic piano works, a few pieces might be preceded or followed by poetry. Such text should be encoded with the [div](#) element, as demonstrated in the following example:

```
<mdiv>
  <section>
    <!-- Score of Franz Liszt's
           "Sonetto 104 del Petrarca -->
  </section>
  <div>
    <!-- Text of Francesco Petrarca's Sonett n. 104.
           -->
    <lg>
      <l>L'aspectata virtù, che 'n voi fioriva</l>
      <l>quando
          Amor cominciò darvi bataglia,</l>
    <!-- ... -->
  </lg>
```

```
</div>
</mdiv>
```

Textual divisions may have titles or other forms of headers, which are encoded with the [head](#) element.

<head> (heading) – Contains any heading, for example, the title of a section of text, or the heading of a list.

The following example shows the encoding of a preface translated into three different languages, each with a different title:

```
<div xml:lang="en">
  <head>Preface</head>
  <!-- text -->
</div>
<div xml:lang="de">
  <head>Vorwort</head>
  <!-- text -->
</div>
<div xml:lang="it">
  <head>Prefazione</head>
  <!-- text -->
</div>
```

Having said that [div](#) identifies any structural organization of text, it is often helpful to distinguish the typology of division. The attributes @type and @subtype can be used for this purpose. It is required that @type be present when @subtype is used, though their values can be freely set by the encoder.

The following example shows the use of @type to indicate three prefaces in English, German and Italian are columns on the same page.

```
<div n="1" type="column" xml:lang="en">
  <head>Preface</head>
  <!-- text -->
</div>
<div n="2" type="column" xml:lang="de">
  <head>Vorwort</head>
  <!-- text -->
</div>
<div n="3" type="column" xml:lang="it">
  <head>Prefazione</head>
  <!-- text -->
</div>
<pb/>
```

21.2 Paragraphs

Paragraphs are fundamental to prose text and typically group one or more sentences that form a logical passage. A paragraph is usually typographically distinct: The text begins on a new line and the first letter of the content is often indented, enlarged, or both.

A paragraph is encoded with the [p](#) element:

[<p>](#) (paragraph) – One or more text phrases that form a logical prose passage.

Prose text is used for several different purposes within a MEI document, therefore [p](#) can occur in many situations. For example, it may be used within metadata elements (see [2 The MEI Header](#)):

```
<samplingDecl>
  <p>The encoding
    contains only the first 5 measures.</p>
</samplingDecl>
```

Alternatively, paragraphs may be part of the document contents (and therefore encoded within [music](#)), either as [paratextual material](#) or within the music notation. In these cases, a paragraph will likely be contained by a [div](#) or other elements containing prose (e.g. [annot](#), [figDesc](#), etc.).

The following example shows a paragraph in a preface section:

```
<front>
<div>
  <head>The Preludes<lb/>Symphonic Poem No.3 by F. Liszt.</head>
  <p>What else is our life
    but a series of preludes to that unknown Hymn, the first and
    solemn note of
    which is intoned by Death?</p>
</div>
</front>
```

21.3 Lists

When a text contains lists, they can be encoded with the following elements:

[<list>](#) – A formatting element that contains a series of items separated from one another and arranged in a linear, often vertical, sequence.

[<head>](#) (heading) – Contains any heading, for example, the title of a section of text, or the heading of a list.

[<item>](#) – Single item in a [<list>](#).

The [list](#) element can identify any kind of list; the @form attribute can be used to specify whether the list is ordered, unordered etc. Each item in the list is encoded with the [item](#) element. The @n can be used to record a label for a list item, as in the following example:

```
<p>The modulation follows the
    following steps: <list form="ordered">
  <item n="1">C major</item>
  <item n="2">A minor</item>
  <item n="3">D major seventh</item>
  <item n="4">G major</item>
</list>
</p>
```

Occasionally, lists have headers or titles, which can be encoded with [head](#):

```
<list>
  <head>Ornaments in
    different languages</head>
  <item n="English" xml:lang="en">Turn</item>
  <item n="Italian" xml:lang="it">Gruppetto</item>
  <item n="French" xml:lang="fr">Gruppetto</item>
  <item n="German" xml:lang="de">Doppelschlag</item>
</list>
```

21.4 Quotation

It is common, in many types of texts, to find quotations. A quotation is typically attributed to another text other than the one being encoded. Often, the quoted material is typographically distinct from the surrounding text; i.e., surrounded by so-called 'quote marks' or rendered as a separate block of text. The [quote](#) element is used to mark this function:

[<quote>](#) (block quote) – A formatting element that designates an extended quotation; that is, a passage attributed to a source external to the text and normally set off from the text by spacing or other typographic distinction.

The following examples show the use of [quote](#).

```
<p>Hugh MacDonald has argued that Liszt's Symphonic Poems
    were meant to <quote>display the
    traditional
    logic of symphonic thought</quote>.</p>
```

```
<p>The majority of the works
    represented in this catalogue were purchased in Paris and London
between 1928 and
    1934. After graduating from Harvard in 1924, Mackay-Smith spent several
years in
    Europe: <quote>
<p>I bought my first early music from Harold Reeves in London in the
    summer of 1928 when I
was able to acquire virtually all the 18th century
    editions, particularly of trio music,
which he then had in stock, going back not
    only through his current but also through
earlier catalogues, picking out
    numbers which remained unsold. It is almost a shame
today to think of the prices
    at which such things were then available, one or two pounds
apiece.</p>
</quote>
</p>
```

21.5 Poetry

This [lg](#) (line group) element is used generically to encode any section of text that is organized as a group of lines. Following the recommendations of the Text Encoding Initiative, it is recommended to use it, along with the following elements, for marking up poetry:

[<lg>](#) (line group) – May be used for any section of text that is organized as a group of lines; however, it is most often used for a group of verse lines functioning as a formal unit, e.g. a stanza, refrain, verse paragraph, etc.

[<head>](#) (heading) – Contains any heading, for example, the title of a section of text, or the heading of a list.

[<l>](#) (line of text) – Contains a single line of text within a line group.

Because [lg](#) groups verses, it can be used to encode additional stanzas not integrated into the music notation. In addition, it is common for a poem to include a title or a header, as is demonstrated by the following example:

```
<mdiv>
<section>
<!-- Score of Franz Liszt's "Sonetto 104 del Petrarca"
-->
</section>
<div>
<!-- Text of Francesco
Petrarca's Sonett n. 104. -->
<lg>
<head>Sonetto 104</head>
<l>L'aspectata vertù, che 'n voi fioriva</l>
<l>quando Amor cominciò
    darvi bataglia,</l>
<l>produce or frutto, che quel fiore aguaglia,</l>
<l>et che mia speme fa
```

```

        venire a riva.</l>
<!--
    ... -->
</lg>
</div>
</mdiv>

```

21.6 Paratext

This section introduces paratextual material, such as title pages, prefaces, indexes and other text that precedes or follows the actual score.

21.6.1 Front Matter

By ‘front matter’ these Guidelines mean distinct sections of a text (usually, but not necessarily, a printed one), prefixed to it by way of introduction or identification as a part of its production. Features such as title pages or prefaces are clear examples; a less definite case might be the prologue attached to a dramatic work. The front matter of an encoded text should not be confused with the MEI header described in chapter [2 The MEI Header](#), which provides metadata for the entire file.

An encoder may choose simply to ignore the front matter in a text, if the original presentation of the work is of no interest. No specific tags are provided for the various kinds of subdivision which may appear within front matter: instead, generic [div](#) (“division”) elements may be used, which should not be confused with [mdiv](#) (“musical division”) elements. The following suggested values for the @type attribute may be used to distinguish various kinds of division characteristic of front matter:

- **'preface'** – A foreword or preface addressed to the reader in which the author or publisher explains the content, purpose, or origin of the text.
- **'ack'** – A formal declaration of acknowledgement by the author in which persons and institutions are thanked for their part in the creation of a text.
- **'dedication'** – A formal offering or dedication of a text to one or more persons or institutions by the author.
- **'abstract'** – A summary of the content of a text as continuous prose.
- **'contents'** – A table of contents, specifying the structure of a work and listing its constituents. The list element should be used to mark its structure.
- **'frontispiece'** – A pictorial frontispiece, possibly including some text.

The following extended example demonstrates how various parts of the front matter of a text may be encoded. The front part begins with a title page, which is presented in section [21.6.2 Title Pages](#), below. This is followed by a dedication and a preface, each of which is encoded as a distinct div:

```

<titlePage>
<!-- transcription of title
      page -->

```

```
</titlePage>
<div type="dedication">
  <p>
    <!-- Dedicatory text -->
  </p>
</div>
<div type="preface">
  <head>Preface</head>
  <p>
    <!-- paragraph 1
      -->
  </p>
  <p>
    <!-- paragraph 2
      -->
  </p>
  <!-- additional material -->
</div>
```

The front matter concludes with another [div](#) element, shown in the next example, this time containing a table of contents, which contains a [list](#) element (as described in chapter [21.3 Lists](#)). Note the use of the [ptr](#) element to provide page-references: the implication here is that the target identifiers (song1, song2, etc.) will correspond with identifiers used for the [mdiv](#) elements containing the individual songs. (For a description of the [ptr](#) element, see chapter [19 Pointers and References](#).)

```
<div type="contents">
  <head>Contents</head>
  <list form="ordered">
    <item>On Wenlock Edge <ptr target="#song1"/>
  </item>
    <item>From Far, From
      Eve and Morning <ptr target="#song2"/>
  </item>
    <item>Is My Team
      Ploughing? <ptr target="#song3"/>
  </item>
    <item>Oh, When I Was
      In Love With You <ptr target="#song4"/>
  </item>
    <item>Bredon Hill
      <ptr target="#song5"/>
  </item>
    <item>Clun <ptr target="#song6"/>
  </item>
  </list>
</div>
```

Alternatively, the pointers in the table of contents might link to the page breaks at which a song begins, assuming that these have been included in the markup:

```
<list form="ordered">
  <item>On Wenlock Edge <ref target="#song1-p1">1</ref>
  </item>
  <item>From Far, From Eve and Morning <ref target="#song2-p15">15</ref>
  </item>
  <!-- ....
    -->
```

```

</list>
<!-- Later in the document -->
<mdiv type="song">
  <pb xml:id="song1-p1"/>
  <!-- .... -->
</mdiv>
<mdiv type="song">
  <pb xml:id="song2-p15"/>
  <!-- .... -->
</mdiv>
<!-- .... -->

```

21.6.2 Title Pages

Detailed analysis of the title page and other preliminaries of older printed books and manuscripts is of major importance in descriptive bibliography and the cataloging of printed books; such analysis, however, requires a more detailed approach than the general one described here. The following elements are suggested as a means of encoding the major features of most title pages for faithful rendition:

<titlePage> – Contains a transcription of the title page of a text.

<p> (paragraph) – One or more text phrases that form a logical prose passage.

<table> – Contains text displayed in tabular form.

<list> – A formatting element that contains a series of items separated from one another and arranged in a linear, often vertical, sequence.

<quote> (block quote) – A formatting element that designates an extended quotation; that is, a passage attributed to a source external to the text and normally set off from the text by spacing or other typographic distinction.

<lg> (line group) – May be used for any section of text that is organized as a group of lines; however, it is most often used for a group of verse lines functioning as a formal unit, e.g. a stanza, refrain, verse paragraph, etc.

The following example shows the encoding of the title page of Vaughan Williams' *On Wenlock Edge*. Note the use of the **lb** element to mark the line breaks present in the original.

```

<titlePage>
  <p>ON WENLOCK
      EDGE</p>
  <p>A CYCLE OF SIX SONGS<lb/> FOR
      TENOR VOICE ____ WITH ACCOMPANIMENT OF<lb/> Pianoforte
      and
      String Quartet (ad lib)<lb/> THE WORDS BY
      A. E. HOUSMAN<lb/> (FROM "A SHROPSHIRE
      LAD")</p>
</p>

```

```
<figure/>
</p>
<p>MUSIC
      BY<lb/> R. VAUGHAN<lb/> WILLIAMS</p>
<list>
  <item>PRICE $3.75</item>
  <item>(COMPLETE WITH SET OF STRING PARTS $5.00</item>
  <item>STRING PARTS SEPARATELY $1.00</item>
</list>
<p>Boosey & Hawkes, Inc.</p>
<p>New York, U.S.A.</p>
<p>London ·
      Toronto · Sydney · Capetown</p>
</titlePage>
```

The physical rendition of title page information is often of considerable importance. One approach to this requirement would be to use the [rend](#) element, described in chapter [1.3.2 Text Rendition](#) to specify the rendition of each of the components of the title page. Another would be to employ a CSS stylesheet. Finally, a module customized for the description of typographic entities such as pages, lines, rules, etc., bearing special-purpose attributes to describe line-height, leading, degree of kerning, font, etc. could be employed.

21.7 Back Matter

Conventions vary as to which elements are grouped as back matter and which as front. For example, some books place the table of contents at the front, and others at the back. For this reason, the content models of the [front](#) and [back](#) elements are identical.

The following suggested values may be used for the @type attribute on all division elements, in order to distinguish various kinds of divisions characteristic of back matter:

- **'appendix'** – An ancillary self-contained section of a work, often providing additional but in some sense extra-canonical text.
- **'glossary'** – A list of terms associated with definition texts ('glosses').
- **'notes'** – A section in which textual notes are gathered together.
- **'bibliography'** – A list of bibliographic citations.
- **'index'** – Any form of index to the work.
- **'colophon'** – A statement appearing at the end of a book describing the conditions of its physical production.

No additional elements are proposed for the encoding of back matter at present. Some characteristic examples follow; first, an index (for the case in which a printed index is of sufficient interest to merit transcription):

```
<back>
<div type="index">
  <head>Index</head>
```

```

<list type="index">
  <item>a2, a3, etc., <ref>175-176</ref>
</item>
  <item>Abbreviations,
    <ref>3</ref>
    <list type="indexentry">
      <item>Percussion, <ref>205-213</ref>
      </item>
      <item>Strings, <ref>307</ref>
      </item>
    </list>
  </item>
  <item>Afterbeats, <ref>77</ref>
  </item>
</list>
</div>
</back>

```

Note that if the page breaks in the original source have also been explicitly encoded, and given identifiers, the references to them in the above index can more usefully be recorded as links. For example, assuming that the encoding of page 77 of the original source starts like this:

```
<pb xml:id="text.P77"/>
```

then the last item above might be encoded more usefully in the following form:

```

<item>Afterbeats, <ref target="#text.P77">77</ref>
</item>

```

22 User-defined Symbols

This chapter describes the elements, model classes, and attribute classes that are part of the MEI.usersymbols module.

22.1 Overview of the User Symbols Module

The module described in this chapter makes available the following components:

22.1.1 Elements

- [<anchoredText>](#) – Container for text that is fixed to a particular location, regardless of changes made to the layout of the measures around it.
- [<curve/>](#) – A curved line that cannot be represented by a more specific element, such as a [<slur>](#).
- [<line>](#) – A line that cannot be represented by a more specific element.
- [<symbol/>](#) – A reference to a previously defined symbol.
- [<symbolDef>](#) (symbol definition) – Declaration of an individual symbol in a symbolTable.
- [<symbolTable>](#) – Contains individual, user-defined symbols.

22.1.2 Attribute Classes

No attribute classes are defined in this module.

22.1.3 Model Classes

The usersymbols module defines the following model classes:

- [model.graphicprimitiveLike](#) groups elements that function as drawing primitives.
- [model.symbolTableLike](#) groups elements that group symbol definitions.

22.2 Uses of the Usersymbols Module

The elements provided by the usersymbols module may be used in two ways:

1. For defining lines, curves and text elements that cannot be represented by a more specific element.

2. For defining reusable symbols and special graphical renditions.

For this purpose, it provides three elements as graphic primitives, [line](#), [curve](#) and [anchoredText](#). Anywhere these elements are allowed, the [symbol](#) element can be used as well. The [symbol](#) element reuses symbols that were defined by [symbolDef](#) elements.

22.2.1 Defining Reusable Symbols

The [symbolDef](#) element uses the graphic primitives to describe a symbol. Using the [symbol](#) element, a symbol definition may also use symbols defined by other [symbolDef](#) elements.

Figure 49. Definition of a triangle percussion symbol

```
<symbolDef xml:id="userSymbols.triangleSymbol3">
  <line
    x="0"
    x2="2.55"
    y="0"
    y2="4.25"/>
  <line
    x="2.55"
    x2="5.1"
    y="4.25"
    y2="0"/>
  <line
    x="5.1"
    x2="0.85"
    y="0"
    y2="0"/>
</symbolDef>
```

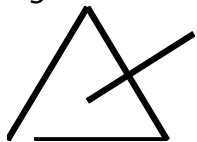
Figure 50. Rendition of the triangle defined above



Figure 51. Symbol composed of the symbol defined above and additional graphics primitives

```
<symbolDef
  xml:id="userSymbols.triangleSymbolWithStick">
  <symbol ref="#userSymbols.triangleSymbol3"/>
  <line
    x="2.55"
    x2="5.95"
    y="1.25"
    y2="3.4"/>
</symbolDef>
```

Figure 52. Rendition of the composite triangle symbol



22.2.2 Elements Without Semantic Implications

The graphics primitives and symbols can be used directly in the music to describe text and lines on a purely graphical level, without implying a specific logical meaning. If possible, however, more meaningful elements should be used. This means for example, "a tempo" or "da capo" should in general not be put inside [anchoredText](#). Instead, [tempo](#) and [dir](#) should be used. Likewise, slurs and ties should be encoded using their respective elements, not using [curve](#), and for glissandi, [gliss](#) should be used instead of [line](#).

An example usage for [line](#) is the visualization of voice leading, which is not covered by a specific MEI element.

Figure 53. Voice leading visualization as found in an Edition Peters print of *Album für die Jugend* by Schumann, No. 35 (Mignon), measure 6. (Unknown date, plate number is 10478.)

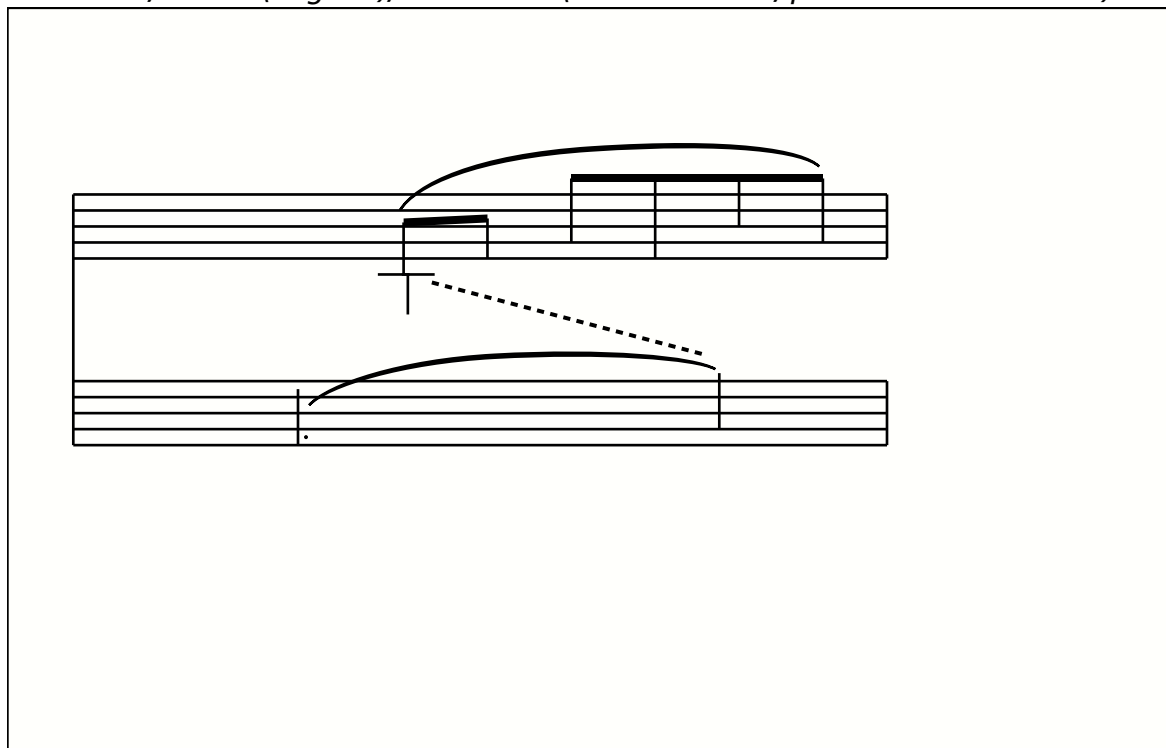


Figure 54. Encoding of the Schumann example

```

<measure n="6">
<staff n="1">
  <layer n="1">
    <rest dur="4" xml:id="userSymbols.r1"/>
    <beam>
      <note
        dur="8"
        oct="4"
        pname="c"
        xml:id="userSymbols.n1"/>
      <note
        dur="8"
        oct="4"
        pname="e"
        xml:id="userSymbols.n2"/>
    </beam>
    <beam>
      <note
        dur="8"
        oct="4"
        pname="g"
        xml:id="userSymbols.n3"/>
      <note
        dur="8"
        oct="4"
        pname="e"
        xml:id="userSymbols.n4"/>
      <note
        dur="8"
        oct="4"
        pname="b"
        xml:id="userSymbols.n5"/>
      <note
        dur="8"
        oct="4"
        pname="g"
        xml:id="userSymbols.n6"/>
    </beam>
    <slur curvedir="above" endid="#userSymbols.n6" startid="#userSymbols.n1"/>
  </layer>
</staff>
<staff n="2">
  <layer n="1">
    <rest dur="4"/>
    <note
      dur="2"
      next="#userSymbols.n9"
      oct="4"
      pname="c"
      stem.dir="down"
      xml:id="userSymbols.n7"/>
  </layer>
</staff>
<staff n="2">
  <layer n="1">
    <note
      dots="1"
      dur="2"
      oct="2"
      pname="g"
      xml:id="userSymbols.n8"/>
    <note
      dur="4"
      oct="3"
      pname="b"
      prev="#userSymbols.n7"
      #userSymbols.n8"
      xml:id="userSymbols.n9"/>
    <slur curvedir="above" endid="#userSymbols.n9" startid="#userSymbols.n8"/>
  </layer>

```

```

</staff>
<line endid="#userSymbols.n9" rend="dotted" startid="#userSymbols.n7"/>
</measure>

```

22.2.3 Defining a Specific Graphical Rendition for a Semantic Element

Usersymbols can define the rendition of different elements in two ways. Some elements, namely [dir](#) and [tempo](#), can have user symbol elements as content. This can e.g. be used to indicate percussion instruments using pictograms.

Figure 55. Indicating percussion instruments using pictograms

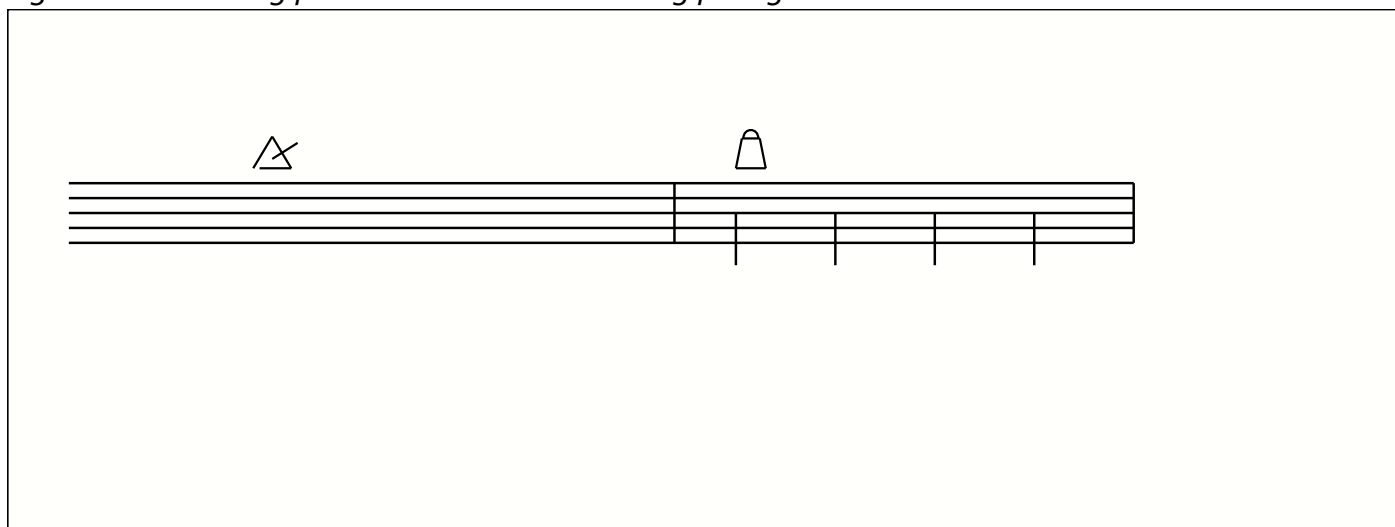


Figure 56. Encoding of above example

```

<section>
<scoreDef meter.count="4" meter.unit="4">
<symbolTable>
  <symbolDef xml:id="userSymbols.triangleSymbol1">
    <line
      x="0"
      x2="2.55"
      y="0"
      y2="4.25"/>
    <line
      x="2.55"
      x2="5.1"
      y="4.25"
      y2="0"/>
    <line
      x="5.1"
      x2="0.85"
      y="0"
      y2="0"/>
    <line

```

```

        x="2.55"
        x2="5.95"
        y="1.25"
        y2="3.4"/>
</symbolDef>
<symbolDef xml:id="userSymbols.cowbellSymbol">
  <line
    x="1"
    x2="1.8"
    y="0"
    y2="4"/>
  <line
    x="1.8"
    x2="4.2"
    y="4"
    y2="4"/>
  <line
    x="4.2"
    x2="5"
    y="4"
    y2="0"/>
  <line
    x="5"
    x2="1"
    y="0"
    y2="0"/>
  <curve
    bezier="0 1.5 0
            1.5"
    endho="3"
    endvo="4"
    startho="1"
    startvo="4"/>
</symbolDef>
</symbolTable>
<staffGrp>
  <staffDef clef.line="2" clef.shape="G" n="1"/>
</staffGrp>
</scoreDef>
<measure n="1">
  <staffDef n="1">
    <instrDef midi.instrname="Open_Triangle"/>
  </staffDef>
  <staff n="1">
    <layer>
      <dir tstamp="1">
        <symbol ref="#userSymbols.triangleSymbol2"/>
      </dir>
      <note dur="1"/>
    </layer>
  </staff>
</measure>
<measure n="2">
  <staffDef n="1">
    <instrDef midi.instrname="Cowbell"/>
  </staffDef>
  <staff n="1">
    <layer>
      <dir tstamp="1">
        <symbol ref="#userSymbols.cowbellSymbol"/>
      </dir>
      <note dur="4"/>
      <note dur="4"/>
      <note dur="4"/>
      <note dur="4"/>
    </layer>
  </staff>
</measure>

```

```
</measure>
</section>
```

A number of other elements can point to a symbol for rendering using the @altsym attribute.

Figure 57. Different treble clef renditions as written by Charpentier (source: [Journal of Seventeenth-Century Music, Volume 12, No. 1 \(2006\), figure 3](#))



Figure 58. Defining two staves, each using its own treble clef shape

```
<scoreDef>
  <symbolTable>
    <symbolDef xml:id="userSymbols.clefA">
      <curve
        bezier="-1.2 0.1
                -0.9 -0.8 "
        endho="1.1"
        endvo="
              6.6"
        startho="1.2"
        startvo=" 4
                "/>
      <curve
        bezier=" 1 0.9 0.1 1.6 "
        endho="3 "
        endvo="
              5.3"
        startho="1.1"
        startvo=" 6.6
                "/>
      <curve
        bezier="-0.1 -2.6 0 2.3 "
        endho="0.6"
        endvo="-0.1"
        startho="3
              "
        startvo=" 5.3
                "/>
      <curve
        bezier=" 0.07 -1.3 -0.2 -1.63"
        endho="2.4"
        endvo="
              0.23"
        startho="0.6"
        startvo="-0.1
                "/>
      <curve
        bezier=" 0.2 1.3 0.5 0.62"
        endho="0.8"
```

```

        endvo="
            0.81"
        startho="2.4"
        startvo="
            0.23"/>
</symbolDef>
<symbolDef xml:id="userSymbols.clefB">
  <curve
    bezier="-0.7 0.1
            0.3 0.92"
    endho="0.7"
    endvo="-0.2"
    startho="2.5"
    startvo=" 1.3
            "/>
  <curve
    bezier="-0.27 -0.76 -1.25 -1.26"
    endho="2 "
    endvo="-0.74"
    startho="0.7"
    startvo="-0.2
            "/>
  <curve
    bezier=" 1.4 1.8 0.4 -1 "
    endho="1.6"
    endvo="
        4.36"
    startho="2
            "
    startvo="-0.74"/>
  <curve
    bezier="-0.89 2.2 -1.1 1.6
            "
    endho="3.5"
    endvo="
        6.06"
    startho="1.6"
    startvo="
        4.36"/>
  <curve
    bezier=" 0.8 -1.2 0 0
            "
    endho="3.7"
    endvo="
        2.66"
    startho="3.5"
    startvo="
        6.06"/>
</symbolDef>
</symbolTable>
<staffGrp>
  <staffDef n="1">
    <clef altsym="#userSymbols.clefA" line="2" shape="G"/>
  </staffDef>
  <staffDef n="2">
    <clef altsym="#userSymbols.clefB" line="2" shape="G"/>
  </staffDef>
</staffGrp>
</scoreDef>

```

22.3 Positioning and Coordinates

22.3.1 Axis Orientation

MEI uses the classic axis directions where the x-axis points from left to right and the y-axis points from bottom up. (This is compatible with PostScript's axis orientation, while SVG's y-axis points in the opposite direction.)

22.3.2 Units

There are two types of units used by MEI: Staff units (`data.INTERLINE`) and units of the output coordinate system. Units of the output coordinate system can be translated to physical real world distances by means of the `@page.unit` and `@page.scale` of a [scoreDef](#) element. Real world units are multiplied by the value of `@page.scale` to get the corresponding value in output coordinate units.

If an element is scaled using the `@scale` attribute, the actual size of the units changes accordingly.

22.3.3 Positioning

An element may be positioned using either absolute or relative coordinates. If absolute start point coordinates are specified using `@x/@y` coordinates (or their relatives `@x2/@y2` for endpoints) they take precedence over relative positions specified by `@ho/@vo/@to` (or `@startho/@startvo/@startto`). Analogously, `@x2/@y2` override `@endho/@endvo/@endto`.

If `@to/@startto/@endto` attributes are used, the start or end point is x-aligned with the indicated timestamp.

If relative start coordinates (`@ho/@vo` or `@startho/@startvo`) are used, the origin of the coordinate system to be used for the start point is the first one found by the following search schema:

1. If `@startid` is present, the origin of the referenced element;
2. If the element is inside running text (e.g. inside [tempo](#)), the end of the preceding text or element;
3. Otherwise, the origin of the containing element.

The start point is offset from this origin by the value of the start coordinates (`@ho/@vo` or `@startho/@startvo`), using staff units.

Analogously, the endpoint is determined, using end coordinates (`@endho/@endvo`). If `@endid` is specified, it takes precedence over `@startid`.

Examples of origins are:

- [staff](#) and [layer](#): The horizontal origin is the starting point of the measure, the vertical one is the bottom staff line;

- [note](#): The horizontal origin is the left end of the notehead, the vertical one the center of the notehead;
- [clef](#): The horizontal origin is the left end of the clef, the vertical one the line specified by [clef/@line](#) (or [@clef.line](#));
- For elements containing text: The left end of the baseline;
- [symbolDef](#): As symbol definitions aren't rendered directly, their coordinate system and origin are considered virtual. When they are referenced by [symbol](#) or [@altsym](#), the origin of the context, i.e. the referencing symbol, is used.

If neither absolute nor relative coordinates are specified, determining visually suitable start points (and endpoints for [<lines>](#) and [curves](#)) is left to the rendering application. A value of 0 is not always assumed for absent relative coordinates. A typical example where a rendering application may not choose the origins of absent relative start and end coordinates to be the start point as well is the line connecting two notes in the above [Schumann example](#).

22.3.4 Curve Shape

If neither a [@bezier](#) nor [@bulge](#) attribute is present, the renderer determines a suitable shape. However, if [@curvedir](#) is present, the curve must respect the curvature direction specified there.

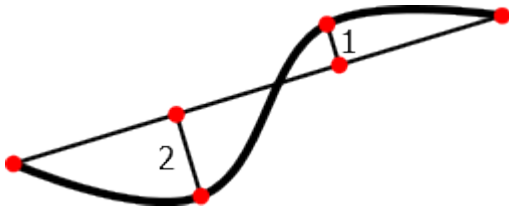
The attributes [@bezier](#) and [@bulge](#) define the shape of a curve in two different ways. If both are present, a rendering application may choose either one. They override [@curvedir](#).

[@bezier](#) defines the inner control points of a cubic Bézier curve, i.e., a Bézier curve with two inner control points. The coordinates are given by a space separated list, first x and y offsets for the first control point, then x and y offsets for the second one. The x and y offsets are given in staff units (or inside the context of [symbolDef](#) in abstract units). The offsets for the first inner control point are relative to the start point, the ones for the second inner control point are relative to the end point.

The [@bulge](#) attribute allows specification of the curve shape by a number of interpolation points. The interpolation points are given by their distance from the line connecting the start and end point. The distance values are stored as a space separated list.

The interpolation points are calculated as follows: If [@bulge](#) provides n distance values, the connection line is divided into n+1 subsegments of equal length. The interpolation points are found by drawing a perpendicular line of the respective length at each subsegment joint. Positive distance values are drawn to the left of the connection line (left when traveling from start to end), negative ones to the right.

Figure 59. Rendering a bulge attribute with value "2 1"



The interpolation algorithm used by the rendering application is implementation dependent.

22.4 Line Rendition

The @rend attribute of lines and curves can take the following values:

- narrow
- medium
- wide
- dashed
- dotted

These attributes are only qualitative. The actual line width, dot and dash distance, dash length and line ending shapes are implementation dependent.

22.5 Limitations

The usersymbols module does currently not support continuous composite lines or filled areas. As mentioned above, the rendition of lines is highly implementation dependent. Coordinate system transforms are restricted to scaling using @scale.

Schema mei: Elements

<abbr>

<abbr> (abbreviation) – A generic element for 1) a shortened form of a word, including an acronym or 2) a shorthand notation.	
Module	MEI.edittrans
Attributes	<p> att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.edit (@cert, @evidence) (att.responsibility (@resp)) (att.source (@source)) att.facsimile (@facs) att.lang (@xml:lang) att.trans (att.handident (@hand)) (att.sequence (@seq)) att.typed (@type, @subtype) </p> <p> @expan records the expansion of a text abbreviation. </p> <p> Status Optional </p>
Used by	model.editorialLike
Contained by	<p>MEI.edittrans: abbr add choice corr damage del expan orig reg restore sic supplied unclear</p> <p>MEI.figtable: td th</p> <p>MEI.harmony: f harm</p> <p>MEI.header: accessRestrict acqSource condition dimensions event exhibHist extent hand inscription language physLoc physMedium plateNum price provenance sysReq term treatHist treatSched useRestrict watermark</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ref</p> <p>MEI.shared: actor addrLine annot bibl caption date dir dynam edition fw identifier label name num p pgFoot pgFoot2 pgHead pgHead2 rend repository role roleDesc stack syl tempo title</p> <p>MEI.text: head item l</p> <p>MEI.usersymbols: anchoredText line</p>
May contain	<p>MEI.cmn: arpeg bTrem beam beamSpan beatRpt bend breath fTrem fermata gliss hairpin halfmRpt harpPedal mRest mRpt mRpt2 mSpace measure meterSig multiRest multiRpt octave pedal reh slur tie tuplet tupletSpan</p> <p>MEI.cmnOrnaments: mordent trill turn</p> <p>MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear</p> <p>MEI.figtable: fig</p> <p>MEI.harmony: f harm</p> <p>MEI.lyrics: lyrics</p> <p>MEI.mensural: ligature mensur proport</p> <p>MEI.midi: midi</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.neumes: ineume uneume</p>

	<p>MEI.ptrref: ptr ref</p> <p>MEI.shared: accid address annot artic barLine bibl chord clef clefGrp custos date dir dot dynam identifier keySig layer lb name note num pad pb phrase rend repository rest section space stack staff tempo title</p> <p>MEI.usersymbols: anchoredText curve line symbol</p>
Declaration	<pre> element abbr { attribute expan { text }?, (text model.textphraseLike model.eventLike model.eventLike.neumes model.controleventLike model.lyricsLike model.midiLike model.editLike model.transcriptionLike model.eventLike.measureFilling model.noteModifierLike model.sectionLike model.measureLike model.staffLike model.layerLike model.graphicprimitiveLike model.fLike)* } </pre>

<accessRestrict>

<accessRestrict> (access restriction) – Describes the conditions that affect the accessibility of material.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.lang (@xml:lang)
Used by	macro.availabilityPart
Contained by	MEI.header: availability
May contain	<p>MEI.edittrans: abbr expan</p> <p>MEI.figtable: fig</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: address bibl date identifier lb name num rend repository stack title</p>

Declaration	<pre>element accessRestrict { (text model.textphraseLike.limited) * }</pre>
-------------	---

<accid>

<accid/> (accidental) – Records a temporary alteration to the pitch of a note.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.typography (@fontfam, @fontname, @fontsize, @fontstyle, @fontweight) att.accid.log (@func) (att.accidental (@accid)) (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.staffloc (@loc)) att.accid.vis (att.color (@color)) (att.placement (@place)) (att.visualoffset.ho (@ho)) (att.visualoffset.vo (@vo)) (att.xy (@x, @y)) (att.enclosingchars (@enclose)) att.accid.gesatt.accid.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.noteModifierLike
Contained by	MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer note
May contain	Empty element
Declaration	<pre>element accid { empty }</pre>

<acqSource>

<acqSource> (acquisition source) – Post-publication source, such as a vendor or distributor, from which access to a bibliographic item may be obtained, including electronic access.	
Module	MEI.header
Attributes	att.bibl (@analog) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.lang (@xml:lang)
Used by	macro.availabilityPart

Contained by	MEI.header: availability
May contain	MEI.edittrans: abbr expan MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre>element acqSource { (text model.textphraseLike.limited) * }</pre>

<actor>

<actor> – Name of an actor appearing within a cast list.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@fac) att.lang (@xml:lang)
Used by	
Contained by	MEI.shared: castItem
May contain	MEI.edittrans: abbr expan MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre>element actor { (text model.textphraseLike.limited) * }</pre>

<add>

<add> (addition) – Marks an addition to the text.	
Module	MEI.edittrans

Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.edit (@cert, @evidence) (att.responsibility (@resp)) (att.source (@source)) att.trans (att.handident (@hand)) (att.sequence (@seq))
Used by	model.substPart model.transcriptionLike
Contained by	MEI.cmn: beam measure tuplet MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic subst supplied unclear MEI.figtable: td th MEI.harmony: f fb harm MEI.header: inscription MEI.namesdates: corpName geogName periodName persName styleName MEI.neumes: ineume syllable uneume MEI.shared: addrLine annot caption chord dir dynam ending fw identifier label layer name note num p part pgFoot pgFoot2 pgHead pgHead2 rend score section staff syl tempo title MEI.text: head item l MEI.usersymbols: anchoredText
May contain	MEI.cmn: arpeg bTrem beam beamSpan beatRpt bend breath fTrem fermata gliss hairpin halfmRpt harpPedal mRest mRpt mRpt2 mSpace measure meterSig multiRest multiRpt octave pedal reh slur tie tuplet tupletSpan MEI.cmnOrnaments: mordent trill turn MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig MEI.harmony: f harm MEI.lyrics: lyrics MEI.mensural: ligature mensur proport MEI.midi: midi MEI.namesdates: corpName geogName periodName persName styleName MEI.neumes: ineume uneume MEI.ptrref: ptr ref MEI.shared: accid address annot artic barLine bibl chord clef clefGrp custos date dir dot dynam identifier keySig layer lb name note num pad pb phrase rend repository rest section space stack staff tempo title MEI.usersymbols: anchoredText curve line symbol
Declaration	<pre> element add { (text model.textphraseLike model.eventLike) } </pre>

	<pre> model.eventLike.neumes model.controleventLike model.lyricsLike model.midiLike model.editLike model.transcriptionLike model.eventLike.measureFilling model.noteModifierLike model.sectionLike model.measureLike model.staffLike model.layerLike model.graphicprimitiveLike model.fLike) * }</pre>
--	--

<addrLine>

<addrLine> (address line) – Single line of a postal address.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang)
Used by	
Contained by	MEI.shared: address
May contain	MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address annot bibl date identifier lb name num pb rend repository stack title
Declaration	<pre>element addrLine { (text model.textphraseLike model.editLike model.transcriptionLike) * }</pre>

<address>

<address> – Contains a postal address, for example of a publisher, an organization, or an individual.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang)
Used by	model.addressLike
Contained by	MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.figtable: td th MEI.harmony: f harm MEI.header: accessRestrict acqSource condition dimensions event exhibHist extent hand inscription language physLoc physMedium plateNum price provenance pubStmt sysReq term treatHist treatSched useRestrict watermark MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ref MEI.shared: actor addrLine annot bibl caption date dir dynam edition fw identifier label name num p pgFoot pgFoot2 pgHead pgHead2 rend repository role roleDesc stack syl tempo title MEI.text: head item l MEI.usersymbols: anchoredText line
May contain	MEI.shared: addrLine
Declaration	<pre>element address { addrLine+ }</pre>

<altId>

<altId> (alternative identifier) – May contain a bibliographic identifier that does not fit within the meiHead element's id attribute, for example because the id does not fit the definition of an XML id or because multiple identifiers are needed.	
Module	MEI.header
Attributes	att.bibl (@analog) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.typed (@type, @subtype)
Used by	
Contained by	MEI.header: meiHead
May contain	MEI.shared: lb rend stack

Declaration	<pre>element altId { (text model.lbLike model.rendLike)* }</pre>
-------------	--

<anchoredText>

<anchoredText> – Container for text that is fixed to a particular location, regardless of changes made to the layout of the measures around it.	
Module	MEI.usersymbols
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang) att.startid (@startid) att.typed (@type, @subtype) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.xy (@x, @y)
Used by	model.graphicprimitiveLike
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.figtable: figDesc MEI.harmony: harm MEI.neumes: syllable MEI.shared: dir ending layer part pgDesc score section staff tempo MEI.usersymbols: symbolDef
May contain	MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre>element anchoredText { (text model.textphraseLike.limited model.editLike model.transcriptionLike)* }</pre>

<annot>

<annot> (annotation) – Provides a short statement explaining the text or indicating the basis for an assertion.	
Module	MEI.shared
Attributes	att.bibl (@analog) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@fac) att.lang (@xml:lang) att.source (@source) att.typed (@type, @subtype) att.annot.log (att.startendid (@endid) (att.startid (@startid))) (att.duration.timestamp (@dur)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.annot.visatt.annot.ges (att.duration.performed (@dur.ges)) att.annot.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))) att.plist (@plist, @evaluate) att.responsibility (@resp)
Used by	model.annotLike
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.figtable: figDesc td th MEI.header: notesStmt MEI.namesdates: corpName geogName periodName persName styleName MEI.neumes: syllable MEI.ptrref: ref MEI.shared: addrLine annot bibl caption date ending identifier layer name num p part pgDesc rend score section stack staff title MEI.text: head item l
May contain	MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig table MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address annot bibl date identifier lb name num p pb rend repository stack title MEI.text: lg list quote
Declaration	<pre> element annot { (text model.textcomponentLike model.textphraseLike model.editLike model.transcriptionLike)* } </pre>

<app>

<app> (apparatus) – Contains one or more alternative encodings.	
Module	MEI.critapp
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.typed (@type, @subtype)
Used by	model.appLike
Contained by	MEI.cmn: beam measure tuple let MEI.critapp: lem rdg MEI.neumes: ineume syllable uneume MEI.shared: ending fw layer note part pgFoot pgFoot2 pgHead pgHead2 score section staff
May contain	MEI.critapp: lem rdg
Declaration	<pre>element app { lem?, rdg, rdg* }</pre>

<appInfo>

<appInfo> (application information) – Groups information about applications which have acted upon the MEI file.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id))
Used by	model.encodingPart
Contained by	MEI.header: encodingDesc
May contain	MEI.header: application
Declaration	<pre>element appInfo { application* }</pre>

<application>

<application> – Provides information about an application which has acted upon the current document.

Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.datafile (@enddate, @isodate, @notafter, @notbefore, @startdate) att.typed (@type, @subtype) @version supplies a version number for an application, independent of its identifier or display name. Status Optional
Used by	
Contained by	MEI.header: applInfo
May contain	MEI.ptrref: ptr ref MEI.shared: name p
Declaration	<pre> element application { attribute version { text }?, model.nameLike+, (model.locrefLike* model.pLike*) } </pre>

<arpeg>

<arpeg/> (arpeggiation) – Indicates that the notes of a chord are to be performed successively rather than simultaneously, usually from lowest to highest. Sometimes called a "roll".

Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.arpeg.log (@order) (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@timestamp)) (att.timestamp.performed (@timestamp.ges, @timestamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) att.arpeg.vis (@arrow) (att.color (@color)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) (att.xy (@x, @y)) att.arpeg.gesatt.arpeg.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch)) (att.alignment (@when)))
Used by	model.controleventLike.cmn
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.editrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer

May contain	Empty element
Declaration	<pre>element arpeg { empty }</pre>

<artic>

<artic/> (articulation) – An indication of how to play a note or chord.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.typography (@fontfam, @fontname, @fontsize, @fontstyle, @fontweight) att.artic.log (att.articulation (@artic)) (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.staffloc (@loc)) att.artic.vis (att.color (@color)) (att.placement (@place)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) (att.xy (@x, @y)) (att.enclosingchars (@enclose)) att.artic.gesatt.artic.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.noteModifierLike
Contained by	MEI.critapp: lem rdg MEI.editttrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: chord layer note
May contain	Empty element
Declaration	<pre>element artic { empty }</pre>

<avFile>

<avFile> (audio/video file) – References an external digital audio or video file.	
Module	MEI.performance
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls) att.internetmedia (@mimetype) att.facsimile (@facs) att.pointing (@xlink:actuate, @xlink:role, @xlink:show, @target, @targettype, @xlink:title) att.typed (@type, @subtype)

Used by	
Contained by	MEI.performance: clip recording
May contain	MEI.performance: clip
Declaration	<pre>element avFile { clip* }</pre>
Schematron	<pre><sch:rule context="mei:clip/mei:avFile"> <sch:assert test="count(me:*) = 0">avFile child of clip cannot have children</sch:assert></sch:rule></pre>

<availability>

<availability> – Groups elements that describe the availability of and access to a bibliographic item, including an MEI-encoded document.	
Module	MEI.header
Attributes	att.bibl (@analog) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.datapointing (@data)
Used by	model.pubStmtPart
Contained by	MEI.header: pubStmt
May contain	MEI.header: accessRestrict acqSource price sysReq useRestrict
Declaration	<pre>element availability { macro.availabilityPart }</pre>

<bTrem>

<bTrem> (bowed tremolo) – A rapid alternation on a single pitch or chord.	
Module	MEI.cmn

Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.bTrem.log (@form) (att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.numbered (@num)) att.bTrem.vis (att.numberplacement (@num.place, @num.visible)) att.bTrem.ges (att.tremmeasured (@measperf)) att.bTrem.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.eventLike.cmn
Contained by	MEI.cmn: beam tuple MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: ineume syllable uneume MEI.shared: layer
May contain	MEI.shared: chord note
Declaration	<pre>element bTrem { chord note }</pre>

<back>

<back> (back matter) – Contains any appendixes, advertisements, indexes, etc. following the main body of a musical text.	
Module	MEI.text
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls) att.facsimile (@facs) att.lang (@xml:lang)
Used by	model.backLike
Contained by	MEI.shared: music
May contain	MEI.shared: lb pb titlePage MEI.text: div
Declaration	<pre>element back { model.milestoneLike.text*, (model.divLike model.frontPart)+, model.milestoneLike.text* }</pre>

<barLine>

<barLine/> – Vertical line drawn through one or more staves that divides musical notation into metrical units.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.pointing (@xlink:actuate, @xlink:role, @xlink:show, @target, @targettype, @xlink:title) att.barLine.log (@rend) (att.meterconformance.bar (@metcon, @control)) att.barLine.vis (att.barplacement (@barplace, @taktplace)) (att.color (@color)) (att.measurement (@unit)) (att.width (@width)) att.barLine.ges (att.timestamp.musical (@tstamp)) att.barLine.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.eventLike
Contained by	MEI.cmn: beam tuplet MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: ineume syllable uneume MEI.shared: layer
May contain	Empty element
Declaration	<pre>element barLine { empty }</pre>
Schematron	<pre><sch:rule context="mei:barLine[@taktplace]"> <sch:let name="staff" value="ancestor::mei:staff/@n"/> <sch:let name="staffpos" value="count(ancestor::mei:staff/preceding-sibling::mei:staff) + 1"/> <sch:assert test="number(@taktplace) <= number(2 * preceding::mei:staffDef[@n=\$staff and @lines][1]/@lines)"/></sch:rule></pre>

<barre>

<barre/> – An indication of fingering in a chord tablature grid.	
Module	MEI.harmony

Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.fretlocation (@fret) att.startendid (@endid) (att.startid (@startid))
Used by	
Contained by	MEI.harmony: chordDef
May contain	Empty element
Declaration	<pre>element barre { empty }</pre>

<beam>

<beam> – A container for a series of explicitly beamed events that begins and ends entirely within a measure.	
Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.beam.log (att.event (att.timestamp.musical (@timestamp)) (att.timestamp.performed (@timestamp.ges, @timestamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.beamedwith (@beam.with)) att.beam.vis (att.beamrend (@rend, @slope)) att.beam.ges att.beam.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.eventLike.cmn
Contained by	MEI.cmn: beam tuple MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: ineume syllable uneume MEI.shared: layer
May contain	MEI.cmn: bTrem beam beatRpt fTrem halfmRpt meterSig tuple MEI.critapp: app MEI.edittrans: add choice corr damage del gap handShift orig reg restore sic subst supplied unclear MEI.mensural: ligature mensur proport MEI.shared: barLine chord clef clefGrp custos keySig note pad rest space
Declaration	<pre>element beam { (</pre>

```

    model.eventLike
    |
    model.applLike
    |
    model.editLike
    |
    model.transcriptionLike
  )+
}

```

<beamSpan>

<beamSpan/> (beam span) – Alternative element for explicitly encoding beams, particularly those which extend across bar lines.

Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.beamSpan.log (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.startendid (@endid) (att.startid (@startid))) (att.beamedwith (@beam.with)) (att.duration.musical (@dur)) att.beamSpan.vis (att.beamrend (@rend, @slope)) att.beamSpan.ges (att.duration.performed (@dur.ges)) att.beamSpan.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.controleventLike.cmn
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.edittans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer
May contain	Empty element
Declaration	<pre> element beamSpan { empty } </pre>
Schematron	<pre> <sch:rule context="mei:beamSpan"> <sch:assert test="@startid or @tstamp or @tstamp.ges or @tstamp.real"> Must have one of the </pre>

```

        attributes: startid, tstamp, tstamp.ges or tstamp.real</sch:assert>
<sch:assert test="@endid or @dur">Must have one of the
        attributes: dur or
        endid</sch:assert></sch:rule>

```

<beatRpt>

<beatRpt/> (beat repeat) – An indication that material on a preceding beat should be repeated.	
Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.beatRpt.log (att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) att.beatRpt.vis (@rend) (att.altsym (@altsym)) (att.color (@color)) (att.expandable (@expand)) att.beatRpt.ges att.beatRpt.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.eventLike.cmn
Contained by	MEI.cmn: beam tuplet MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: ineume syllable uneume MEI.shared: layer
May contain	Empty element
Declaration	<pre> element beatRpt { empty } </pre>

<bend>

<bend/> – A variation in pitch (often micro-tonal) upwards or downwards during the course of a note.	
Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.bend.log (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.startendid (@endid) (att.startid (@startid))) (att.duration.timestamp (@dur)) att.bend.vis (att.color (@color)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to))

	(att.visualoffset.vo (@vo))) (att.visualoffset2 (att.visualoffset2.ho (@startho, @endho)) (att.visualoffset2.to (@startto, @endto)) (att.visualoffset2.vo (@startvo, @endvo))) (att.xy (@x, @y)) (att.xy2 (@x2, @y2)) (att.curvature (@bezier, @bulge, @curvedir)) (att.curverend (@rend)) att.bend.ges (@amount) att.bend.an! (att.common.an! (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.controleventLike
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.editrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer
May contain	Empty element
Declaration	<pre>element bend { empty }</pre>
Schematron	<pre><sch:rule context="mei:bend"> <sch:assert test="@startid or @tstamp or @tstamp.ges or @tstamp.real"> Must have one of the attributes: startid, tstamp, tstamp.ges or tstamp.real</sch:assert> <sch:assert test="@endid or @dur">Must have one of the attributes: dur or endid</sch:assert></sch:rule></pre>

<bibl>

<bibl> (bibliographic reference) – Provides a citation for a published work.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang) att.pointing (@xlink:actuate, @xlink:role, @xlink:show, @target, @targettype, @xlink:title)
Used by	model.biblLike
Contained by	MEI.editrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.figtable: td th MEI.harmony: f harm

	<p>MEI.header: accessRestrict acqSource condition dimensions event exhibHist extent hand inscription language physLoc physMedium plateNum price provenance sysReq term treatHist treatSched useRestrict watermark</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ref</p> <p>MEI.shared: actor addrLine annot bibl caption date dir dynam edition fw identifier label name num p pgFoot pgFoot2 pgHead pgHead2 rend repository role roleDesc stack syl tempo title</p> <p>MEI.text: head item l quote</p> <p>MEI.usersymbols: anchoredText line</p>
May contain	<p>MEI.edittrans: abbr expan</p> <p>MEI.figtable: fig</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: address annot bibl date edition identifier lb name num pb rend repository stack title</p>
Declaration	<pre>element bibl { (text model.biblPart model.textphraseLike) * }</pre>

<body>

<body> – Contains the whole of a single musical text, excluding any front or back matter.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls)
Used by	macro.musicPart
Contained by	MEI.shared: music
May contain	MEI.shared: mdiv
Declaration	<pre>element body { model.mdivLike + }</pre>

<breath>

<breath/> (breath mark) – A indication of a point at which the performer on an instrument requiring breath (including the voice) may breathe.	
Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.breath.log (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.startendid (@endid) (att.startid (@startid))) att.breath.vis (att.altsym (@altsym)) (att.color (@color)) (att.placement (@place)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) (att.xy (@x, @y)) att.breath.gesatt.breath.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))))
Used by	model.controleventLike.cmn
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.editrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer
May contain	Empty element
Declaration	<pre>element breath { empty }</pre>

<caption>

<caption> – A label which accompanies an illustration or a table.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang)
Used by	model.captionLike
Contained by	MEI.figtable: fig table
May contain	MEI.editrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName

	MEI.ptrref: ptr ref MEI.shared: address annot bibl date identifier lb name num pb rend repository stack title
Declaration	<pre> element caption { (text model.textphraseLike model.editLike model.transcriptionLike) * } </pre>

<castGrp>

<castGrp> (cast group) – Groups one or more individual castItem elements within a cast list.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang)
Used by	
Contained by	MEI.shared: castGrp castList
May contain	MEI.shared: castGrp castItem roleDesc
Declaration	<pre> element castGrp { (castItem castGrp roleDesc) + } </pre>

<castItem>

<castItem> – Contains a single entry within a cast list, describing either a single role or a list of non-speaking roles.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang)
Used by	
Contained by	MEI.shared: castGrp castList
May contain	MEI.header: instrVoice MEI.shared: actor role roleDesc

Declaration	<pre>element castItem { (text role roleDesc actor instrVoice)+ }</pre>
--------------------	--

<castList>

<castList> – Contains a single cast list or dramatis personae.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang)
Used by	
Contained by	MEI.header: perfMedium
May contain	MEI.shared: castGrp castItem MEI.text: head
Declaration	<pre>element castList { model.headLike?, (castItem castGrp)+ }</pre>

<CC>

<cc/> (control change) – MIDI parameter/control change.	
Module	MEI.midi
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.midi.event (att.staffident (@staff)) (att.layerident (@layer)) (att.timestamp.musical (@tstamp)) att.midinumber (@num) att.midivalue (@val)
Used by	
Contained by	MEI.midi: midi
May contain	Empty element

Declaration	<pre>element cc { empty }</pre>
--------------------	---------------------------------

<chan>

<chan/> (channel) – MIDI channel assignment.	
Module	MEI.midi
Attributes	<p> att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.midi.event (att.staffident (@staff)) (att.layerident (@layer)) (att.timestamp.musical (@tstamp)) @num MIDI number in the range set by data.MIDICHANNEL. Status Required Datatype data.MIDICHANNEL </p>
Used by	
Contained by	MEI.midi: midi
May contain	Empty element
Declaration	<pre>element chan { attribute num { data.MIDICHANNEL }, empty }</pre>

<chanPr>

<chanPr/> (channel pressure) – MIDI channel pressure/after touch.	
Module	MEI.midi
Attributes	<p> att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.midi.event (att.staffident (@staff)) (att.layerident (@layer)) (att.timestamp.musical (@tstamp)) att.midinumber (@num) </p>
Used by	
Contained by	MEI.midi: midi
May contain	Empty element

Declaration	<pre>element chanPr { empty }</pre>
-------------	-------------------------------------

<change>

<change> – Individual change within the revision description.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.dataable (@enddate, @isodate, @notafter, @notbefore, @startdate) att.responsibility (@resp)
Used by	
Contained by	MEI.header: revisionDesc
May contain	MEI.header: changeDesc respStmt MEI.shared: date
Declaration	<pre>element change { respStmt, changeDesc, model.dateLike }</pre>

<changeDesc>

<changeDesc> (change description) – Description of a revision of the MEI file.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.lang (@xml:lang)
Used by	
Contained by	MEI.header: change
May contain	MEI.shared: p
Declaration	<pre>element changeDesc { model.pLike+ }</pre>

<choice>

<choice> – Groups a number of alternative encodings for the same point in a text.	
Module	MEI.edittrans
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id))
Used by	model.editLike
Contained by	MEI.cmn: beam measure tuplet MEI.critapp: lem rdg MEI.edittrans: abbr add choice corr damage del expan orig reg restore sic supplied unclear MEI.figtable: td th MEI.harmony: f fb harm MEI.header: inscription MEI.namesdates: corpName geogName periodName persName styleName MEI.neumes: ineume syllable uneume MEI.shared: addrLine annot caption chord dir dynam ending fw identifier label layer name note num p part pgFoot pgFoot2 pgHead pgHead2 rend score section staff syl tempo title MEI.text: head item l MEI.usersymbols: anchoredText
May contain	MEI.edittrans: abbr choice corr expan orig reg sic subst unclear
Declaration	<pre>element choice { model.choicePart* }</pre>

<chord>

<chord> – A simultaneous sounding of two or more notes in the same layer *with the same duration*.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.chord.log (att.event (att.timestamp.musical (@timestamp)) (att.timestamp.performed (@timestamp.ges, @timestamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.articulation (@artic)) (att.augmentdots (@dots)) (att.duration.musical (@dur)) (att.fermatapresent (@fermata)) (att.syltext (@syl)) (att.slurpresent (@slur)) (att.tiepresent (@tie)) (att.tupletpresent (@tuplet)) (att.chord.log.cmn (att.beamed (@beam)) (att.lvpresent (@lv)) (att.ornam (@ornam))) att.chord.vis (@cluster) (att.altsym (@altsym)) (att.color (@color)) (att.relativeSize (@size)) (att.stemmed (@stem.dir, @stem.len, @stem.pos, @stem.x, @stem.y) (att.stemmed.cmn (@stem.mod, @stem.with))) (att.visibility (@visible)) (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.xy (@x, @y)) (att.chord.vis.cmn (att.beamsecondary (@breaksec))) att.chord.ges (att.articulation.performed (@artic.ges)) (att.duration.performed (@dur.ges)) (att.instrumentident (@instr)) (att.chord.ges.cmn (att.graced (@grace, @grace.time))) att.chord.anl

	(att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))) (att.melodicfunction (@mfunc))
Used by	model.eventLike
Contained by	MEI.cmn: bTrem beam fTrem tuplet MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: ineume syllable uneume MEI.shared: layer
May contain	MEI.edittrans: add choice corr damage del gap handShift orig reg restore sic subst supplied unclear MEI.shared: artic note
Declaration	<pre>element chord { (note artic model.editLike model.transcriptionLike)* }</pre>

<chordDef>

<chordDef> (chord definition) – Chord tablature definition.	
Module	MEI.harmony
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) @pos records the fret position at which the chord tablature is to be played. Status Optional Datatype xsd:positiveInteger
Used by	
Contained by	MEI.harmony: chordTable
May contain	MEI.harmony: barre chordMember
Declaration	<pre>element chordDef { attribute pos { xsd:positiveInteger }?, chordMember*,</pre>

	<pre> } barre* </pre>
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<chordMember>

<chordMember/> – An individual pitch in a chord defined by a <chordDef> element.	
Module	MEI.harmony
Attributes	<p> att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.accidental.performed (@accid.ges) att.fretlocation (@fret) att.intervalharmonic (@inth) att.pitched (att.pitch (@pname)) (att.octave (@oct)) @fing indicates which finger, if any, should be used to play an individual string. The values 'x' and 'o' indicated muffled and open strings, respectively. Status Optional Datatype data.FINGER.FRET </p>
Used by	
Contained by	MEI.harmony: chordDef
May contain	Empty element
Declaration	<pre> element chordMember { attribute fing { data.FINGER.FRET }?, empty } </pre>

<chordTable>

<chordTable> – Chord/tablature look-up table.	
Module	MEI.harmony
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id))
Used by	model.chordTableLike
Contained by	MEI.shared: scoreDef
May contain	MEI.harmony: chordDef

Declaration	<pre>element chordTable { chordDef+ }</pre>
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<classCode>

<p><classCode> (classification code) – Holds a citation to the source of controlled-vocabulary terms used in the <termList> element; for example, Library of Congress Subject Headings (LCSH), Library of Congress Classification (LCC), Library of Congress Name Authority File (LCNAF), or other thesaurus or ontology.</p>	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.authorized (@authority, @authURI) att.bibl (@analog)
Used by	
Contained by	MEI.header: classification
May contain	MEI.shared: lb rend stack
Declaration	<pre>element classCode { (text model.lbLike model.rendLike)* }</pre>

<classification>

<p><classification> – Groups information which describes the nature or topic of an entity.</p>	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.datapointing (@data)
Used by	
Contained by	MEI.header: relatedItem source work
May contain	MEI.header: classCode termList
Declaration	<pre>element classification { (classCode termList)+ }</pre>

<clef>

<clef/> – Indication of the exact location of a particular note on the staff and, therefore, the other notes as well.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.clef.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))) att.clef.gesatt.clef.log (@cautionary) (att.clefshape (@shape)) (att.lineloc (@line)) (att.octave (@oct)) (att.octavedisplacement (@dis, @dis.place)) att.clef.vis (att.altsym (@altsym)) (att.color (@color))
Used by	model.eventLike model.staffDefPart
Contained by	MEI.cmn: beam tuplet MEI.critapp: lem rdg MEI.editrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: ineume syllable uneume MEI.shared: clefGrp layer staffDef
May contain	Empty element
Declaration	<pre>element clef { empty }</pre>
Schematron	<pre><sch:rule context="mei:clef[ancestor::mei:staffDef[@lines]]"> <sch:let name="thisstaff" value="ancestor::mei:staffDef/@n"/> <sch:assert test="number(@line) <= number(ancestor::mei:staffDef[@n=\$thisstaff and @lines][1]/@lines)">The clef position must be less than or equal to the number of lines on the staff.</sch:assert></sch:rule></pre>
Schematron	<pre><sch:rule context="mei:clef[ancestor::mei:staffDef[not(@lines)]]"> <sch:let name="thisstaff" value="ancestor::mei:staffDef/@n"/> <sch:assert test="number(@line) <= number(preceding::mei:staffDef[@n=\$thisstaff and @lines][1]/@lines)">The clef position must be less than or equal</pre>

to the number of lines on the
staff.</sch:assert></sch:rule>

<clefGrp>

<clefGrp> (clef group) – A set of simultaneously-occurring clefs.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.facsimile (@facs) att.clefGrp.log att.clefGrp.vis att.clefGrp.ges att.clefGrp.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))))
Used by	model.eventLike model.staffDefPart
Contained by	MEI.cmn: beam tuple MEI.critapp: lem rdg MEI.editttrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: ineume syllable uneume MEI.shared: layer staffDef
May contain	MEI.shared: clef
Declaration	<pre>element clefGrp { clef+ }</pre>

<clip>

<clip> – Defines a time segment of interest within a recording or within a digital audio or video file.	
Module	MEI.performance
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls) att.mediabounds (@begin, @end, @betype) att.startid (@startid)
Used by	
Contained by	MEI.performance: avFile recording

May contain	MEI.performance: avFile
Declaration	<pre>element clip { avFile* }</pre>

<condition>

<condition> – The physical condition of an item, particularly any variances between the physical makeup of the item and that of other copies of the same item (e.g., missing pages, plates, etc.).	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.lang (@xml:lang)
Used by	model.physDescPart
Contained by	MEI.header: physDesc
May contain	MEI.edittrans: abbr expan MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre>element condition { (text model.textphraseLike.limited)* }</pre>

<contentItem>

<contentItem> – Contains a single entry within a content description element.	
Module	MEI.header
Attributes	att.bibl (@analog) att.common (@label, @n, @xml:base) (att.id (@xml:id))
Used by	
Contained by	MEI.header: contents
May contain	Character data only

Declaration	<pre>element contentItem { text* }</pre>
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<contents>

<contents> – Description of the material contained within a resource.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.pointing (@xlink:actuate, @xlink:role, @xlink:show, @target, @targettype, @xlink:title)
Used by	
Contained by	MEI.header: relatedItem seriesStmt source work
May contain	MEI.header: contentItem MEI.shared: label p MEI.text: head
Declaration	<pre>element contents { model.headLike?, (model.pLike? (model.labelLike?, contentItem)+) }</pre>

<corpName>

<corpName> (corporate name) – Identifies an organization or group of people that acts as a single entity.	
Module	MEI.namesdates
Attributes	att.bibl (@analog) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.dataable (@enddate, @isodate, @notafter, @notbefore, @startdate) att.edit (@cert, @evidence) (att.responsibility (@resp)) (att.source (@source)) att.facsimile (@facs) att.lang (@xml:lang) att.name (@nymref, @role) (att.authorized (@authority, @authURI)) (att.canonical (@dbkey)) att.typed (@type, @subtype)
Used by	model.nameLike.agent
Contained by	MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.figtable: td th

	<p>MEI.harmony: f harm</p> <p>MEI.header: accessRestrict acqSource condition dimensions event exhibHist extent hand inscription language physLoc physMedium plateNum price provenance respStmt sysReq term treatHist treatSched useRestrict watermark</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ref</p> <p>MEI.shared: actor addrLine annot bibl caption date dir dynam edition fw identifier label name num p pgFoot pgFoot2 pgHead pgHead2 rend repository role roleDesc stack syl tempo title</p> <p>MEI.text: head item l</p> <p>MEI.usersymbols: anchoredText line</p>
May contain	<p>MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear</p> <p>MEI.figtable: fig</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: address annot bibl date identifier lb name num pb rend repository stack title</p>
Declaration	<pre> element corpName { (text model.textphraseLike model.editLike model.transcriptionLike) * } </pre>

<corr>

<corr> (correction) – Contains the correct form of an apparent erroneous passage.	
Module	MEI.edittrans
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.edit (@cert, @evidence) (att.responsibility (@resp)) (att.source (@source)) att.trans (att.handident (@hand)) (att.sequence (@seq))
Used by	model.choicePart model.substPart model.transcriptionLike
Contained by	<p>MEI.cmn: beam measure tuplet</p> <p>MEI.critapp: lem rdg</p> <p>MEI.edittrans: abbr add choice corr damage del expan orig reg restore sic subst supplied unclear</p> <p>MEI.figtable: td th</p> <p>MEI.harmony: f fb harm</p> <p>MEI.header: inscription</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.neumes: ineume syllable uneume</p>

	<p>MEI.shared: addrLine annot caption chord dir dynam ending fw identifier label layer name note num p part pgFoot pgFoot2 pgHead pgHead2 rend score section staff syl tempo title</p> <p>MEI.text: head item !</p> <p>MEI.usersymbols: anchoredText</p>
May contain	<p>MEI.cmn: arpeg bTrem beam beamSpan beatRpt bend breath fTrem fermata gliss hairpin halfmRpt harpPedal mRest mRpt mRpt2 mSpace measure meterSig multiRest multiRpt octave pedal reh slur tie tuplet tupletSpan</p> <p>MEI.cmnOrnaments: mordent trill turn</p> <p>MEI.edittans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear</p> <p>MEI.figtable: fig</p> <p>MEI.harmony: f harm</p> <p>MEI.lyrics: lyrics</p> <p>MEI.mensural: ligature mensur proport</p> <p>MEI.midi: midi</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.neumes: ineume uneume</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: accid address annot artic barLine bibl chord clef clefGrp custos date dir dot dynam identifier keySig layer lb name note num pad pb phrase rend repository rest section space stack staff tempo title</p> <p>MEI.usersymbols: anchoredText curve line symbol</p>
Declaration	<pre> element corr { (text model.textphraseLike model.eventLike model.eventLike.neumes model.controleventLike model.lyricsLike model.midilike model.editLike model.transcriptionLike model.eventLike.measureFilling model.noteModifierLike model.sectionLike model.measureLike model.staffLike model.layerLike model.graphicprimitiveLike model.fLike)* } </pre>

<correction>

<correction> – States how and under what circumstances corrections have been made in the text.					
Module	MEI.header				
Attributes	<p>att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.datapointing (@data) att.lang (@xml:lang) att.regularmethod (@method)</p> <p>@corrlevel indicates the degree of correction applied to the text.</p> <table> <tr> <td>Status</td><td>Optional</td></tr> <tr> <td>Legal values are:</td><td> <p>high the text has been thoroughly checked and proofread.</p> <p>medium the text has been checked at least once.</p> <p>low the text has not been checked.</p> <p>unknown the correction status of the text is unknown.</p> </td></tr> </table>	Status	Optional	Legal values are:	<p>high the text has been thoroughly checked and proofread.</p> <p>medium the text has been checked at least once.</p> <p>low the text has not been checked.</p> <p>unknown the correction status of the text is unknown.</p>
Status	Optional				
Legal values are:	<p>high the text has been thoroughly checked and proofread.</p> <p>medium the text has been checked at least once.</p> <p>low the text has not been checked.</p> <p>unknown the correction status of the text is unknown.</p>				
Used by	model.editorialDeclPart				
Contained by	MEI.header: editorialDecl				
May contain	MEI.shared: p				
Declaration	<pre> element correction { attribute corrlevel { "high" "medium" "low" "unknown" }?, model.pLike+ } </pre>				

<creation>

<creation> – Non-bibliographic details of the creation of an intellectual entity, in narrative form, such as the date, place, and circumstances of its composition.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.lang (@xml:lang)
Used by	

Contained by	MEI.header: history
May contain	MEI.namesdates: geogName MEI.shared: date
Declaration	<pre>element creation { (text date geogName) * }</pre>

<cue>

<cue> – MIDI cue point.	
Module	MEI.midi
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.midi.event (att.staffident (@staff)) (att.layerident (@layer)) (att.timestamp.musical (@tstamp))
Used by	
Contained by	MEI.midi: midi
May contain	Character data only
Declaration	<pre>element cue { text }</pre>

<curve>

<curve/> – A curved line that cannot be represented by a more specific element, such as a <slur>.	
Module	MEI.usersymbols
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.color (@color) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.startendid (@endid) (att.startid (@startid)) att.typed (@type, @subtype) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.visualoffset2 (att.visualoffset2.ho (@startho, @endho)) (att.visualoffset2.to (@startto, @endto)) (att.visualoffset2.vo (att.startvo, @endvo)) att.xy (@x, @y) att.xy2 (@x2, @y2) att.curvature (@bezier, @bulge, @curvedir) att.curverend (@rend)
Used by	model.graphicprimitiveLike

Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.figtable: figDesc MEI.harmony: harm MEI.neumes: syllable MEI.shared: dir ending layer part pgDesc score section staff tempo MEI.usersymbols: symbolDef
May contain	Empty element
Declaration	<pre>element curve { empty }</pre>

<custos>

<custos/> – Symbol placed at the end of a line of music to indicate the first note of the next line. Sometimes called a "direct".	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.source (@source) att.custos.log (@target) (att.pitched (att.pitch (@pname)) (att.octave (@oct))) att.custos.vis (att.altsym (@altsym)) (att.color (@color)) att.custos.ges att.custos.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.eventLike
Contained by	MEI.cmn: beam tuplet MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: ineume syllable uneume MEI.shared: layer sb
May contain	Empty element
Declaration	<pre>element custos { empty }</pre>

<damage>

<damage> – Contains an area of damage to the physical medium.	
Module	MEI.edittrans
Attributes	<p> att.agentident (@agent) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.extent (@extent) att.facsimile (@facs) att.handident (@hand) att.typed (@type, @subtype) @degree records the degree of damage. Status Optional </p>
Used by	model.substPart model.transcriptionLike
Contained by	<p> MEI.cmn: beam measure tuplet MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic subst supplied unclear MEI.figtable: td th MEI.harmony: f fb harm MEI.header: inscription MEI.namesdates: corpName geogName periodName persName styleName MEI.neumes: ineume syllable uneume MEI.shared: addrLine annot caption chord dir dynam ending fw identifier label layer name note num p part pgFoot pgFoot2 pgHead pgHead2 rend score section staff syl tempo title MEI.text: head item l MEI.usersymbols: anchoredText </p>
May contain	<p> MEI.cmn: arpeg bTrem beam beamSpan beatRpt bend breath fTrem fermata gliss hairpin halfmRpt harpPedal mRest mRpt mRpt2 mSpace measure meterSig multiRest multiRpt octave pedal reh slur tie tuplet tupletSpan MEI.cmnOrnaments: mordent trill turn MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig MEI.harmony: f harm MEI.lyrics: lyrics MEI.mensural: ligature mensur proport MEI.midi: midi MEI.namesdates: corpName geogName periodName persName styleName MEI.neumes: ineume uneume MEI.ptrref: ptr ref MEI.shared: accid address annot artic barLine bibl chord clef clefGrp custos date dir dot dynam identifier keySig layer lb name note num pad pb phrase rend repository rest section space stack staff tempo title MEI.usersymbols: anchoredText curve line symbol </p>

Declaration	<pre> element damage { attribute degree { text }?, (text model.textphraseLike model.eventLike model.eventLike.neumes model.controleventLike model.lyricsLike model.midiLike model.editLike model.transcriptionLike model.eventLike.measureFilling model.noteModifierLike model.sectionLike model.measureLike model.staffLike model.layerLike model.graphicprimitiveLike model.fLike)* } </pre>
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<date>

<date> – A string identifying a point in time or the time period between two such points.	
Module	MEI.shared
Attributes	att.bibl (@analog) att.calendared (@calendar) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.dataable (@enddate, @isodate, @notafter, @notbefore, @startdate) att.edit (@cert, @evidence) (att.responsibility (@resp)) (att.source (@source)) att.facsimile (@facs) att.lang (@xml:lang)
Used by	model.dateLike
Contained by	<p>MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear</p> <p>MEI.figtable: td th</p> <p>MEI.harmony: f harm</p> <p>MEI.header: accessRestrict acqSource change condition creation dimensions event exhibHist extent hand inscription language physLoc physMedium plateNum price provenance pubStmt sysReq term treatHist treatSched useRestrict watermark</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ref</p> <p>MEI.shared: actor addrLine annot bibl caption date dir dynam edition fw identifier label name num p pgFoot pgFoot2 pgHead pgHead2 rend repository role roleDesc stack syl tempo title</p> <p>MEI.text: head item !</p> <p>MEI.usersymbols: anchoredText line</p>

May contain	MEI.edittrans: abbr expan MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address annot bibl date identifier lb name num pb rend repository stack title
Declaration	<pre>element date { (text model.textphraseLike) * }</pre>

 (deletion) – Contains information deleted, marked as deleted, or otherwise indicated as superfluous or spurious in the copy text by an author, scribe, annotator, or corrector.	
Module	MEI.edittrans
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.trans (att.handident (@hand)) (att.sequence (@seq)) @rend contains an indication of how the deletion should be rendered. Status Optional
Used by	model.substPart model.transcriptionLike
Contained by	MEI.cmn: beam measure tuplet MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic subst supplied unclear MEI.figtable: td th MEI.harmony: f fb harm MEI.header: inscription MEI.namesdates: corpName geogName periodName persName styleName MEI.neumes: ineume syllable uneume MEI.shared: addrLine annot caption chord dir dynam ending fw identifier label layer name note num p part pgFoot pgFoot2 pgHead pgHead2 rend score section staff syl tempo title MEI.text: head item l MEI.usersymbols: anchoredText
May contain	MEI.cmn: arpeg bTrem beam beamSpan beatRpt bend breath fTrem fermata gliss hairpin halfmRpt harpPedal mRest mRpt mRpt2 mSpace measure meterSig multiRest multiRpt octave pedal reh slur tie tuplet tupletSpan MEI.cmnOrnaments: mordent trill turn

	<p>MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear</p> <p>MEI.figtable: fig</p> <p>MEI.harmony: f harm</p> <p>MEI.lyrics: lyrics</p> <p>MEI.mensural: ligature mensur proport</p> <p>MEI.midi: midi</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.neumes: ineume uneume</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: accid address annot artic barLine bibl chord clef clefGrp custos date dir dot dynam identifier keySig layer lb name note num pad pb phrase rend repository rest section space stack staff tempo title</p> <p>MEI.usersymbols: anchoredText curve line symbol</p>
Declaration	<pre> element del { attribute rend { text }?, (text model.textphraseLike model.eventLike model.eventLike.neumes model.controleventLike model.lyricsLike model.midiLike model.editLike model.transcriptionLike model.eventLike.measureFilling model.noteModifierLike model.sectionLike model.measureLike model.staffLike model.layerLike model.graphicprimitiveLike model.fLike)* } </pre>

<dimensions>

<dimensions> – Information about the physical size of a bibliographic source; usually includes numerical data.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.measurement (@unit)
Used by	model.physDescPart
Contained by	MEI.header: physDesc

May contain	MEI.edittrans: abbr expan MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre>element dimensions { (text model.textphraseLike.limited) * }</pre>

<dir>

<dir> (directive) – A text expression that is on the score (typically above, below, or between staves, but not on the staff) not encoded elsewhere in more specific elements, such as **<tempo>** or **<dynam>**.

Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) (att.facsimile (@facs) att.lang (@xml:lang) att.typed (@type, @subtype) att.dir.log (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.startendid (@endid) (att.startid (@startid))) (att.duration.timestamp (@dur)) att.dir.vis (att.placement (@place)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) (att.visualoffset2.ho (@startho, @endho)) (att.visualoffset2.to (@startto, @endto)) (att.xy (@x, @y)) att.dir.ges (att.duration.performed (@dur.ges)) att.dir.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.controleventLike
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.lyrics: verse MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer
May contain	MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title MEI.usersymbols: anchoredText curve line symbol

Declaration	<pre>element dir { (text model.textphraseLike.limited model.graphicprimitiveLike model.editLike model.transcriptionLike)* }</pre>
Schematron	<pre><sch:rule context="mei:dir"> <sch:assert test="@startid or @tstamp or @tstamp.ges or @tstamp.real"> Must have one of the attributes: startid, tstamp, tstamp.ges or tstamp.real</sch:assert></sch:rule></pre>

<div>

<div> (division) – Major structural division of text, such as a preface, chapter or section.	
Module	MEI.text
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls) att.facsimile (@facs) att.lang (@xml:lang) att.typed (@type, @subtype)
Used by	model.divLike
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.neumes: syllable MEI.shared: ending layer part score section staff MEI.text: back div front
May contain	MEI.figtable: table MEI.shared: lb p pb MEI.text: div head lg list quote

Declaration	<pre> element div { model.milestoneLike.text*, model.headLike?, (model.divLike model.textcomponentLike)+, model.milestoneLike.text* } </pre>
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<dot>

<dot/> – Dot of augmentation or division.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.dot.log (@form) (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.staffloc (@loc)) att.dot.vis (att.color (@color)) (att.visualoffset.ho (@ho)) (att.visualoffset.vo (@vo)) (att.xy (@x, @y)) att.dot.gesatt.dot.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.noteModifierLike
Contained by	MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer note
May contain	Empty element
Declaration	<pre> element dot { empty } </pre>

<dynam>

<dynam> (dynamic) – Indication of the volume of a note, phrase, or section of music.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang) att.dynam.log (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident

	<p>(@layer))) (att.startendid (@endid) (att.startid (@startid)))) (att.duration.timestamp (@dur)) att.dynam.vis (att.placement (@place)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) (att.visualoffset2.ho (@startho, @endho)) (att.visualoffset2.to (@startto, @endto)) (att.xy (@x, @y)) att.dynam.ges (att.duration.performed (@dur.ges)) (att.midivalue (@val)) att.dynam.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))</p>
Used by	model.controleventLike
Contained by	<p>MEI.cmn: measure MEI.critapp: lem rdg MEI.editrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.lyrics: verse MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer</p>
May contain	<p>MEI.editrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title</p>
Declaration	<pre> element dynam { (text model.textphraseLike.limited model.editLike model.transcriptionLike) * } </pre>
Schematron	<pre> <sch:rule context="mei:dynam"> <sch:assert test="@startid or @tstamp or @tstamp.ges or @tstamp.real"> Must have one of the attributes: startid, tstamp, tstamp.ges or tstamp.real</sch:assert></sch:rule> </pre>

<edition>

<edition> (edition designation) – A word or text phrase that indicates a difference in either content or form between the item being described and a related item previously issued by the same publisher/distributor (e.g. 2nd edition, version 2.0, etc.), or simultaneously issued by either the same publisher/distributor or another publisher/distributor (e.g. large print edition, British edition, etc.).	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog)
Used by	model.editionLike
Contained by	MEI.header: editionStmt MEI.shared: bibl
May contain	MEI.edittrans: abbr expan MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre>element edition { (text model.textphraseLike.limited) * }</pre>

<editionStmt>

<editionStmt> (edition statement) – Container for meta-data pertaining to a particular edition of the material being described.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.lang (@xml:lang)
Used by	macro.bibldescPart
Contained by	MEI.header: fileDesc relatedItem source
May contain	MEI.header: respStmt MEI.shared: edition

Declaration	<pre>element editionStmt { (model.editionLike, respStmt*)+ }</pre>
-------------	--

<editorialDecl>

<editorialDecl> (editorial declaration) – Used to provide details of editorial principles and practices applied during the encoding of musical text.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.datapointing (@data) att.lang (@xml:lang)
Used by	model.encodingPart
Contained by	MEI.header: encodingDesc
May contain	MEI.header: correction interpretation normalization segmentation stdVals MEI.shared: p
Declaration	<pre>element editorialDecl { model.plike+ (model.editorialDeclPart+, model.pLike*) }</pre>

<encodingDesc>

<encodingDesc> (encoding description) – Documents the relationship between an electronic file and the source or sources from which it was derived as well as applications used in the encoding/editing process.	
Module	MEI.header
Attributes	att.bibl (@analog) att.common (@label, @n, @xml:base) (att.id (@xml:id))
Used by	model.headerPart
Contained by	MEI.header: meiHead
May contain	MEI.header: applInfo editorialDecl projectDesc samplingDecl

Declaration	<pre>element encodingDesc { model.encodingPart_sequenceOptional }</pre>
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<ending>

<ending> – Alternative ending for a repeated passage of music; i.e., prima volta, seconda volta, etc.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.typed (@type, @subtype) att.pointing (@xlink:actuate, @xlink:role, @xlink:show, @target, @targettype, @xlink:title) att.ending.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))) att.ending.gesatt.ending.logatt.ending.vis
Used by	model.endingLike
Contained by	MEI.critapp: lem rdg MEI.shared: ending part score section
May contain	MEI.cmn: measure MEI.critapp: app MEI.editrans: add choice corr damage del gap handShift orig reg restore sic subst supplied unclear MEI.shared: annot ending expansion pb sb scoreDef section staff staffDef MEI.text: div MEI.usersymbols: anchoredText curve line symbol
Declaration	<pre>element ending { expansion*, (model.applLike model.divLike model.milestoneLike.music model.annotLike model.graphicprimitiveLike model.editLike model.transcriptionLike model.sectionPart)* }</pre>

<ensemble>

<ensemble> – The name of a standard instrumental or vocal grouping, such as 'orchestra' or 'marching band'.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) @code captures one or more coded values for the textual content of this element. Status Optional Datatype xsd:NMTOKEN
Used by	
Contained by	MEI.header: instrumentation
May contain	Character data only
Declaration	<pre>element ensemble { attribute code { xsd:NMTOKEN }?, text }</pre>

<event>

<event> – Contains a description of an event, including the dates and locations of its occurrence and prominent participants.	
Module	MEI.header
Attributes	att.bibl (@analog) att.calendared (@calendar) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.dataable (@enddate, @isodate, @notafter, @notbefore, @startdate) att.edit (@cert, @evidence) (att.responsibility (@resp)) (att.source (@source)) att.lang (@xml:lang)
Used by	
Contained by	MEI.header: eventList
May contain	MEI.editrans: abbr expan MEI.figtable: fig table MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title MEI.text: list

Declaration	<pre> element event { (text model.textphraseLike.limited) * (model.tableLike model.listLike) * } </pre>
-------------	---

<eventList>

<eventList> – Contains historical information given as a sequence of significant past events.	
Module	MEI.header
Attributes	att.bibl (@analog) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.typed (@type, @subtype)
Used by	
Contained by	MEI.header: history provenance
May contain	MEI.header: event MEI.text: head
Declaration	<pre> element eventList { model.headLike?, event+ } </pre>

<exhibHist>

<exhibHist> (exhibition history) – A record of public exhibitions, including dates, venues, etc.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.lang (@xml:lang)
Used by	model.physDescPart
Contained by	MEI.header: physDesc
May contain	MEI.editrans: abbr expan MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title

Declaration	<pre>element exhibHist { (text model.textphraseLike.limited) * }</pre>
-------------	--

<expan>

<expan> (expansion) – Contains the expansion of an abbreviation.	
Module	MEI.edittrans
Attributes	<p>att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.edit (@cert, @evidence) (att.responsibility (@resp)) (att.source (@source)) att.facsimile (@facs) att.lang (@xml:lang) att.trans (att.handident (@hand)) (att.sequence (@seq)) att.typed (@type, @subtype)</p> <p>@abbr captures the unabbreviated form of the text.</p> <p>Status Optional</p>
Used by	model.editorialLike
Contained by	<p>MEI.edittrans: abbr add choice corr damage del expan orig reg restore sic supplied unclear</p> <p>MEI.figtable: td th</p> <p>MEI.harmony: f harm</p> <p>MEI.header: accessRestrict acqSource condition dimensions event exhibHist extent hand inscription language physLoc physMedium plateNum price provenance sysReq term treatHist treatSched useRestrict watermark</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptref: ref</p> <p>MEI.shared: actor addrLine annot bibl caption date dir dynam edition fw identifier label name num p pgFoot pgFoot2 pgHead pgHead2 rend repository role roleDesc stack syl tempo title</p> <p>MEI.text: head item l</p> <p>MEI.usersymbols: anchoredText line</p>
May contain	<p>MEI.cmn: arpeg bTrem beam beamSpan beatRpt bend breath fTrem fermata gliss hairpin halfmRpt harpPedal mRest mRpt mRpt2 mSpace measure meterSig multiRest multiRpt octave pedal reh slur tie tuplet tupletSpan</p> <p>MEI.cmnOrnaments: mordent trill turn</p> <p>MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear</p> <p>MEI.figtable: fig</p> <p>MEI.harmony: f harm</p> <p>MEI.lyrics: lyrics</p> <p>MEI.mensural: ligature mensur proport</p> <p>MEI.midi: midi</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p>

	<p>MEI.neumes: ineume uneume</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: accid address annot artic barLine bibl chord clef clefGrp custos date dir dot dynam identifier keySig layer lb name note num pad pb phrase rend repository rest section space stack staff tempo title</p> <p>MEI.usersymbols: anchoredText curve line symbol</p>
Declaration	<pre> element expansion { attribute abbr { text }?, (text model.textphraseLike model.eventLike model.eventLike.neumes model.controleventLike model.lyricsLike model.midiLike model.editLike model.transcriptionLike model.eventLike.measureFilling model.noteModifierLike model.sectionLike model.measureLike model.staffLike model.layerLike model.graphicprimitiveLike model.fLike)* } </pre>

<expansion>

<expansion/> – Indicates how a section may be programmatically expanded into its 'through-composed' form.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.source (@source) att.typed (@type, @subtype) att.plist (@plist, @evaluate)
Used by	
Contained by	<p>MEI.critapp: lem rdg</p> <p>MEI.shared: ending section</p>
May contain	Empty element
Declaration	<pre> element expansion { empty } </pre>

<extent>

<extent> – Used to express size in terms other than physical dimensions, such as number of pages, number of records in file, number of bytes, performance duration for music, audio recordings and visual projections, etc.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.measurement (@unit)
Used by	model.physDescPart
Contained by	MEI.header: fileDesc physDesc
May contain	MEI.edittrans: abbr expan MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre>element extent { (text model.textphraseLike.limited) * }</pre>

<f>

<f> (figure) – Single element of a figured bass indication.	
Module	MEI.harmony
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.altsym (@altsym) att.facsimile (@facs) @extender indicates the presence of an extension symbol, typically a dash or underscore, drawn from the end of the harmonic indication to the point indicated by the dur attribute. Status Optional Datatype data.BOOLEAN
Used by	model.fLike
Contained by	MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.harmony: fb
May contain	MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig

	MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre> element f { attribute extender { data.BOOLEAN }?, (text model.textphraseLike.limited model.editLike model.transcriptionLike)* } </pre>

<fTrem>

<fTrem> (fingered tremolo) – A rapid alternation between a pair of notes (or chords or perhaps between a note and a chord) that are (usually) farther apart than a major second.	
Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.fTrem.log (@form) (att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) att.fTrem.vis (att.slashcount (@slash)) att.fTrem.ges (att.tremmeasured (@measperf)) att.fTrem.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.eventLike.cmn
Contained by	MEI.cmn: beam tuplet MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: ineume syllable uneume MEI.shared: layer
May contain	MEI.shared: chord note
Declaration	<pre> element fTrem { (chord, (chord note)) (note, (chord note)) } </pre>

<facsimile>

<facsimile> – Contains a representation of some written source in the form of a set of images rather than as transcribed or encoded text.	
Module	MEI.facsimile
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls)
Used by	model.resourceLike
Contained by	MEI.shared: music
May contain	MEI.facsimile: surface
Declaration	<pre>element facsimile { surface* }</pre>

<fb>

<fb> (figured bass) – Symbols added to a bass line that indicate harmony. Used to improvise a chordal accompaniment. Sometimes called Generalbass, thoroughbass, or basso continuo.	
Module	MEI.harmony
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.facsimile (@facs)
Used by	model.figbassLike
Contained by	MEI.harmony: harm
May contain	MEI.edittrans: add choice corr damage del gap handShift orig reg restore sic subst supplied unclear MEI.harmony: f
Declaration	<pre>element fb { (model.fLike model.editLike model.transcriptionLike)* }</pre>

<fermata>

<fermata/> – An indication placed over a note or rest to indicate that it should be held longer than its written value. May also occur over a bar line to indicate the end of a phrase or section. Sometimes called a 'hold' or 'pause'.

Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.fermata.log (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.startendid (@endid) (att.startid (@startid))) att.fermata.vis (@form, @shape) (att.altsym (@altsym)) (att.color (@color)) (att.placement (@place)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) (att.xy (@x, @y)) att.fermata.ges (att.duration.performed (@dur.ges)) att.fermata.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.controleventLike.cmn
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.editttrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer
May contain	Empty element
Declaration	<pre>element fermata { empty }</pre>
Schematron	<pre><sch:rule context="mei:fermata"> <sch:assert test="@startid or @tstamp or @tstamp.ges or @tstamp.real"> Must have one of the attributes: startid, tstamp, tstamp.ges or tstamp.real</sch:assert></sch:rule></pre>

<fig>

<fig> (figure) – groups elements representing or containing graphic information such as an illustration or figure.

Module	MEI.figtable
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Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@fac) att.xy (@x, @y)
Used by	model.figureLike
Contained by	<p>MEI.edittans: abbr add corr damage del expan orig reg restore sic supplied unclear</p> <p>MEI.figtable: td th</p> <p>MEI.harmony: f harm</p> <p>MEI.header: accessRestrict acqSource condition dimensions event exhibHist extent hand inscription language physLoc physMedium plateNum price provenance sysReq term treatHist treatSched useRestrict watermark</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ref</p> <p>MEI.shared: actor addrLine annot bibl caption date dir dynam edition fw identifier label name num p pgFoot pgFoot2 pgHead pgHead2 rend repository role roleDesc stack syl tempo title</p> <p>MEI.text: head item l</p> <p>MEI.usersymbols: anchoredText line</p>
May contain	<p>MEI.figtable: figDesc graphic</p> <p>MEI.shared: caption</p>
Declaration	<pre>element fig { (model.captionLike figDesc model.graphicLike) * }</pre>

<figDesc>

<figDesc> (figure description) – Contains a brief prose description of the appearance or content of a graphic figure, for use when documenting an image without displaying it.	
Module	MEI.figtable
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.lang (@xml:lang)
Used by	model.figDescLike
Contained by	<p>MEI.facsimile: surface zone</p> <p>MEI.figtable: fig</p>
May contain	<p>MEI.figtable: table</p> <p>MEI.shared: annot p</p> <p>MEI.text: lg list quote</p> <p>MEI.usersymbols: anchoredText curve line symbol</p>

Declaration	<pre> element figDesc { (text model.graphicprimitiveLike model.textcomponentLike model.annotLike)* } </pre>
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<fileDesc>

<fileDesc> (file description) – Contains a full bibliographic description of the MEI file.	
Module	MEI.header
Attributes	att.bibl (@analog) att.common (@label, @n, @xml:base) (att.id (@xml:id))
Used by	
Contained by	MEI.header: meiHead
May contain	MEI.header: editionStmt extent notesStmt pubStmt seriesStmt sourceDesc titleStmt
Declaration	<pre> element fileDesc { titleStmt, editionStmt?, extent?, pubStmt, seriesStmt?, notesStmt?, sourceDesc? } </pre>

<front>

<front> (front matter) – Bundles prefatory text found before the start of the musical text.	
Module	MEI.text
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls) att.facsimile (@facs) att.lang (@xml:lang)
Used by	model.frontLike

Contained by	MEI.shared: music
May contain	MEI.shared: lb pb titlePage MEI.text: div
Declaration	<pre> element front { model.milestoneLike.text*, (model.divLike model.frontPart)+, model.milestoneLike.text* } </pre>

<fw>

<fw> (forme work) – This element is intended for capture of header/footer material that is non-repeating; that is, occurring on isolated pages. For recurring headers and footers use pgHead* and pgFoot* elements.

Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang) att.typed (@type, @subtype)
Used by	macro.metalike.page
Contained by	MEI.shared: pb
May contain	MEI.critapp: app MEI.editttrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig table MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num p rend repository stack title MEI.text: lg list quote
Declaration	<pre> element fw { (text model.textcomponentLike model.textphraseLike.limited model.editLike model.transcriptionLike) } </pre>

```

    | model.applike
  ) *
}

```

<gap>

<gap/> – Indicates a point where material has been omitted in a transcription, whether as part of sampling practice or for editorial reasons described in the MEI header.

Module	MEI.edittans
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.edit (@cert, @evidence) (att.responsibility (@resp)) (att.source (@source)) att.extent (@extent) att.handident (@hand) att.reasonident (@reason) att.measurement (@unit)
Used by	model.transcriptionLike
Contained by	MEI.cmn: beam measure tuple MEI.critapp: lem rdg MEI.edittans: abbr add corr damage del expan orig reg restore sic subst supplied unclear MEI.figtable: td th MEI.harmony: f fb harm MEI.header: inscription MEI.namesdates: corpName geogName periodName persName styleName MEI.neumes: ineume syllable uneume MEI.shared: addrLine annot caption chord dir dynam ending fw identifier label layer name note num p part pgFoot pgFoot2 pgHead pgHead2 rend score section staff syl tempo title MEI.text: head item ! MEI.usersymbols: anchoredText
May contain	Empty element
Declaration	<pre>element gap { empty }</pre>

<geogName>

<geogName> (geographic name) – The proper noun designation for a place, natural feature, or political jurisdiction.

Module	MEI.namesdates
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Attributes	att.bibl (@analog) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.edit (@cert, @evidence) (att.responsibility (@resp)) (att.source (@source)) att.facsimile (@facs) att.lang (@xml:lang) att.name (@nymref, @role) (att.authorized (@authority, @authURI)) (att.canonical (@dbkey)) att.typed (@type, @subtype)
Used by	model.nameLike.geogName
Contained by	<p>MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear</p> <p>MEI.figtable: td th</p> <p>MEI.harmony: f harm</p> <p>MEI.header: accessRestrict acqSource condition creation dimensions event exhibHist extent hand inscription language physLoc physMedium plateNum price provenance pubStmt sysReq term treatHist treatSched useRestrict watermark</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ref</p> <p>MEI.shared: actor addrLine annot bibl caption date dir dynam edition fw identifier label name num p pgFoot pgFoot2 pgHead pgHead2 rend repository role roleDesc stack syl tempo title</p> <p>MEI.text: head item l</p> <p>MEI.usersymbols: anchoredText line</p>
May contain	<p>MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear</p> <p>MEI.figtable: fig</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: address annot bibl date identifier lb name num pb rend repository stack title</p>
Declaration	<pre> element geogName { (text model.textphraseLike model.editLike model.transcriptionLike) * } </pre>

<gliss>

<gliss/> (glissando) – A continuous or sliding movement from one pitch to another, usually indicated by a straight or wavy line.

Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.gliss.log (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.startendid (@endid) (att.startid (@startid))) (att.duration.timestamp (@dur)) att.gliss.vis (@text) (att.color (@color)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to))

	(att.visualoffset.vo (@vo)) (att.visualoffset2 (att.visualoffset2.ho (@startho, @endho)) (att.visualoffset2.to (@startto, @endto)) (att.visualoffset2.vo (@startvo, @endvo)) (att.xy (@x, @y)) (att.xy2 (@x2, @y2)) (att.linerend (@rend)) att.gliss.gesatt.gliss.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch)) (att.alignment (@when))
Used by	model.controleventLike
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.editrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer
May contain	Empty element
Declaration	<pre>element gliss { empty }</pre>
Schematron	<pre><sch:rule context="mei:gliss"> <sch:assert test="@startid or @tstamp or @tstamp.ges or @tstamp.real"> Must have one of the attributes: startid, tstamp, tstamp.ges or tstamp.real</sch:assert> <sch:assert test="@endid or @dur">Must have one of the attributes: dur or endid</sch:assert></sch:rule></pre>

<graphic>

<graphic> – Indicates the location of an inline graphic, illustration, or figure.	
Module	MEI.figtable
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls) att.internetmedia (@mimetype) att.facsimile (@facs) att.pointing (@xlink:actuate, @xlink:role, @xlink:show, @target, @targettype, @xlink:title) att.measurement (@unit) att.typed (@type, @subtype) att.width (@width) @height measurement of the vertical dimension of an image. Status Optional Datatype xsd:positiveInteger
Used by	model.graphicLike

Contained by	MEI.facsimile: surface zone MEI.figtable: fig MEI.shared: incip
May contain	MEI.facsimile: zone
Declaration	<pre>element graphic { attribute height { xsd:positiveInteger }?, zone* }</pre>
Schematron	<pre><sch:rule context="mei:zone/mei:graphic"> <sch:assert test="count(me:*) = 0">graphic child of zone cannot have children</sch:assert></sch:rule></pre>

<group>

<group> – Contains a composite musical text, grouping together a sequence of distinct musical texts (or groups of such musical texts) which are regarded as a unit for some purpose, for example, the collected works of a composer.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls)
Used by	macro.musicPart
Contained by	MEI.shared: group music
May contain	MEI.shared: group music
Declaration	<pre>element group { (music group), (music group)* }</pre>

<grpSym>

<grpSym> (group symbol) – A brace or bracket used to group two or more staves of a score or part.	
Module	MEI.shared

Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.grpSym.log (att.staffgroupingsym (@symbol)) att.grpSym.vis (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) (att.xy (@x, @y)) att.grpSym.gesatt.grpSym.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	
Contained by	MEI.shared: staffGrp
May contain	MEI.shared: label
Declaration	<pre>element grpSym { model.labelLike* }</pre>

<hairpin>

<hairpin/> – Indicates continuous dynamics expressed on the score as wedge-shaped graphics, e.g. < and >.	
Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.hairpin.log (@form) (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@timestamp)) (att.timestamp.performed (@timestamp.ges, @timestamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.startendid (@endid) (att.startid (@startid))) (att.duration.timestamp (@dur)) att.hairpin.vis (@opening) (att.color (@color)) (att.placement (@place)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) (att.visualoffset2 (att.visualoffset2.ho (@startho, @endho)) (att.visualoffset2.to (@startto, @endto)) (att.visualoffset2.vo (@startvo, @endvo))) (att.xy (@x, @y)) (att.xy2 (@x2, @y2)) att.hairpin.ges (att.duration.performed (@dur.ges)) att.hairpin.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.controleventLike.cmn
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer
May contain	Empty element
Declaration	<pre>element hairpin { empty }</pre>

Schematron	<pre> <sch:rule context="mei:hairpin"> <sch:assert test="@startid or @tstamp or @tstamp.ges or @tstamp.real"> Must have one of the attributes: startid, tstamp, tstamp.ges or tstamp.real</sch:assert> <sch:assert test="@endid or @dur">Must have one of the attributes: dur or endid</sch:assert></sch:rule> </pre>
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<halfmRpt>

<halfmRpt/> (half-measure repeat) – A half-measure repeat in any meter.	
Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.halfmRpt.log (att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.duration.musical (@dur)) att.halfmRpt.vis (att.altsym (@altsym)) (att.color (@color)) (att.expandable (@expand)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) att.halfmRpt.ges att.halfmRpt.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.eventLike.cmn
Contained by	MEI.cmn: beam tuplet MEI.critapp: lem rdg MEI.editrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: ineume syllable uneume MEI.shared: layer
May contain	Empty element
Declaration	<pre> element halfmRpt { empty } </pre>

<hand>

<hand> – Defines a distinct scribe or handwriting style.	
Module	MEI.header

Attributes	<p>att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.lang (@xml:lang) att.medium (@medium) att.responsibility (@resp)</p> <p>@initial marks this hand as the first one of the document.</p> <p>Status Optional</p> <p>Datatype data.BOOLEAN</p>
Used by	
Contained by	MEI.header: handList
May contain	<p>MEI.edittrans: abbr expan</p> <p>MEI.figtable: fig</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: address bibl date identifier lb name num rend repository stack title</p>
Declaration	<pre> element hand { attribute initial { data.BOOLEAN }?, (text model.textphraseLike.limited) * } </pre>

<handList>

<handList> – Container for one or more hand elements.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog)
Used by	model.physDescPart
Contained by	MEI.header: physDesc
May contain	MEI.header: hand
Declaration	<pre> element handList { hand+ } </pre>

<handShift>

<handShift/> – Marks the beginning of a passage written in a new hand, or of a change in the scribe, writing style, ink or character of the document hand.	
Module	MEI.editrans
Attributes	<p>att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.edit (@cert, @evidence) (att.responsibility (@resp)) (att.source (@source)) att.facsimile (@facs) att.medium (@medium)</p> <p>@character describes the character of the new hand.</p> <p>Status Optional</p> <p>@new identifies the new hand. The value must contain the ID of a hand element given elsewhere in the document.</p> <p>Status Optional</p> <p>Datatype data.URI</p> <p>@old identifies the old hand. The value must contain the ID of a hand element given elsewhere in the document.</p> <p>Status Optional</p> <p>Datatype data.URI</p>
Used by	model.transcriptionLike
Contained by	<p>MEI.cmn: beam measure tuplet</p> <p>MEI.critapp: lem rdg</p> <p>MEI.editrans: abbr add corr damage del expan orig reg restore sic subst supplied unclear</p> <p>MEI.figtable: td th</p> <p>MEI.harmony: f fb harm</p> <p>MEI.header: inscription</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.neumes: ineume syllable uneume</p> <p>MEI.shared: addrLine annot caption chord dir dynam ending fw identifier label layer name note num p part pgFoot pgFoot2 pgHead pgHead2 rend score section staff syl tempo title</p> <p>MEI.text: head item l</p> <p>MEI.usersymbols: anchoredText</p>
May contain	Empty element
Declaration	<pre> element handShift { attribute character { text }?, attribute new { data.URI }?, </pre>

```

attribute old { data.URI }?,
empty
}

```

<harm>

<harm> (harmony) – An indication of harmony, e.g., chord names, tablature grids, harmonic analysis, figured bass.

Module	MEI.harmony
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.harm.log (@chordref) (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.startendid (@endid) (att.startid (@startid))) (att.duration.timestamp (@dur)) att.harm.vis (@extender, @rendgrid) (att.placement (@place)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) (att.visualoffset2.ho (@startho, @endho)) (att.visualoffset2.to (@startto, @endto)) (att.xy (@x, @y)) att.harm.ges (att.duration.performed (@dur.ges)) att.harm.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.harmLike
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer
May contain	MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig MEI.harmony: fb MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title MEI.usersymbols: anchoredText curve line symbol
Declaration	<pre> element harm { (</pre>

	<pre> text model.textphraseLike.limited model.graphicprimitiveLike model.editLike model.transcriptionLike model.figbassLike * } </pre>
Schematron	<pre> <sch:rule context="mei:harm"> <sch:assert test="@startid or @tstamp or @tstamp.ges or @tstamp.real"> Must have one of the attributes: startid, tstamp, tstamp.ges or tstamp.real</sch:assert></sch:rule> </pre>

<harpPedal>

<harpPedal/> (harp pedal) – Harp pedal diagram.	
Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.harpPedal.log (@c, @d, @e, @f, @g, @a, @b) (att.controlevent (att.plist (@plist, @evaluate))) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.startendid (@endid) (att.startid (@startid)))) att.harpPedal.vis (att.color (@color)) (att.placement (@place)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)))) (att.xy (@x, @y)) att.harpPedal.ges (att.duration.performed (@dur.ges)) att.harpPedal.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))))
Used by	model.controleventLike.cmn
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer
May contain	Empty element

Declaration	<pre>element harpPedal { empty }</pre>
Schematron	<pre><sch:rule context="mei:harpPedal"> <sch:assert test="@startid or @tstamp or @tstamp.ges or @tstamp.real"> Must have one of the attributes: startid, tstamp, tstamp.ges or tstamp.real</sch:assert></sch:rule></pre>

<head>

<head> (heading) – Contains any heading, for example, the title of a section of text, or the heading of a list.	
Module	MEI.text
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang) att.xy (@x, @y)
Used by	model.headLike
Contained by	MEI.header: contents eventList history instrVoiceGrp instrumentation perfMedium MEI.shared: castList MEI.text: div lg list
May contain	MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address annot bibl date identifier lb name num pb rend repository stack title
Declaration	<pre>element head { (text model.textphraseLike model.editLike model.transcriptionLike)*</pre>

<hex>

<hex> – Arbitrary MIDI data in hexadecimal form.	
Module	MEI.midi
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.midi.event (att.staffident (@staff)) (att.layerident (@layer)) (att.timestamp.musical (@tstamp))
Used by	
Contained by	MEI.midi: midi
May contain	Character data only
Declaration	<pre>element hex { text }</pre>

<history>

<history> – Provides a container for information about the creation and history of a resource.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog)
Used by	macro.workPart
Contained by	MEI.header: relatedItem source work
May contain	MEI.header: creation eventList MEI.shared: p MEI.text: head
Declaration	<pre>element history { model.headLike?, creation?, (eventList p) * }</pre>

<identifier>

<identifier> – An alpha-numeric string that establishes the identity of the described material.

Module	MEI.shared
Attributes	att.authorized (@authority, @authURI) att.bibl (@analog) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@fac) att.typed (@type, @subtype)
Used by	model.identifierLike
Contained by	<p>MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear</p> <p>MEI.figtable: td th</p> <p>MEI.harmony: f harm</p> <p>MEI.header: accessRestrict acqSource condition dimensions event exhibHist extent hand inscription language physLoc physMedium plateNum price provenance pubStmt relatedItem seriesStmt source sysReq term treatHist treatSched useRestrict watermark work</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ref</p> <p>MEI.shared: actor addrLine annot bibl caption date dir dynam edition fw identifier label name num p pgFoot pgFoot2 pgHead pgHead2 rend repository role roleDesc stack syl tempo title</p> <p>MEI.text: head item l</p> <p>MEI.usersymbols: anchoredText line</p>
May contain	<p>MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear</p> <p>MEI.figtable: fig</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: address annot bibl date identifier lb name num pb rend repository stack title</p>
Declaration	<pre> element identifier { (text model.textphraseLike model.editLike model.transcriptionLike) * } </pre>

<incip>

<incip> (incipit) – The opening music and/or words of a composition.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.typed (@type, @subtype)
Used by	model.inciplike
Contained by	MEI.header: relatedItem source work

May contain	MEI.figtable: graphic MEI.header: incipCode incipText MEI.shared: score
Declaration	<pre> element incip { (incipCode incipText model.scoreLike model.graphicLike) * } </pre>

<incipCode>

<incipCode> – Incipit coded in a non-XML, plain text format, such as Plaine & Easie Code.	
Module	MEI.header
Attributes	<p>att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.internetmedia (@mimetype) att.pointing (@xlink:actuate, @xlink:role, @xlink:show, @target, @targettype, @xlink:title)</p> <p>@xml:space identifies the language of the element's content. The values for this attribute are language 'tags' as defined in BCP 47. All language tags that make use of private use sub-tags must be documented in a corresponding language element in the MEI header whose id attribute is the same as the language tag's value.</p> <p>Status Optional</p> <p>Legal values are:</p> <p>default allows the application to handle white space as necessary. Not including an xml:space attribute produces the same result as using the default value.</p> <p>preserve instructs the application to maintain white space as is, suggesting that it might have meaning.</p> <p>@form describes the notational form of the coded text.</p> <p>Status Optional</p> <p>Suggested values include:</p> <p>plaineAndEasie Plaine & Easie Code.</p> <p>humdrumKern Humdrum Kern format.</p>
Used by	
Contained by	MEI.shared: incip

May contain	Character data only
Declaration	<pre> element incipCode { attribute xml:space { "default" "preserve" }?, attribute form { "plaineAndEasie" "humdrumKern" xsd:Name }?, text } </pre>
Schematron	<pre> <sch:rule context="mei:incipCode"> <sch:assert test="@form or @mimetype">incipCode must have a form or mimetype attribute.</sch:assert></sch:rule> </pre>

<incipText>

<incipText> – Opening words of a musical composition.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.lang (@xml:lang) att.pointing (@xlink:actuate, @xlink:role, @xlink:show, @target, @targettype, @xlink:title) att.internetmedia (@mimetype)
Used by	
Contained by	MEI.shared: incip
May contain	MEI.shared: p MEI.text: lg
Declaration	<pre> element incipText { (model.pLike model.lgLike) * } </pre>

<ineume>

<ineume> (interrupted neume) – a graphically interrupted neume; that is, a neume which is logically a single entity but is written using multiple signs.

Module	MEI.neumes
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.typed (@type, @subtype) att.ineume.log (@form, @name) att.ineume.vis (att.color (@color)) att.ineume.gesatt.ineume.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.eventLike.neumes
Contained by	MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: ineume syllable MEI.shared: layer
May contain	MEI.cmn: bTrem beam beatRpt fTrem halfmRpt meterSig tuplet MEI.critapp: app MEI.edittrans: add choice corr damage del gap handShift orig reg restore sic subst supplied unclear MEI.lyrics: verse MEI.mensural: ligature mensur proport MEI.neumes: ineume uneume MEI.shared: barLine chord clef clefGrp custos keySig note pad rest space
Declaration	<pre> element ineume { (model.eventLike model.eventLike.neumes macro.neumeModifierLike model.applike model.editLike model.transcriptionLike model.verseLike)* }</pre>

<inscription>

<inscription> – An inscription added to an item, such as a bookplate, a note designating the item as a gift, and/or the author's signature.

Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.lang (@xml:lang)
Used by	model.physDescPart

Contained by	MEI.header: physDesc
May contain	MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre> element inscription { (text model.textphraseLike.limited model.editLike model.transcriptionLike)* } </pre>

<instrDef>

<instrDef/> (instrument definition) – MIDI instrument declaration.	
Module	MEI.midi
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.channelized (@midi.channel, @midi.duty, @midi.port, @midi.track) att.midiinstrument (@midi.instrnum, @midi.instrname)
Used by	model.instrDefLike
Contained by	MEI.midi: instrGrp MEI.shared: layerDef staffDef staffGrp
May contain	Empty element
Declaration	<pre> element instrDef { empty } </pre>

<instrGrp>

<instrGrp> (instrument group) – Collects MIDI instrument definitions.

Module	MEI.midi
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id))
Used by	
Contained by	MEI.shared: scoreDef
May contain	MEI.midi: instrDef
Declaration	<pre>element instrGrp { model.instrDefLike+ }</pre>

<instrVoice>

<instrVoice> (instrument or voice) – Name of an instrument on which a performer plays or a performer's voice range.	
Module	MEI.header
Attributes	<p>att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.authorized (@authority, @authURI)</p> <p>@code captures one or more coded values for the textual content of this element. Status Optional Datatype xsd:NMTOKEN</p> <p>@count indicates the number of performers. Status Optional Datatype xsd:positiveInteger</p> <p>@solo marks this instrument or vocal part as a soloist. Do not use this attribute for a solo instrument which is not accompanied. Status Optional Datatype data.BOOLEAN</p>
Used by	
Contained by	MEI.header: instrVoice instrVoiceGrp instrumentation MEI.shared: castItem
May contain	MEI.header: instrVoice

Declaration	<pre> element instrVoice { attribute code { xsd:NMTOKEN }?, attribute count { xsd:positiveInteger }?, attribute solo { data:BOOLEAN }?, (text instrVoice)* } </pre>
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<instrVoiceGrp>

<instrVoiceGrp> – Several instrumental or vocal resources treated as a group.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog)
Used by	
Contained by	MEI.header: instrVoiceGrp instrumentation
May contain	MEI.header: instrVoice instrVoiceGrp MEI.text: head
Declaration	<pre> element instrVoiceGrp { (text model.headLike instrVoice instrVoiceGrp)* } </pre>

<instrumentation>

<instrumentation> – Instrumental and non-dramatic vocal resources.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.authorized (@authority, @authURI)
Used by	
Contained by	MEI.header: perfMedium
May contain	MEI.header: ensemble instrVoice instrVoiceGrp

	MEI.text: head
Declaration	<pre> element instrumentation { head?, (ensemble? (instrVoice instrVoiceGrp)*) } </pre>

<interpretation>

<interpretation> – Describes the scope of any analytic or interpretive information added to the transcription of the music.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.datapointing (@data) att.lang (@xml:lang)
Used by	model.editorialDeclPart
Contained by	MEI.header: editorialDecl
May contain	MEI.shared: p
Declaration	<pre> element interpretation { model.pLike+ } </pre>

<item>

<item> – Single item in a <list>.	
Module	MEI.text
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@fac)
Used by	
Contained by	MEI.text: list
May contain	MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig table

	<p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: address annot bibl date identifier lb name num p pb rend repository stack title</p> <p>MEI.text: lg list quote</p>
Declaration	<pre> element item { (text model.textcomponentLike model.textphraseLike model.editLike model.transcriptionLike)* } </pre>

<key>

<key> – Key captures information about tonal center and mode.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.keySig.log (@mode) (att.accidental (@accid)) (att.pitch (@pname))
Used by	macro.workPart
Contained by	MEI.header: relatedItem source work
May contain	Character data only
Declaration	<pre> element key { text } </pre>

<keyAccid>

<keyAccid/> (key accidental) – Accidental in a key signature.	
Module	MEI.shared
Attributes	att.accidental (@accid) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.enclosingchars (@enclose) att.facsimile (@facs) att.pitched (att.pitch (@pname)) (att.octave (@oct)) att.staffloc (@loc) att.xy (@x, @y)

	<p>@form specifies whether enharmonic (written) values or implicit ("perform-able") values are allowed.</p> <p>Status Optional</p> <p>Legal values are:</p> <p>implicit only performed values (sharp, flat, natural) allowed.</p> <p>explicit all enharmonic (written) values allowed.</p>
Used by	model.keyAccidLike
Contained by	MEI.shared: keySig
May contain	Empty element
Declaration	<pre>element keyAccid { attribute form { "implicit" "explicit" }?, empty }</pre>

<keySig>

<keySig> (key signature) – Written key signature.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.keySig.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))) att.keySig.gesatt.keySig.log (@mode) (att.accidental (@accid)) (att.pitch (@pname)) att.keySig.vis
Used by	model.keySigLike
Contained by	MEI.cmn: beam tuplet MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: ineume syllable uneume MEI.shared: layer scoreDef staffDef
May contain	MEI.shared: keyAccid

Declaration	<pre>element keySig { model.keyAccidLike* }</pre>
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</>

< > (line of text) – Contains a single line of text within a line group.	
Module	MEI.text
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang)
Used by	model.lLike
Contained by	MEI.text: lg
May contain	MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address annot bibl date identifier lb name num pb rend repository stack title
Declaration	<pre>element l { (text model.textphraseLike model.editLike model.transcriptionLike)*</pre>

<label>

<label> – A text string that identifies a staff, staff group, or contentItem.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.source (@source) att.typed (@type, @subtype)
Used by	model.labelLike
Contained by	MEI.header: contents MEI.shared: grpSym layerDef staffDef staffGrp

May contain	MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre> element label { (text model.textphraseLike.limited model.editLike model.transcriptionLike)* } </pre>

<langUsage>

<langUsage> (language usage) – Groups elements describing the languages, sub-languages, dialects, etc., represented within the encoded resource.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.datapointing (@data)
Used by	macro.workPart
Contained by	MEI.header: relatedItem source work
May contain	MEI.header: language
Declaration	<pre> element langUsage { language+ } </pre>

<language>

<language> – Description of a language used in the document.	
Module	MEI.header

Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.authorized (@authority, @authURI)
Used by	
Contained by	MEI.header: langUsage
May contain	MEI.edittrans: abbr expan MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre>element language { (text model.textphraseLike.limited) * }</pre>

<layer>

<layer> – An independent stream of events on a staff.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls) att.facsimile (@facs) att.layer.log (@def) (att.meterconformance (@metcon)) att.layer.vis (att.visibility (@visible)) att.layer.gesatt.layer.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.layerLike
Contained by	MEI.cmn: ossia MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.shared: staff
May contain	MEI.cmn: arpeg bTrem beam beamSpan beatRpt bend breath fTrem fermata gliss hairpin halfmRpt harpPedal mRest mRpt mRpt2 mSpace meterSig multiRest multiRpt octave pedal reh slur tie tuplet tupletSpan MEI.cmnOrnaments: mordent trill turn MEI.critapp: app MEI.edittrans: add choice corr damage del gap handShift orig reg restore sic subst supplied unclear MEI.harmony: harm MEI.lyrics: lyrics MEI.mensural: ligature mensur proport

	<p>MEI.midi: midi</p> <p>MEI.neumes: ineume syllable uneume</p> <p>MEI.shared: accid annot artic barLine chord clef clefGrp custos dir dot dynam keySig note pad pb phrase rest sb scoreDef space staffDef tempo</p> <p>MEI.text: div</p> <p>MEI.usersymbols: anchoredText curve line symbol</p>
Declaration	<pre> element layer { (model.applLike model.divLike model.milestoneLike.music model.staffDefLike model.annotLike model.graphicprimitiveLike model.editLike model.transcriptionLike model.layerPart) * } </pre>
Schematron	<pre> <sch:rule context="mei:layer[@n]"> <sch:assert test="number(@n) = round(number(@n))">The n attribute must be a single integer.</sch:assert></sch:rule> </pre>

<layerDef>

<layerDef> (layer definition) – Container for layer meta-information.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls) att.layerDef.log (att.duration.default (@dur.default)) (att.octavedefault (@octave.default)) (att.layerDef.log.cmn (att.beaming.log (@beam.group, @beam.rests))) att.layerDef.vis (att.labels.addl (@label.abbr)) (att.beaming.vis (@beam.rend, @beam.slope)) (att.textstyle (@text.fam, @text.name, @text.size, @text.style, @text.weight)) (att.visibility (@visible)) att.layerDef.ges (att.instrumentident (@instr)) att.layerDef.anl
Used by	model.layerDefLike
Contained by	MEI.shared: staffDef

May contain	MEI.midi: instrDef MEI.shared: label
Declaration	<pre>element layerDef { model.labelLike*, model.instrDefLike* }</pre>
Schematron	<pre><sch:rule context="mei:layerDef"> <sch:assert test="number(@n) = round(number(@n))">An n attribute with a single integer value must be present.</sch:assert></sch:rule></pre>

<lb>

<lb/> (line break) – An empty formatting element that forces text to begin on a new line.

Module	MEI.shared
Attributes	<p>att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@fac) att.source (@source) att.typed (@type, @subtype)</p> <p>@func states whether the line break follows a single line or a line group.</p> <p>Status Optional</p> <p>Legal values are: line group</p>
Used by	model.lbLike
Contained by	<p>MEI.cmn: reh</p> <p>MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear</p> <p>MEI.figtable: td th</p> <p>MEI.harmony: f harm</p> <p>MEI.header: accessRestrict acqSource altId classCode condition dimensions event exhibHist extent hand inscription language physLoc physMedium plateNum price provenance sysReq term treatHist treatSched useRestrict watermark</p> <p>MEI.lyrics: verse</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ref</p>

	MEI.shared: actor addrLine annot bibl caption date dir dynam edition fw identifier label name num p pgFoot pgFoot2 pgHead pgHead2 rend repository role roleDesc stack syl tempo title titlePage MEI.text: back div front head item l MEI.usersymbols: anchoredText line
May contain	Empty element
Declaration	<pre>element lb { attribute func { "line" "group" }?, empty }</pre>

<lem>

<lem> (lemma) – Contains the lemma, or base text, of a textual variation.	
Module	MEI.critapp
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) (att.crit (@cause)) (att.handident (@hand)) (att.responsibility (@resp)) (att.sequence (@seq)) (att.source (@source)) (att.typed (@type, @subtype)) (att.pointing (@xlink:actuate, @xlink:role, @xlink:show, @target, @targettype, @xlink:title) att.rdg.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))) att.rdg.gesatt.rdg.logatt.rdg.vis
Used by	
Contained by	MEI.critapp: app
May contain	MEI.cmn: arpeg bTrem beam beamSpan beatRpt bend breath fTrem fermata gliss hairpin halfmRpt harpPedal mRest mRpt mRpt2 mSpace measure meterSig multiRest multiRpt octave pedal reh slur tie tuplet tupletSpan MEI.cmnOrnaments: mordent trill turn MEI.critapp: app MEI.editrans: add choice corr damage del gap handShift orig reg restore sic subst supplied unclear MEI.harmony: harm MEI.lyrics: lyrics verse MEI.mensural: ligature mensur proport MEI.midi: midi MEI.neumes: ineume syllable uneume MEI.shared: accid annot artic barLine chord clef clefGrp custos dir dot dynam ending expansion keySig layer note pad pb phrase rest sb scoreDef section space staff staffDef staffGrp syl tempo MEI.text: div MEI.usersymbols: anchoredText curve line symbol

Declaration	<pre> element lem { expansion*, (model.applLike model.divLike model.milestoneLike.music model.scoreDefLike model.staffDefLike model.staffGrpLike model.annotLike model.graphicprimitiveLike model.editLike model.transcriptionLike model.rdgPart.critapp)* } </pre>
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<lg>

<lg> (line group) – May be used for any section of text that is organized as a group of lines; however, it is most often used for a group of verse lines functioning as a formal unit, e.g. a stanza, refrain, verse paragraph, etc.	
Module	MEI.text
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls) att.facsimile (@facs) att.lang (@xml:lang) att.xy (@x, @y)
Used by	model.lgLike
Contained by	MEI.figtable: figDesc td th MEI.header: incipText MEI.shared: annot fw pgDesc pgFoot pgFoot2 pgHead pgHead2 titlePage MEI.text: div item lg quote
May contain	MEI.text: head lg
Declaration	<pre> element lg { model.headLike?, (model.lLike model.lgLike), (model.lLike model.lgLike)* } </pre>

<ligature>

<ligature> – A mensural notation symbol that combines two or more notes into a single sign.	
Module	MEI.mensural
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.ligature.log (@form) att.ligature.visatt.ligature.gesatt.ligature.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.eventLike.mensural
Contained by	MEI.cmn: beam tuplet MEI.critapp: lem rdg MEI.editttrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: ineume syllable uneume MEI.shared: layer
May contain	MEI.cmn: arpeg bTrem beam beamSpan beatRpt bend breath fTrem fermata gliss hairpin halfmRpt harpPedal mRest mRpt mRpt2 mSpace meterSig multiRest multiRpt octave pedal reh slur tie tuplet tupletSpan MEI.cmnOrnaments: mordent trill turn MEI.harmony: harm MEI.lyrics: lyrics MEI.mensural: ligature mensur proport MEI.midi: midi MEI.neumes: ineume syllable uneume MEI.shared: accid artic barLine chord clef clefGrp custos dir dot dynam keySig note pad phrase rest scoreDef space staffDef tempo
Declaration	<pre>element ligature { model.layerPart* }</pre>

<line>

<line> – A line that cannot be represented by a more specific element.	
Module	MEI.usersymbols
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.color (@color) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.startendid (@endid) (att.startid (@startid)) att.typed (@type, @subtype) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.visualoffset2

	(att.visualoffset2.ho (@startho, @endho)) (att.visualoffset2.to (@startto, @endto)) (att.visualoffset2.vo (@startvo, @endvo)) att.xy (@x, @y) att.xy2 (@x2, @y2) att.linerend (@rend)
Used by	model.graphicprimitiveLike
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.figtable: figDesc MEI.harmony: harm MEI.neumes: syllable MEI.shared: dir ending layer part pgDesc score section staff tempo MEI.usersymbols: symbolDef
May contain	MEI.edittrans: abbr expan MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre>element line { (text model.textphraseLike.limited) * }</pre>

<list>

<list> – A formatting element that contains a series of items separated from one another and arranged in a linear, often vertical, sequence.

Module	MEI.text
Attributes	<p>att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang) att.xy (@x, @y)</p> <p>@form used to identify and format a list. In a "simple" list, <item>s are not numbered or bulleted. In a "marked" list, the sequence of the list items is not critical, and a bullet, box, dash, or other character is displayed at the start of each <item>. In an "ordered" list, the sequence of the items is important, and each <item> is lettered or numbered. Style sheet functions should be used to specify the mark or numeration system for each <item>.</p> <p>Status Optional</p> <p>Legal values are: simple items are not numbered or bulleted.</p>

	<p>marked bullet, box, dash, or other character is displayed before each item.</p> <p>ordered each item is numbered or lettered.</p>
Used by	model.listLike
Contained by	<p>MEI.figtable: figDesc td th</p> <p>MEI.header: event</p> <p>MEI.shared: annot fw p pgDesc pgFoot pgFoot2 pgHead pgHead2 titlePage</p> <p>MEI.text: div item quote</p>
May contain	MEI.text: head item
Declaration	<pre> element list { attribute form { "simple" "marked" "ordered" }?, model.headLike?, item+ }</pre>

<lyrics>

<lyrics> – Vocally performed 'text' of a musical composition, such as a song or opera.	
Module	MEI.lyrics
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang) att.lyrics.log (att.staffident (@staff)) (att.layerident (@layer)) att.lyrics.vis (att.placement (@place)) (att.typography (@fontfam, @fontname, @fontsize, @fontstyle, @fontweight)) att.lyrics.gesatt.lyrics.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.lyricsLike
Contained by	<p>MEI.cmn: measure</p> <p>MEI.critapp: lem rdg</p> <p>MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear</p> <p>MEI.mensural: ligature</p> <p>MEI.neumes: syllable</p> <p>MEI.shared: layer</p>
May contain	MEI.lyrics: verse

Declaration	<pre>element lyrics { model.verseLike+ }</pre>
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<mRest>

<mRest/> (measure rest) – Complete measure rest in any meter.	
Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.mRest.log (att.duration.musical (@dur)) (att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.fermatapresent (@fermata)) att.mRest.vis (att.altsym (@altsym)) (att.cutout (@cutout)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) (att.visibility (@visible)) (att.xy (@x, @y)) (att.relativeSize (@size)) att.mRest.ges (att.duration.performed (@dur.ges)) (att.instrumentident (@instr)) att.mRest.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.eventLike.measureFilling
Contained by	MEI.critapp: lem rdg MEI.editrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.shared: layer
May contain	Empty element
Declaration	<pre>element mRest { empty }</pre>

<mRpt>

<mRpt/> (measure repeat) – An indication that the previous measure should be repeated.	
Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.mRpt.log (att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) att.mRpt.vis (att.altsym (@altsym)) (att.color (@color)) (att.expandable (@expand)) att.mRpt.gesatt.mRpt.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.eventLike.measureFilling

Contained by	MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.shared: layer
May contain	Empty element
Declaration	<pre>element mRpt { empty }</pre>

<mRpt2>

<mRpt2/> (2-measure repeat) – An indication that the previous two measures should be repeated.	
Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.mRpt2.log (att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) att.mRpt2.vis (att.altsym (@altsym)) (att.color (@color)) (att.expandable (@expand)) att.mRpt2.gesatt.mRpt2.an! (att.common.an! (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.eventLike.measureFilling
Contained by	MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.shared: layer
May contain	Empty element
Declaration	<pre>element mRpt2 { empty }</pre>

<mSpace>

<mSpace/> (measure space) – A measure containing only empty space in any meter.	
Module	MEI.cmn

Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.mSpace.log (att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.fermatapresent (@fermata)) att.mSpace.vis (att.altsym (@altsym)) (att.cutout (@cutout)) (att.visibility (@visible)) (att.xy (@x, @y)) att.mSpace.ges (att.duration.performed (@dur.ges)) (att.instrumentident (@instr)) att.mSpace.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.eventLike.measureFilling
Contained by	MEI.critapp: lem rdg MEI.editttrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.shared: layer
May contain	Empty element
Declaration	<pre>element mSpace { empty }</pre>

<marker>

<marker> – MIDI marker meta-event.	
Module	MEI.midi
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.midi.event (att.staffident (@staff)) (att.layerident (@layer)) (att.timestamp.musical (@tstamp))
Used by	
Contained by	MEI.midi: midi
May contain	Character data only
Declaration	<pre>element marker { text }</pre>

<mdiv>

<mdiv> (musical division) – contains a subdivision of the body of a musical text.

Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls) att.facsimile (@facs) att.typed (@type, @subtype)
Used by	model.mdivLike
Contained by	MEI.shared: body mdiv
May contain	MEI.shared: mdiv parts score
Declaration	<pre>element mdiv { (model.scoreLike?, model.partsLike?) model.mdivLike* }</pre>

<measure>

<measure> – Unit of musical time consisting of a fixed number of note-values of a given type, as determined by the prevailing meter, and delimited in musical notation by two bar lines.	
Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls) att.facsimile (@facs) att.typed (@type, @subtype) att.pointing (@xlink:actuate, @xlink:role, @xlink:show, @target, @targettype, @xlink:title) att.measure.log (@left, @right) (att.meterconformance.bar (@metcon, @control)) att.measure.vis (att.barplacement (@barplace, @taktplace)) (att.measurement (@unit)) (att.width (@width)) att.measure.ges (att.timestamp.performed (@tstamp.ges, @tstamp.real)) att.measure.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))) (att.joined (@join))
Used by	model.measureLike
Contained by	MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.shared: ending section
May contain	MEI.cmn: arpeg beamSpan bend breath fermata gliss hairpin harpPedal octave ossia pedal reh slur tie tupletSpan MEI.cmnOrnaments: mordent trill turn MEI.critapp: app MEI.edittrans: add choice corr damage del gap handShift orig reg restore sic subst supplied unclear MEI.harmony: harm MEI.lyrics: lyrics MEI.midi: midi MEI.shared: annot dir dynam pb phrase sb staff staffDef tempo MEI.text: div

	MEI.usersymbols: anchoredText curve line symbol
Declaration	<pre> element measure { (model.applLike model.divLike model.milestoneLike.music model.staffDefLike model.annotLike model.graphicprimitiveLike model.editLike model.transcriptionLike model.measurePart)* } </pre>

<mei>

<mei> – Contains a single MEI-conformant document, consisting of an MEI header and a musical text, either in isolation or as part of an meiCorpus element.	
Module	MEI.shared
Attributes	att.meiversion (@meiversion) att.id (@xml:id)
Used by	
Contained by	MEI.corpus: meiCorpus
May contain	MEI.header: meiHead MEI.shared: music
Declaration	<pre> element mei { meiHead, music } </pre>
Schematron	<pre> <sch:ns prefix="mei" uri="http://www.music-encoding.org/ns/mei"/> </pre>

Schematron	<pre><sch:rule context="mei:*[@staff]"> <sch:assert test="every \$i in tokenize(@staff, '\s+') satisfies \$i=//mei:staffDef/@n">The values in @staff must correspond to @n attribute of a staffDef element.</sch:assert></sch:rule></pre>
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<meiCorpus>

<meiCorpus> (MEI corpus) – A group of related MEI documents, consisting of a header for the group, and one or more <mei> elements, each with its own complete header.	
Module	MEI.corpus
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.meiversion (@meiversion)
Used by	model.startLike.corpus
Contained by	Empty element
May contain	MEI.header: meiHead MEI.shared: mei
Declaration	<pre>element meiCorpus { meiHead, mei* }</pre>

<meiHead>

<meiHead> (MEI header) – Supplies the descriptive and declarative metadata prefixed to every MEI-conformant text.	
Module	MEI.header
Attributes	att.bibl (@analog) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.lang (@xml:lang) att.meiversion (@meiversion) @type specifies the kind of document to which the header is attached, for example whether it is a corpus or individual text. Status Optional Legal values are: music header is attached to a music document.

	<p>corpus header is attached to a corpus.</p>
Used by	model.startLike.header
Contained by	MEI.corpus: meiCorpus MEI.shared: mei
May contain	MEI.header: altId encodingDesc fileDesc revisionDesc workDesc
Declaration	<pre> element meiHead { attribute type { "music" "corpus" }?, altId*, fileDesc, model.headerPart_sequenceOptional, revisionDesc? } </pre>

<mensur>

<mensur/> (mensuration) – Collects information about the metrical relationship between a note value and the next smaller value; that is, either triple or duple.	
Module	MEI.mensural
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@fac) att.mensur.log (@dot, @modusmaior, @modusminor, @prolatio, @sign, @tempus) (att.duration.ratio (@num, @numbase)) (att.slashcount (@slash)) (att.staffloc (@loc)) att.mensur.vis (@form, @orient) (att.color (@color)) (att.relativeSize (@size)) att.mensur.gesatt.mensur.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.eventLike.mensural model.staffDefPart.mensural
Contained by	MEI.cmn: beam tuplet MEI.critapp: lem rdg MEI.editttrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: ineume syllable uneume MEI.shared: layer staffDef
May contain	Empty element

Declaration	<pre>element mensur { empty }</pre>
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<mensuration>

<mensuration> – Captures information about mensuration within bibliographic descriptions.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.mensur.log (@dot, @modusmaior, @modusminor, @prolatio, @sign, @tempus) (att.duration.ratio (@num, @numbase)) (att.slashcount (@slash)) (att.staffloc (@loc))
Used by	macro.workPart
Contained by	MEI.header: relatedItem source work
May contain	Character data only
Declaration	<pre>element mensuration { text }</pre>

<metaText>

<metaText> – MIDI text meta-event.	
Module	MEI.midi
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.midi.event (att.staffident (@staff)) (att.layerident (@layer)) (att.timestamp.musical (@tstamp))
Used by	
Contained by	MEI.midi: midi
May contain	Character data only
Declaration	<pre>element metaText { text }</pre>

<meter>

<meter> – Captures information about the time signature within bibliographic descriptions.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.meterSig.log (@count, @sym, @unit)
Used by	macro.workPart
Contained by	MEI.header: relatedItem source work
May contain	Character data only
Declaration	<pre>element meter { text }</pre>

<meterSig>

<meterSig/> (meter signature) – Written meter signature.	
Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.meterSig.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))) att.meterSig.gesatt.meterSig.log (@count, @sym, @unit) att.meterSig.vis (@rend)
Used by	model.meterSigLike
Contained by	MEI.cmn: beam tuplet MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: ineume syllable uneume MEI.shared: layer scoreDef staffDef
May contain	Empty element
Declaration	<pre>element meterSig { empty }</pre>

<midi>

<midi> – Container for elements that contain information useful when generating MIDI output.	
Module	MEI.midi
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.midi.log (att.staffident (@staff)) (att.layerident (@layer)) att.midi.visatt.midi.gesatt.midi.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.midiLike
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.edittans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer
May contain	MEI.midi: cc chan chanPr cue hex marker metaText noteOff noteOn port prog seqNum trkName vel
Declaration	<pre>element midi { (cc chan chanPr cue hex marker metaText noteOff noteOn port prog seqNum trkName vel)* }</pre>

<mordent>

<mordent/> – An ornament indicating rapid alternation of the main note with a secondary note, usually a step below, but sometimes a step above.	
Module	MEI.cmnOrnaments

Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.mordent.log (@form, @long) (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.startendid (@endid) (att.startid (@startid))) (att.ornamentaccid (@accidupper, @accidlower)) att.mordent.vis (att.color (@color)) (att.placement (@place)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) att.mordent.gesatt.mordent.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.ornamentLike.cmn
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.editttrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer
May contain	Empty element
Declaration	<pre>element mordent { empty }</pre>
Schematron	<pre><sch:rule context="mei:mordent"> <sch:assert test="@startid or @tstamp or @tstamp.ges or @tstamp.real"> Must have one of the attributes: startid, tstamp, tstamp.ges or tstamp.real</sch:assert></sch:rule></pre>

<multiRest>

<multiRest/> (multiple rest) – Multiple measures of rest compressed into a single symbol, frequently found in performer parts.	
Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.multiRest.log (att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.numbered (@num)) att.multiRest.vis (@block) (att.altsym (@altsym)) att.multiRest.ges (att.duration.performed (@dur.ges)) (att.instrumentident (@instr)) att.multiRest.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))

Used by	model.eventLike.measureFilling
Contained by	MEI.critapp: lem rdg MEI.editrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.shared: layer
May contain	Empty element
Declaration	<pre>element multiRest { empty }</pre>

<multiRpt>

<multiRpt/> (multiple repeat) – Multiple repeated measures.	
Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.multiRpt.log (att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.numbered (@num)) att.multiRpt.vis (att.altsym (@altsym)) (att.expandable (@expand)) att.multiRpt.gesatt.multiRpt.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.eventLike.measureFilling
Contained by	MEI.critapp: lem rdg MEI.editrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.shared: layer
May contain	Empty element
Declaration	<pre>element multiRpt { empty }</pre>

<music>

<music> – Contains a single musical text of any kind, whether unitary or composite, for example, an etude, opera, song cycle, symphony, or anthology of piano solos.

Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls) att.meiversion (@meiversion)
Used by	
Contained by	MEI.shared: group mei
May contain	MEI.facsimile: facsimile MEI.linkalign: timeline MEI.performance: performance MEI.shared: body group MEI.text: back front
Declaration	<pre>element music { model.alignLike*, model.resourceLike*, macro.musicPart }</pre>

<name>

<name> – Proper noun or noun phrase.	
Module	MEI.shared
Attributes	att.bibl (@analog) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang) att.name (@nymref, @role) (att.authorized (@authority, @authURI)) (att.canonical (@dbkey)) att.typed (@type, @subtype)
Used by	model.nameLike
Contained by	MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.figtable: td th MEI.harmony: f harm MEI.header: accessRestrict acqSource application condition dimensions event exhibHist extent hand inscription language physLoc physMedium plateNum price provenance respStmt sysReq term treatHist treatSched useRestrict watermark MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ref MEI.shared: actor addrLine annot bibl caption date dir dynam edition fw identifier label name num p pgFoot pgFoot2 pgHead pgHead2 rend repository role roleDesc stack syl tempo title MEI.text: head item l MEI.usersymbols: anchoredText line

May contain	MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address annot bibl date identifier lb name num pb rend repository stack title
Declaration	<pre> element name { (text model.textphraseLike model.editLike model.transcriptionLike) * } </pre>

<normalization>

<normalization> – Indicates the extent of normalization or regularization of the original source carried out in converting it to electronic form.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.datapointing (@data) att.lang (@xml:lang) att.regularmethod (@method)
Used by	model.editorialDeclPart
Contained by	MEI.header: editorialDecl
May contain	MEI.shared: p
Declaration	<pre> element normalization { model.pLike+ } </pre>

<note>

<note> – A single pitched event.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.note.log (att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.accidental (@accid)) (att.articulation (@artic)) (att.augmentdots (@dots)) (att.duration.musical (@dur)) (att.fermatapresent (@fermata)) (att.pitched

	(att.pitch (@pname)) (att.octave (@oct)) (att.syltext (@syl)) (att.slurpresent (@slur)) (att.tiepresent (@tie)) (att.tupletpresent (@tuplet)) (att.note.log.cmn (att.beamed (@beam)) (att.lvpresent (@lv)) (att.ornam (@ornam))) (att.note.log.mensural (@lig)) att.note.vis (@headshape) (att.altsym (@altsym)) (att.color (@color)) (att.coloration (@colored)) (att.enclosingchars (@enclose)) (att.relativeSize (@size)) (att.stemmed (@stem.dir, @stem.len, @stem.pos, @stem.x, @stem.y)) (att.stemmed.cmn (@stem.mod, @stem.with)) (att.visibility (@visible)) (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.xy (@x, @y)) (att.note.vis.cmn (att.beamsecondary (@breaksec)) att.note.ges (@oct.ges, @pname.ges, @pnum) (att.accidental.performed (@accid.ges)) (att.articulation.performed (@artic.ges)) (att.duration.performed (@dur.ges)) (att.instrumentident (@instr)) (att.note.ges.cmn (@gliss) (att.graced (@grace, @grace.time)) (att.note.ges.mensural (att.duration.ratio (@num, @numbase)) (att.note.ges.tablature (@tab.fret, @tab.string)) att.note.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) (att.harmonicfunction (@hfunc)) (att.intervallidcdesc (@intm) (att.intervalharmonic (@inth)) (att.melodicfunction (@mfunc)) (att.pitchclass (@pclass)) (att.solfa (@psolfa))
Used by	model.eventLike
Contained by	MEI.cmn: bTrem beam fTrem tuplet MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: ineume syllable uneume MEI.shared: chord layer
May contain	MEI.critapp: app MEI.edittrans: add choice corr damage del gap handShift orig reg restore sic subst supplied unclear MEI.lyrics: verse MEI.shared: accid artic dot syl
Declaration	<pre> element note { (model.noteModifierLike model.verseLike model.sylLike model.applLike model.editLike model.transcriptionLike)* } </pre>

<noteOff>

<noteOff/> – MIDI note-off event.	
Module	MEI.midi

Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.midi.event (att.staffident (@staff)) (att.layerident (@layer)) (att.timestamp.musical (@tstamp)) att.midinumber (@num)
Used by	
Contained by	MEI.midi: midi
May contain	Empty element
Declaration	<pre>element noteOff { empty }</pre>

<noteOn>

<noteOn/> – MIDI note-on event.	
Module	MEI.midi
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.midi.event (att.staffident (@staff)) (att.layerident (@layer)) (att.timestamp.musical (@tstamp)) att.midinumber (@num)
Used by	
Contained by	MEI.midi: midi
May contain	Empty element
Declaration	<pre>element noteOn { empty }</pre>

<notesStmt>

<notesStmt> (notes statement)– Collects any notes providing information about a text additional to that recorded in other parts of the bibliographic description.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog)
Used by	

Contained by	MEI.header: fileDesc relatedItem source work
May contain	MEI.shared: annot
Declaration	<pre>element notesStmt { model.annotLike+ }</pre>

<num>

<num> (number) – Numeric information in any form.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang) att.measurement (@unit)
Used by	model.numLike
Contained by	MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.figtable: td th MEI.harmony: f harm MEI.header: accessRestrict acqSource condition dimensions event exhibHist extent hand inscription language physLoc physMedium plateNum price provenance sysReq term treatHist treatSched useRestrict watermark MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ref MEI.shared: actor addrLine annot bibl caption date dir dynam edition fw identifier label name num p pgFoot pgFoot2 pgHead pgHead2 rend repository role roleDesc stack syl tempo title MEI.text: head item l MEI.usersymbols: anchoredText line
May contain	MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address annot bibl date identifier lb name num pb rend repository stack title
Declaration	<pre>element num {</pre>

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( text | model.textphraseLike | model.editLike | model.transcriptionLike )*
```

<octave>

<octave/> – An indication that a passage should be performed one or more octaves above or below its written pitch.

Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) (att.facsimile (@facs) att.octave.log (@coll) (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.octavedisplacement (@dis, @dis.place)) (att.startendid (@endid) (att.startid (@startid))) (att.duration.timestamp (@dur)) att.octave.vis (att.xy (@x, @y)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) (att.visualoffset2.ho (@startho, @endho)) (att.visualoffset2.to (@startto, @endto)) (att.linerend (@rend)) att.octave.ges (att.duration.performed (@dur.ges)) att.octave.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))))
Used by	model.controleventLike.cmn
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.editrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer
May contain	Empty element
Declaration	<pre>element octave { empty }</pre>
Schematron	<pre><sch:rule context="mei:octave"> <sch:assert test="@startid or @tstamp or @tstamp.ges or @tstamp.real"> Must have one of the attributes: startid, tstamp, tstamp.ges or tstamp.real</sch:assert> <sch:assert test="@endid or @dur">Must have one of the</pre>


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      attributes: dur or
    endid</sch:assert></sch:rule>

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<orig>

<orig> (original) – Contains material which is marked as following the original, rather than being normalized or corrected.

Module	MEI.edittrans
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.edit (@cert, @evidence) (att.responsibility (@resp)) (att.source (@source)) att.facsimile (@facs) att.typed (@type, @subtype)
Used by	model.choicePart model.substPart model.transcriptionLike
Contained by	<p>MEI.cmn: beam measure tuplet</p> <p>MEI.critapp: lem rdg</p> <p>MEI.edittrans: abbr add choice corr damage del expan orig reg restore sic subst supplied unclear</p> <p>MEI.figtable: td th</p> <p>MEI.harmony: f fb harm</p> <p>MEI.header: inscription</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.neumes: ineume syllable uneume</p> <p>MEI.shared: addrLine annot caption chord dir dynam ending fw identifier label layer name note num p part pgFoot pgFoot2 pgHead pgHead2 rend score section staff syl tempo title</p> <p>MEI.text: head item l</p> <p>MEI.usersymbols: anchoredText</p>
May contain	<p>MEI.cmn: arpeg bTrem beam beamSpan beatRpt bend breath fTrem fermata gliss hairpin halfmRpt harpPedal mRest mRpt mRpt2 mSpace measure meterSig multiRest multiRpt octave pedal reh slur tie tuplet tupletSpan</p> <p>MEI.cmnOrnaments: mordent trill turn</p> <p>MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear</p> <p>MEI.figtable: fig</p> <p>MEI.harmony: f harm</p> <p>MEI.lyrics: lyrics</p> <p>MEI.mensural: ligature mensur proport</p> <p>MEI.midi: midi</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.neumes: ineume uneume</p>

	<p>MEI.ptrref: ptr ref</p> <p>MEI.shared: accid address annot artic barLine bibl chord clef clefGrp custos date dir dot dynam identifier keySig layer lb name note num pad pb phrase rend repository rest section space stack staff tempo title</p> <p>MEI.usersymbols: anchoredText curve line symbol</p>
Declaration	<pre> element orig { (text model.textphraseLike model.eventLike model.eventLike.neumes model.controleventLike model.lyricsLike model.midiLike model.editLike model.transcriptionLike model.eventLike.measureFilling model.noteModifierLike model.sectionLike model.measureLike model.staffLike model.layerLike model.graphicprimitiveLike model.fLike)* } </pre>

<ossia>

<ossia> – An alternate notational version *present in the source being transcribed*.	
Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.ossia.logatt.ossia.visatt.ossia.gesatt.ossia.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.ossiaLike
Contained by	MEI.cmn: measure MEI.shared: staff
May contain	MEI.shared: layer staff

Declaration	<pre> element ossia { (model.staffLike, model.staffLike+) (model.layerLike, model.layerLike+) } </pre>
Schematron	<pre> <sch:pattern> <sch:rule context="mei:measure/mei:ossia"> <sch:assert test="count(me:*) = count(me:staff)">Ossia may contain only staff elements in this context.</sch:assert></sch:rule> <sch:rule context="mei:staff/mei:ossia"> <sch:assert test="count(me:*) = count(me:layer)">Ossia may contain only layer elements in this context.</sch:assert></sch:rule></sch:pattern> </pre>

<p>

<p> (paragraph) – One or more text phrases that form a logical prose passage.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls) att.facsimile (@facs) att.lang (@xml:lang) att.xy (@x, @y)
Used by	model.pLike
Contained by	MEI.figtable: figDesc td th MEI.header: application changeDesc contents correction editorialDecl history incipText interpretation normalization projectDesc samplingDecl segmentation stdVals MEI.shared: annot fw pgDesc pgFoot pgFoot2 pgHead pgHead2 titlePage MEI.text: div item quote
May contain	MEI.editttrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig table MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address annot bibl date identifier lb name num pb rend repository stack title MEI.text: list quote

Declaration	<pre>element p { (text model.paracontentPart) * }</pre>
-------------	---

<pad>

<pad/> (padding) – An indication of extra visual space between notational elements.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.pad.log (@num) (att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) att.pad.visatt.pad.gesatt.pad.anl
Used by	model.eventLike
Contained by	MEI.cmn: beam tuplet MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: ineume syllable uneume MEI.shared: layer
May contain	Empty element
Declaration	<pre>element pad { empty }</pre>

<part>

<part> – An alternative visual rendition of the score from a particular performer's (or group of performers') point of view.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls) att.typed (@type, @subtype) att.part.logatt.part.visatt.part.gesatt.part.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.partLike
Contained by	MEI.shared: parts

May contain	<p>MEI.critapp: app</p> <p>MEI.edittrans: add choice corr damage del gap handShift orig reg restore sic subst supplied unclear</p> <p>MEI.shared: annot ending pb sb scoreDef section staffDef</p> <p>MEI.text: div</p> <p>MEI.usersymbols: anchoredText curve line symbol</p>
Declaration	<pre> element part { (model.applLike model.divLike model.milestoneLike.music model.annotLike model.graphicprimitiveLike model.editLike model.transcriptionLike model.scorePart)* } </pre>

<parts>

<parts> – Provides a container for performers' parts.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls) att.typed (@type, @subtype) att.parts.log att.parts.vis att.parts.ges att.parts.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))))
Used by	model.partsLike
Contained by	MEI.shared: mdiv
May contain	MEI.shared: part
Declaration	<pre> element parts { model.partLike* } </pre>

<pb>

<pb> (page break) – An empty formatting element that forces text to begin on a new page.
--

Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.pointing (@xlink:actuate, @xlink:role, @xlink:show, @target, @targettype, @xlink:title) att.source (@source) att.pb.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))) att.pb.gesatt.pb.logatt.pb.vis (@func)
Used by	model.pbLike
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.editrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.figtable: td th MEI.namesdates: corpName geogName periodName persName styleName MEI.neumes: syllable MEI.ptrref: ref MEI.shared: addrLine annot bibl caption date ending identifier layer name num p part rend score section stack staff title titlePage MEI.text: back div front head item l
May contain	MEI.shared: fw pgDesc
Declaration	<pre>element pb { macro.metaLike.page }</pre>

<pedal/>

<pedal/> – Piano pedal mark.	
Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.pedal.log (@dir) (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.startendid (@endid) (att.startid (@startid))) att.pedal.vis (@style) (att.color (@color)) (att.placement (@place)) (att.xy (@x, @y)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) att.pedal.gesatt.pedal.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.controleventLike.cmn
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.editrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature

	MEI.neumes: syllable MEI.shared: layer
May contain	Empty element
Declaration	<pre>element pedal { empty }</pre>
Schematron	<pre><sch:rule context="mei:pedal"> <sch:assert test="@startid or @tstamp or @tstamp.ges or @tstamp.real"> Must have one of the attributes: startid, tstamp, tstamp.ges or tstamp.real</sch:assert></sch:rule></pre>

<perfMedium>

<perfMedium> (performance medium) – Indicates the number and character of the performing forces used in a musical composition.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.authorized (@authority, @authURI)
Used by	macro.workPart
Contained by	MEI.header: relatedItem source work
May contain	MEI.header: instrumentation MEI.shared: castList MEI.text: head
Declaration	<pre>element perfMedium { model.headLike?, castList?, instrumentation? }</pre>

<performance>

<performance> – A presentation of one or more musical works.	
Module	MEI.performance
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls)
Used by	model.resourceLike
Contained by	MEI.shared: music
May contain	MEI.performance: recording
Declaration	<pre>element performance { recording* }</pre>

<periodName>

<periodName> (period name) – A label that describes a period of time, such as 'Baroque' or '3rd Style period'.	
Module	MEI.namesdates
Attributes	att.bibl (@analog) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.dateable (@enddate, @isodate, @notafter, @notbefore, @startdate) att.edit (@cert, @evidence) (att.responsibility (@resp)) (att.source (@source)) att.facsimile (@fac) att.lang (@xml:lang) att.name (@nymref, @role) (att.authorized (@authority, @authURI)) (att.canonical (@dbkey)) att.typed (@type, @subtype)
Used by	model.nameLike.label
Contained by	MEI.edittrans: abbr add corr damage del expn orig reg restore sic supplied unclear MEI.figtable: td th MEI.harmony: f harm MEI.header: accessRestrict acqSource condition dimensions event exhibHist extent hand inscription language physLoc physMedium plateNum price provenance sysReq term treatHist treatSched useRestrict watermark MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ref MEI.shared: actor addrLine annot bibl caption date dir dynam edition fw identifier label name num p pgFoot pgFoot2 pgHead pgHead2 rend repository role roleDesc stack syl tempo title MEI.text: head item l MEI.usersymbols: anchoredText line

May contain	MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address annot bibl date identifier lb name num pb rend repository stack title
Declaration	<pre> element periodName { (text model.textphraseLike model.editLike model.transcriptionLike) * } </pre>

<persName>

<persName> (personal name) – Designation for an individual, including any or all of that individual's forenames, surnames, honorific titles, and added names	
Module	MEI.namesdates
Attributes	att.bibl (@analog) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.dataable (@enddate, @isodate, @notafter, @notbefore, @startdate) att.edit (@cert, @evidence) (att.responsibility (@resp)) (att.source (@source)) att.facsimile (@facs) att.lang (@xml:lang) att.name (@nymref, @role) (att.authorized (@authority, @authURI)) (att.canonical (@dbkey)) att.typed (@type, @subtype)
Used by	model.nameLike.agent
Contained by	MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.figtable: td th MEI.harmony: f harm MEI.header: accessRestrict acqSource condition dimensions event exhibHist extent hand inscription language physLoc physMedium plateNum price provenance respStmt sysReq term treatHist treatSched useRestrict watermark MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ref MEI.shared: actor addrLine annot bibl caption date dir dynam edition fw identifier label name num p pgFoot pgFoot2 pgHead pgHead2 rend repository role roleDesc stack syl tempo title MEI.text: head item l MEI.usersymbols: anchoredText line
May contain	MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName

	MEI.ptrref: ptr ref MEI.shared: address annot bibl date identifier lb name num pb rend repository stack title
Declaration	<pre>element persName { (text model.textphraseLike model.editLike model.transcriptionLike) * }</pre>

<pgDesc>

<pgDesc> (page description) – Contains a brief prose description of the appearance or description of the content of a physical page.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.lang (@xml:lang)
Used by	macro.metaLike.page
Contained by	MEI.shared: pb
May contain	MEI.figtable: table MEI.ptrref: ptr ref MEI.shared: annot p MEI.text: lg list quote MEI.usersymbols: anchoredText curve line symbol
Declaration	<pre>element pgDesc { (text model.graphicprimitiveLike model.textcomponentLike model.annotLike model.locrefLike) * }</pre>

<pgFoot>

<pgFoot> (page footer) – A running footer on the first page.
--

Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang)
Used by	model.metaLike.score
Contained by	MEI.shared: scoreDef
May contain	<p>MEI.critapp: app</p> <p>MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear</p> <p>MEI.figtable: fig table</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: address bibl date identifier lb name num p rend repository stack title</p> <p>MEI.text: lg list quote</p>
Declaration	<pre> element pgFoot { (text model.textcomponentLike model.textphraseLike.limited model.editLike model.transcriptionLike model.applLike)* }</pre>

<pgFoot2>

<pgFoot2> (page footer 2) – A running footer on the pages following the first.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang)
Used by	model.metaLike.score
Contained by	MEI.shared: scoreDef
May contain	<p>MEI.critapp: app</p> <p>MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear</p> <p>MEI.figtable: fig table</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p>

	<p>MEI.ptrref: ptr ref</p> <p>MEI.shared: address bibl date identifier lb name num p rend repository stack title</p> <p>MEI.text: lg list quote</p>
Declaration	<pre> element pgFoot2 { (text model.textcomponentLike model.textphraseLike.limited model.editLike model.transcriptionLike model.applike)* } </pre>

<pgHead>

<pgHead> (page header) – A running header on the first page.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang)
Used by	model.metalike.score
Contained by	MEI.shared: scoreDef
May contain	<p>MEI.critapp: app</p> <p>MEI.editrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear</p> <p>MEI.figtable: fig table</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: address bibl date identifier lb name num p rend repository stack title</p> <p>MEI.text: lg list quote</p>
Declaration	<pre> element pgHead { (text model.textcomponentLike model.textphraseLike.limited model.editLike) } </pre>

```

    | model.transcriptionLike
    | model.applike
  )*
}

```

<pgHead2>

<pgHead2> (page header 2) – A running header on the pages following the first.

Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang)
Used by	model.metaLike.score
Contained by	MEI.shared: scoreDef
May contain	<p>MEI.critapp: app</p> <p>MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear</p> <p>MEI.figtable: fig table</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: address bibl date identifier lb name num p rend repository stack title</p> <p>MEI.text: lg list quote</p>
Declaration	<pre> element pgHead2 { (text model.textcomponentLike model.textphraseLike.limited model.editLike model.transcriptionLike model.applike)* } </pre>

<phrase>

<phrase/> – Indication of 1) a "unified melodic idea" or 2) performance technique.

Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.phrase.log (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.startendid (@endid) (att.startid (@startid))) (att.duration.timestamp (@dur)) att.phrase.vis (att.color (@color)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) (att.visualoffset2 (att.visualoffset2.ho (@startho, @endho)) (att.visualoffset2.to (@startto, @endto)) (att.visualoffset2.vo (@startvo, @endvo))) (att.xy (@x, @y)) (att.xy2 (@x2, @y2)) (att.phrase.vis.cmn (att.curvature (@bezier, @bulge, @curvedir)) (att.curverend (@rend))) (att.phrase.ges (att.duration.performed (@dur.ges)) att.phrase.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))) (att.joined (@join))
Used by	model.controleventLike
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.editrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer
May contain	Empty element
Declaration	<pre>element phrase { empty }</pre>
Schematron	<pre><sch:rule context="mei:phrase"> <sch:assert test="@startid or @tstamp or @tstamp.ges or @tstamp.real"> Must have one of the attributes: startid, tstamp, tstamp.ges or tstamp.real</sch:assert> <sch:assert test="@endid or @dur">Must have one of the attributes: dur or endid</sch:assert></sch:rule></pre>

<physDesc>

<physDesc> (physical description) – Container for information about the location, appearance, construction, or handling of physical materials, such as their dimension, quantity, color, style, and technique of creation.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog)

Used by	macro.bibldescPart
Contained by	MEI.header: relatedItem source
May contain	MEI.header: condition dimensions exhibHist extent handList inscription physLoc physMedium plateNum provenance treatHist treatSched watermark MEI.shared: repository titlePage
Declaration	<pre>element physDesc { model.physDescPart+ }</pre>

<physLoc>

<physLoc> (physical location) – Location of the source within a repository, e.g., shelf mark or other locational information.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog)
Used by	model.physDescPart
Contained by	MEI.header: physDesc
May contain	MEI.edittrans: abbr expan MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre>element physLoc { (text model.textphraseLike.limited) * }</pre>

<physMedium>

<physMedium> (physical medium) – Records the physical materials used in the source, such as ink and paper.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.authorized (@authority, @authURI) att.lang (@xml:lang)

Used by	model.physDescPart
Contained by	MEI.header: physDesc
May contain	MEI.edittrans: abbr expan MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre>element physMedium { (text model.textphraseLike.limited) * }</pre>

<plateNum>

<plateNum> (plate number) – Designation assigned to a resource by a music publisher, usually printed at the bottom of each page, and sometimes appearing also on the title page.

Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.facsimile (@facs)
Used by	model.physDescPart
Contained by	MEI.header: physDesc
May contain	MEI.edittrans: abbr expan MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre>element plateNum { (text model.textphraseLike.limited) * }</pre>

<port>

<port/> – MIDI port.

Module	MEI.midi
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Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.midi.event (att.staffident (@staff)) (att.layerident (@layer)) (att.timestamp.musical (@tstamp)) att.midinumber (@num)
Used by	
Contained by	MEI.midi: midi
May contain	Empty element
Declaration	<pre>element port { empty }</pre>

<price>

<price> – The cost of access to a bibliographic item.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.measurement (@unit)
Used by	macro.availabilityPart
Contained by	MEI.header: availability
May contain	MEI.editrans: abbr expan MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre>element price { (text model.textphraseLike.limited) * }</pre>

<prog>

<prog/> (program) – MIDI program change.	
Module	MEI.midi

Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.midi.event (att.staffident (@staff)) (att.layerident (@layer)) (att.timestamp.musical (@tstamp)) att.midinumber (@num)
Used by	
Contained by	MEI.midi: midi
May contain	Empty element
Declaration	<pre>element prog { empty }</pre>

<projectDesc>

<projectDesc> (project description) – Project-level meta-data describing the aim or purpose for which the electronic file was encoded, funding agencies, etc. together with any other relevant information concerning the process by which it was assembled or collected.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.datapointing (@data) att.lang (@xml:lang)
Used by	model.encodingPart
Contained by	MEI.header: encodingDesc
May contain	MEI.shared: p
Declaration	<pre>element projectDesc { model.pLike+ }</pre>

<proport>

<proport/> (proportion) – Description of note duration as arithmetic ratio.	
Module	MEI.mensural
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.proport.log (att.duration.ratio (@num, @numbase)) att.proport.visatt.proport.gesatt.proport.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))

Used by	model.eventLike.mensural model.staffDefPart.mensural
Contained by	MEI.cmn: beam tuplet MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: ineume syllable uneume MEI.shared: layer staffDef
May contain	Empty element
Declaration	<pre>element proport { empty }</pre>

<provenance>

<provenance> – The record of ownership or custodianship of an item.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.lang (@xml:lang)
Used by	model.physDescPart
Contained by	MEI.header: physDesc
May contain	MEI.edittrans: abbr expan MEI.figtable: fig MEI.header: eventList MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre>element provenance { eventList? (text model.textphraseLike.limited) * }</pre>

<ptr>

<ptr/> (pointer) – Defines a pointer to another location, using only attributes to describe the destination.
--

Module	MEI.ptrref
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.internetmedia (@mimetype) att.pointing (@xlink:actuate, @xlink:role, @xlink:show, @target, @targettype, @xlink:title)
Used by	model.locrefLike
Contained by	<p>MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear</p> <p>MEI.figtable: td th</p> <p>MEI.harmony: f harm</p> <p>MEI.header: accessRestrict acqSource application condition dimensions event exhibHist extent hand inscription language physLoc physMedium plateNum price provenance sysReq term treatHist treatSched useRestrict watermark</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ref</p> <p>MEI.shared: actor addrLine annot bibl caption date dir dynam edition fw identifier label name num p pgDesc pgFoot pgFoot2 pgHead pgHead2 rend repository role roleDesc stack syl tempo title</p> <p>MEI.text: head item l</p> <p>MEI.usersymbols: anchoredText line</p>
May contain	Empty element
Declaration	<pre>element ptr { empty }</pre>

<pubStmt>

<pubStmt> (publication statement) – Container for information regarding the publication or distribution of a bibliographic item, including the publisher's name and address, the date of publication, and other relevant details.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog)
Used by	macro.bibldescPart
Contained by	MEI.header: fileDesc relatedItem source
May contain	<p>MEI.header: availability respStmt unpub</p> <p>MEI.namesdates: geogName</p> <p>MEI.shared: address date identifier</p>

Declaration	<pre>element pubStmt { unpub? model.pubStmtPart* }</pre>
-------------	--

<quote>

<quote> (block quote) – A formatting element that designates an extended quotation; that is, a passage attributed to a source external to the text and normally set off from the text by spacing or other typographic distinction.	
Module	MEI.text
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang) att.xy (@x, @y)
Used by	model.quoteLike
Contained by	MEI.figtable: figDesc td th MEI.shared: annot fw p pgDesc pgFoot pgFoot2 pgHead pgHead2 titlePage MEI.text: div item quote
May contain	MEI.figtable: table MEI.shared: bibl p MEI.text: lg list quote
Declaration	<pre>element quote { model.textcomponentLike+, model.biblLike? }</pre>

<rdg>

<rdg> (reading) – Contains a single reading within a textual variation.	
Module	MEI.critapp
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.crit (@cause) (att.handident (@hand)) (att.responsibility (@resp)) (att.sequence (@seq)) (att.source (@source)) att.typed (@type, @subtype) att.pointing (@xlink:actuate, @xlink:role, @xlink:show, @target, @targettype, @xlink:title) att.rdg.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))) att.rdg.gesatt.rdg.logatt.rdg.vis
Used by	
Contained by	MEI.critapp: app

May contain	<p>MEI.cmn: arpeg bTrem beam beamSpan beatRpt bend breath fTrem fermata gliss hairpin halfmRpt harpPedal mRest mRpt mRpt2 mSpace measure meterSig multiRest multiRpt octave pedal reh slur tie tuplet tupletSpan</p> <p>MEI.cmnOrnaments: mordent trill turn</p> <p>MEI.critapp: app</p> <p>MEI.edittrans: add choice corr damage del gap handShift orig reg restore sic subst supplied unclear</p> <p>MEI.harmony: harm</p> <p>MEI.lyrics: lyrics verse</p> <p>MEI.mensural: ligature mensur proport</p> <p>MEI.midi: midi</p> <p>MEI.neumes: ineume syllable uneume</p> <p>MEI.shared: accid annot artic barLine chord clef clefGrp custos dir dot dynam ending expansion keySig layer note pad pb phrase rest sb scoreDef section space staff staffDef staffGrp syl tempo</p> <p>MEI.text: div</p> <p>MEI.usersymbols: anchoredText curve line symbol</p>
Declaration	<pre> element rdg { expansion*, (model.applLike model.divLike model.milestoneLike.music model.scoreDefLike model.staffDefLike model.staffGrpLike model.annotLike model.graphicprimitiveLike model.editLike model.transcriptionLike model.rdgPart.critapp)* } </pre>

<recording>

<recording> – A recorded performance.	
Module	MEI.performance
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls) att.mediabounds (@begin, @end, @betype) att.startid (@startid)
Used by	
Contained by	MEI.performance: performance

May contain	MEI.performance: avFile clip
Declaration	<pre>element recording { avFile*, clip* }</pre>

<ref>

<ref> (reference) – Defines a reference to another location that may contain text and sub-elements to describe the destination.	
Module	MEI.ptrref
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.internetmedia (@mimetype) att.lang (@xml:lang) att.pointing (@xlink:actuate, @xlink:role, @xlink:show, @target, @targettype, @xlink:title)
Used by	model.locrefLike
Contained by	<p>MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear</p> <p>MEI.figtable: td th</p> <p>MEI.harmony: f harm</p> <p>MEI.header: accessRestrict acqSource application condition dimensions event exhibHist extent hand inscription language physLoc physMedium plateNum price provenance sysReq term treatHist treatSched useRestrict watermark</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ref</p> <p>MEI.shared: actor addrLine annot bibl caption date dir dynam edition fw identifier label name num p pgDesc pgFoot pgFoot2 pgHead pgHead2 rend repository role roleDesc stack syl tempo title</p> <p>MEI.text: head item l</p> <p>MEI.usersymbols: anchoredText line</p>
May contain	<p>MEI.edittrans: abbr expan</p> <p>MEI.figtable: fig</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: address annot bibl date identifier lb name num pb rend repository stack title</p>
Declaration	<pre>element ref { (text model.textphraseLike)* }</pre>

<reg>

<reg> (regularization) – Contains material which has been regularized or normalized in some sense.	
Module	MEI.edittrans
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.authorized (@authority, @authURI) att.edit (@cert, @evidence) (att.responsibility (@resp)) (att.source (@source))
Used by	model.choicePart model.substPart model.transcriptionLike
Contained by	MEI.cmn: beam measure tuplet MEI.critapp: lem rdg MEI.edittrans: abbr add choice corr damage del expan orig reg restore sic subst supplied unclear MEI.figtable: td th MEI.harmony: f fb harm MEI.header: inscription MEI.namesdates: corpName geogName periodName persName styleName MEI.neumes: ineume syllable uneume MEI.shared: addrLine annot caption chord dir dynam ending fw identifier label layer name note num p part pgFoot pgFoot2 pgHead pgHead2 rend score section staff syl tempo title MEI.text: head item l MEI.usersymbols: anchoredText
May contain	MEI.cmn: arpeg bTrem beam beamSpan beatRpt bend breath fTrem fermata gliss hairpin halfmRpt harpPedal mRest mRpt mRpt2 mSpace measure meterSig multiRest multiRpt octave pedal reh slur tie tuplet tupletSpan MEI.cmnOrnaments: mordent trill turn MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig MEI.harmony: f harm MEI.lyrics: lyrics MEI.mensural: ligature mensur proport MEI.midi: midi MEI.namesdates: corpName geogName periodName persName styleName MEI.neumes: ineume uneume MEI.ptrref: ptr ref MEI.shared: accid address annot artic barLine bibl chord clef clefGrp custos date dir dot dynam identifier keySig layer lb name note num pad pb phrase rend repository rest section space stack staff tempo title MEI.usersymbols: anchoredText curve line symbol

Declaration	<pre> element reg { (text model.textphraseLike model.eventLike model.eventLike.neumes model.controleventLike model.lyricsLike model.midilike model.editLike model.transcriptionLike model.eventLike.measureFilling model.noteModifierLike model.sectionLike model.measureLike model.staffLike model.layerLike model.graphicprimitiveLike model.fLike)* } </pre>
--------------------	---

<reh>

<reh> (rehearsal mark) – In an orchestral score and its corresponding parts, a mark indicating a convenient point from which to resume rehearsal after a break.	
Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.reh.log (att.staffident (@staff)) (att.startid (@startid)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) att.reh.vis (att.color (@color)) (att.placement (@place)) (att.typography (@fontfam, @fontname, @fontsize, @fontstyle, @fontweight)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) (att.xy (@x, @y)) att.reh.ges att.reh.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.controleventLike.cmn
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.editrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer
May contain	MEI.shared: lb rend stack

Declaration	<pre>element reh { (text model.lbLike model.rendLike)* }</pre>
-------------	--

<relatedItem>

<relatedItem> (related item) – contains or references another bibliographic item which is related to the present one in some specified manner, for example as a constituent or alternative version of it.

Module	MEI.header																				
Attributes	<p>att.datapointing (@data) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.pointing (@xlink:actuate, @xlink:role, @xlink:show, @target, @targettype, @xlink:title)</p> <p>@rel describes the relationship between the <relatedItem> and the resource described in the parent element, i.e. <source> or <relatedItem>. "preceding" indicates a predecessor to the resource; "succeeding" applies to a successor to the resource; "original" indicates the original form of the resource; "host" provides info concerning an intellectual or physical constituent unit of the resource; "otherVersion" indicates a change in the intellectual content of the resource not significant enough to be a different work; "otherFormat" indicates a change in physical format of the resource; "isReferencedBy" applies to a citation or reference to published bibliographic descriptions, reviews, abstracts, or indexes of the content of the resource; "references" applies to a resource cited or referred to in the resource. These values are based on MODS version 3.4.</p> <table> <tr> <td>Status</td><td>Required</td></tr> <tr> <td>Legal values are:</td><td>preceding</td></tr> <tr> <td></td><td>succeeding</td></tr> <tr> <td></td><td>original</td></tr> <tr> <td></td><td>host</td></tr> <tr> <td></td><td>constituent</td></tr> <tr> <td></td><td>otherVersion</td></tr> <tr> <td></td><td>otherFormat</td></tr> <tr> <td></td><td>isReferencedBy</td></tr> <tr> <td></td><td>references</td></tr> </table>	Status	Required	Legal values are:	preceding		succeeding		original		host		constituent		otherVersion		otherFormat		isReferencedBy		references
Status	Required																				
Legal values are:	preceding																				
	succeeding																				
	original																				
	host																				
	constituent																				
	otherVersion																				
	otherFormat																				
	isReferencedBy																				
	references																				
Used by																					
Contained by	MEI.header: relatedItem source work																				
May contain	MEI.header: classification contents editionStmt history key langUsage mensuration meter notesStmt perfMedium physDesc pubStmt relatedItem seriesStmt titleStmt																				

	MEI.shared: identifier incip tempo
Declaration	<pre> element relatedItem { attribute rel { "preceding" "succeeding" "original" "host" "constituent" "otherVersion" "otherFormat" "isReferencedBy" "references" }, model.identifierLike*, titleStmt?, macro.bibldescPart, notesStmt?, macro.workPart, classification?, model.incipLike?, contents?, relatedItem* } </pre>

<rend>

<rend> (render) – A formatting element indicating special visual rendering, e.g., bold or italicized, of a text word or phrase.

Module	MEI.shared
Attributes	<p>att.color (@color) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.lang (@xml:lang) att.typography (@fontfam, @fontname, @fontsize, @fontstyle, @fontweight) att.horizontalalign (@halign)</p> <p>@altrend used to extend the values of the rend attribute. Status Optional</p> <p>@rend captures the appearance of the element's contents. Status Optional Datatype data.TEXTRENDITION</p> <p>@rotation A positive value for rotation rotates the text in a counter-clockwise fashion, while negative values produce clockwise rotation. Status Optional Datatype data.DEGREES</p>

	<p>@valign specifies the vertical position of the element content relative to the surrounding text.</p> <p>Status Optional</p> <p>Legal values are:</p> <ul style="list-style-type: none"> top aligns the top of the content with the top of the surrounding text. middle aligns the middle of the content with the middle of the surrounding text. bottom aligns the bottom of the content with the bottom of the surrounding text. baseline aligns the baseline of the content with the baseline of the surrounding text.
Used by	model.rendLike
Contained by	<p>MEI.cmn: reh</p> <p>MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear</p> <p>MEI.figtable: td th</p> <p>MEI.harmony: f harm</p> <p>MEI.header: accessRestrict acqSource altId classCode condition dimensions event exhibHist extent hand inscription language physLoc physMedium plateNum price provenance sysReq term treatHist treatSched useRestrict watermark</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ref</p> <p>MEI.shared: actor addrLine annot bibl caption date dir dynam edition fw identifier label name num p pgFoot pgFoot2 pgHead pgHead2 rend repository role roleDesc stack syl tempo title</p> <p>MEI.text: head item l</p> <p>MEI.usersymbols: anchoredText line</p>
May contain	<p>MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear</p> <p>MEI.figtable: fig</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: address annot bibl date identifier lb name num pb rend repository stack title</p>
Declaration	<pre> element rend { attribute altrend { text }?, attribute rend { data.TEXTRENDITION }?, </pre>

```

attribute rotation { data.DEGREES }?,
attribute valign { "top" | "middle" | "bottom" | "baseline" }?,
( text | model.textphraseLike | model.editLike | model.transcriptionLike ) *
}

```

<repository>

<repository> – Institution or agency which holds a bibliographic item.	
Module	MEI.shared
Attributes	att.bibl (@analog) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@fac) att.lang (@xml:lang) att.name (@nymref, @role) (att.authorized (@authority, @authURI)) (att.canonical (@dbkey)) att.typed (@type, @subtype)
Used by	model.repositoryLike
Contained by	<p>MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear</p> <p>MEI.figtable: td th</p> <p>MEI.harmony: f harm</p> <p>MEI.header: accessRestrict acqSource condition dimensions event exhibHist extent hand inscription language physDesc physLoc physMedium plateNum price provenance sysReq term treatHist treatSched useRestrict watermark</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ref</p> <p>MEI.shared: actor addrLine annot bibl caption date dir dynam edition fw identifier label name num p pgFoot pgFoot2 pgHead pgHead2 rend repository role roleDesc stack syl tempo title</p> <p>MEI.text: head item l</p> <p>MEI.usersymbols: anchoredText line</p>
May contain	<p>MEI.edittrans: abbr expan</p> <p>MEI.figtable: fig</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: address bibl date identifier lb name num rend repository stack title</p>
Declaration	<pre> element repository { (text model.textphraseLike.limited) * } </pre>

<resp>

<resp> (responsibility) – A phrase describing the nature of a person's intellectual responsibility.	
Module	MEI.header
Attributes	att.authorized (@authority, @authURI)
Used by	
Contained by	MEI.header: respStmt
May contain	Character data only
Declaration	<pre>element resp { text }</pre>

<respStmt>

<respStmt> (responsibility statement) – Names one or more individuals, groups, or in rare cases, mechanical processes, responsible for creation or realization of the intellectual or artistic content.	
Module	MEI.header
Attributes	att.bibl (@analog) att.common (@label, @n, @xml:base) (att.id (@xml:id))
Used by	model.pubStmtPart
Contained by	MEI.header: change editionStmt pubStmt seriesStmt titleStmt
May contain	MEI.header: resp MEI.namesdates: corpName persName MEI.shared: name
Declaration	<pre>element respStmt { (resp model.nameLike model.nameLike.agent)* }</pre>

<rest>

<rest/> – A non-sounding event found in the source being transcribed.
--

Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.rest.log (att.augmentdots (@dots)) (att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.duration.musical (@dur)) (att.fermatapresent (@fermata)) (att.tupletpresent (@tuplet)) (att.rest.log.cm (att.beamed (@beam))) att.rest.vis (att.altsym (@altsym)) (att.color (@color)) (att.relative (@size)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) (att.xy (@x, @y)) (att.rest.vis.cm) (att.rest.vis.mensural (@spaces) (att.lineloc (@line))) att.rest.ges (att.duration.performed (@dur.ges)) (att.instrumentident (@instr)) (att.rest.ges.mensural (att.duration.ratio (@num, @numbase))) att.rest.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.eventLike
Contained by	MEI.cmn: beam tuplet MEI.critapp: lem rdg MEI.editrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: ineume syllable uneume MEI.shared: layer
May contain	Empty element
Declaration	<pre>element rest { empty }</pre>
Schematron	<pre><sch:rule context="mei:rest[@line]"> <sch:let name="thisstaff" value="ancestor::mei:staff/@n"/> <sch:assert test="number(@line) <= number(preceding::mei:staffDef[@n=\$thisstaff and @lines][1]/@lines)">The value of @line must be less than or equal to the number of lines on the staff.</sch:assert></sch:rule></pre>

<restore>

<restore> – Indicates restoration of material to an earlier state by cancellation of an editorial or authorial marking or instruction.

Module	MEI.editrans
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.edit (@cert, @evidence) (att.responsibility (@resp)) (att.source (@source)) att.facsimile (@facs) att.trans (att.handident (@hand)) (att.sequence (@seq)) att.typed (@type, @subtype)

	<p>@desc provides a description of the means of restoration.</p> <p>Status Optional</p>
Used by	model.substPart model.transcriptionLike
Contained by	<p>MEI.cmn: beam measure tuplet</p> <p>MEI.critapp: lem rdg</p> <p>MEI.editttrans: abbr add corr damage del expan orig reg restore sic subst supplied unclear</p> <p>MEI.figtable: td th</p> <p>MEI.harmony: f fb harm</p> <p>MEI.header: inscription</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.neumes: ineume syllable uneume</p> <p>MEI.shared: addrLine annot caption chord dir dynam ending fw identifier label layer name note num p part pgFoot pgFoot2 pgHead pgHead2 rend score section staff syl tempo title</p> <p>MEI.text: head item l</p> <p>MEI.usersymbols: anchoredText</p>
May contain	<p>MEI.cmn: arpeg bTrem beam beamSpan beatRpt bend breath fTrem fermata gliss hairpin halfmRpt harpPedal mRest mRpt mRpt2 mSpace measure meterSig multiRest multiRpt octave pedal reh slur tie tuplet tupletSpan</p> <p>MEI.cmnOrnaments: mordent trill turn</p> <p>MEI.editttrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear</p> <p>MEI.figtable: fig</p> <p>MEI.harmony: f harm</p> <p>MEI.lyrics: lyrics</p> <p>MEI.mensural: ligature mensur proport</p> <p>MEI.midi: midi</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.neumes: ineume uneume</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: accid address annot artic barLine bibl chord clef clefGrp custos date dir dot dynam identifier keySig layer lb name note num pad pb phrase rend repository rest section space stack staff tempo title</p> <p>MEI.usersymbols: anchoredText curve line symbol</p>
Declaration	<pre> element restore { attribute desc { text }?, (text model.textphraseLike) } </pre>


```

| model.eventLike
| model.eventLike.neumes
| model.controleventLike
| model.lyricsLike
| model.midiLike
| model.editLike
| model.transcriptionLike
| model.eventLike.measureFilling
| model.noteModifierLike
| model.sectionLike
| model.measureLike
| model.staffLike
| model.layerLike
| model.graphicprimitiveLike
| model.fLike
| )*
}

```

<revisionDesc>

<revisionDesc> (revision description) – Container for information about alterations that have been made to an MEI file.

Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog)
Used by	
Contained by	MEI.header: meiHead
May contain	MEI.header: change
Declaration	<pre>element revisionDesc { change+ }</pre>

<role>

<role> – Name of a dramatic role, as given in a cast list.

Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang)
Used by	

Contained by	MEI.shared: castItem
May contain	MEI.edittrans: abbr expan MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre>element role { (text model.textphraseLike.limited) * }</pre>

<roleDesc>

<roleDesc> (role description) – Describes a character's role in a drama.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang)
Used by	
Contained by	MEI.shared: castGrp castItem
May contain	MEI.edittrans: abbr expan MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre>element roleDesc { (text model.textphraseLike.limited) * }</pre>

<samplingDecl>

<samplingDecl> (sampling declaration) – Contains a prose description of the rationale and methods used in sampling texts in the creation of a corpus or collection.	
Module	MEI.header

Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.datapointing (@data) att.lang (@xml:lang)
Used by	model.encodingPart
Contained by	MEI.header: encodingDesc
May contain	MEI.shared: p
Declaration	<pre>element samplingDecl { model.pLike+ }</pre>

<sb>

<sb> (system break) – An empty formatting element that forces musical notation to begin on a new line.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.source (@source) att.sb.logatt.sb.vis (@rend) att.sb.gesatt.sb.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))))
Used by	model.milestoneLike.music
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.neumes: syllable MEI.shared: ending layer part score section staff
May contain	MEI.shared: custos
Declaration	<pre>element sb { custos? }</pre>

<score>

<score> – Full score view of the musical content.	
Module	MEI.shared

Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls) att.typed (@type, @subtype) att.score.log att.score.vis att.score.ges att.score.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))))
Used by	model.scoreLike
Contained by	MEI.shared: incip mdiv
May contain	MEI.critapp: app MEI.editttrans: add choice corr damage del gap handShift orig reg restore sic subst supplied unclear MEI.shared: annot ending pb sb scoreDef section staffDef MEI.text: div MEI.usersymbols: anchoredText curve line symbol
Declaration	<pre> element score { (model.applike model.divLike model.milestoneLike.music model.annotLike model.graphicprimitiveLike model.editLike model.transcriptionLike model.scorePart) * } </pre>

<scoreDef>

<scoreDef> (score definition) – Container for score meta-information.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.scoreDef.log (att.cleffing.log (@clef.shape, @clef.line, @clef.dis, @clef.dis.place)) (att.duration.default (@dur.default)) (att.keySigDefault.log (@key.accid, @key.mode, @key.pname, @key.sig, @key.sig.mixed)) (att.meterSigDefault.log (@meter.count, @meter.unit)) (att.octavedefault (@octave.default)) (att.transposition (@trans.diat, @trans.semi)) (att.scoreDef.log.cmn (att.beaming.log (@beam.group, @beam.rests))) (att.scoreDef.log.mensural (att.mensurDefault.log (@mensur.dot, @mensur.loc, @mensur.sign, @mensur.slash)) (att.duration.ratio (@num, @numbase)))) att.scoreDef.vis (@ending.rend, @mnum.visible, @music.name, @music.size, @optimize, @page.height, @page.width, @page.units, @page.topmar, @page.botmar, @page.leftmar, @page.rightmar, @page.panels, @page.scale, @spacing.packexp, @spacing.packfact, @spacing.staff, @spacing.system, @system.leftmar, @system.rightmar, @system.topmar) (att.barplacement (@barplace, @taktplace)) (att.cleffing.vis (@clef.color, @clef.visible)) (att.distances (@dynam.dist, @harm.dist, @text.dist)) (att.keySigDefault.vis (@key.sig.show, @key.sig.showchange)) (att.lyricstyle (@lyric.align, @lyric.fam, @lyric.name, @lyric.size, @lyric.style, @lyric.weight)) (att.meterSigDefault.vis (@meter.rend, @meter.showchange, @meter.sym)) (att.multinummeasures (@multi.number)) (att.onlinestaff (@ontheline)) (att.textstyle (@text.fam,

	@text.name , @text.size , @text.style , @text.weight)) (att.scoreDef.vis.cmn (@grid.show) (att.beaming.vis (@beam.rend, @beam.slope)) (att.pianopedals (@pedal.style)) (att.rehearsal (@reh.encluse)) (att.slurrend (@slur.rend)) (att.tierend (@tie.rend))) (att.scoreDef.vis.mensural (att.mensurDefault.vis (@mensur.color, @mensur.form, @mensur.orient, @mensur.size))) att.scoreDef.ges (@tune.pname, @tune.Hz, @tune.temper) (att.channelized (@midi.channel, @midi.duty, @midi.port, @midi.track)) (att.timebase (@ppq)) (att.miditempo (@midi.tempo)) (att.mmtempo (@mm)) att.scoreDef.anl
Used by	model.scoreDefLike
Contained by	MEI.critapp: lem rdg MEI.mensural: ligature MEI.neumes: syllable MEI.shared: ending layer part score section staff
May contain	MEI.cmn: meterSig MEI.harmony: chordTable MEI.linkalign: timeline MEI.midi: instrGrp MEI.shared: keySig pgFoot pgFoot2 pgHead pgHead2 staffGrp MEI.usersymbols: symbolTable
Declaration	<pre> element scoreDef { model.alignLike*, model.chordTableLike?, model.symbolTableLike?, model.keySigLike?, model.meterSigLike?, model.metaLike.score_sequenceOptional, instrGrp?, (model.staffGrpLike?) } </pre>

<section>

<section> – Segment of music data.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls) att.facsimile (@facs) att.typed (@type, @subtype) att.pointing (@xlink:actuate, @xlink:role, @xlink:show, @target, @targettype, @xlink:title) att.section.log att.section.vis (@restart) att.section.ges att.section.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))))
Used by	model.sectionLike
Contained by	MEI.critapp: lem rdg

	MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.shared: ending part score section
May contain	MEI.cmn: measure MEI.critapp: app MEI.edittrans: add choice corr damage del gap handShift orig reg restore sic subst supplied unclear MEI.shared: annot ending expansion pb sb scoreDef section staff staffDef MEI.text: div MEI.usersymbols: anchoredText curve line symbol
Declaration	<pre> element section { expansion*, (model.applLike model.divLike model.milestoneLike.music model.annotLike model.graphicprimitiveLike model.editLike model.transcriptionLike model.sectionPart)* } </pre>
Schematron	<pre> <sch:rule context="mei:section[mei:expansion]"> <sch:assert test="descendant::mei:section descendant::mei:ending descendant::mei:rdg">Must have descendant section, ending, or rdg elements that can be pointed to.</sch:assert></sch:rule> </pre>

<segmentation>

<segmentation> – Describes the principles according to which the musical text has been segmented, for example into movements, sections, etc.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.datapointing (@data) att.lang (@xml:lang)
Used by	model.editorialDeclPart
Contained by	MEI.header: editorialDecl

May contain	MEI.shared: p
Declaration	<pre>element segmentation { model.pLike+ }</pre>

<seqNum>

<seqNum/> (sequence number) – MIDI sequence number.	
Module	MEI.midi
Attributes	<p> att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.midi.event (att.staffident (@staff)) att.layerident (@layer)) (att.timestamp.musical (@tstamp)) </p> <p> @num number in the range 0-65535. Status Required Datatype <code>xsd:nonNegativeInteger { maxInclusive = "65535" }</code> </p>
Used by	
Contained by	MEI.midi: midi
May contain	Empty element
Declaration	<pre>element seqNum { attribute num { xsd:nonNegativeInteger { maxInclusive = "65535" } }, empty }</pre>

<seriesStmt>

<seriesStmt> (series statement) – Groups information about the series, if any, to which a publication belongs.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog)
Used by	macro.biblDescPart

Contained by	MEI.header: fileDesc relatedItem seriesStmt source
May contain	MEI.header: contents respStmt seriesStmt MEI.shared: identifier title
Declaration	<pre> element seriesStmt { model.titleLike+, respStmt*, model.identifierLike*, contents?, seriesStmt* } </pre>

<sic>

<sic> – Contains apparently incorrect or inaccurate material.	
Module	MEI.edittrans
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs)
Used by	model.choicePart model.substPart model.transcriptionLike
Contained by	MEI.cmn: beam measure tuplet MEI.critapp: lem rdg MEI.edittrans: abbr add choice corr damage del expan orig reg restore sic subst supplied unclear MEI.figtable: td th MEI.harmony: f fb harm MEI.header: inscription MEI.namesdates: corpName geogName periodName persName styleName MEI.neumes: ineume syllable uneume MEI.shared: addrLine annot caption chord dir dynam ending fw identifier label layer name note num p part pgFoot pgFoot2 pgHead pgHead2 rend score section staff syl tempo title MEI.text: head item l MEI.usersymbols: anchoredText
May contain	MEI.cmn: arpeg bTrem beam beamSpan beatRpt bend breath fTrem fermata gliss hairpin halfmRpt harpPedal mRest mRpt mRpt2 mSpace measure meterSig multiRest multiRpt octave pedal reh slur tie tuplet tupletSpan MEI.cmnOrnaments: mordent trill turn MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig

	<p>MEI.harmony: f harm</p> <p>MEI.lyrics: lyrics</p> <p>MEI.mensural: ligature mensur proport</p> <p>MEI.midi: midi</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.neumes: ineume uneume</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: accid address annot artic barLine bibl chord clef clefGrp custos date dir dot dynam identifier keySig layer lb name note num pad pb phrase rend repository rest section space stack staff tempo title</p> <p>MEI.usersymbols: anchoredText curve line symbol</p>
Declaration	<pre> element sic { (text model.textphraseLike model.eventLike model.eventLike.neumes model.controleventLike model.lyricsLike model.midiLike model.editLike model.transcriptionLike model.eventLike.measureFilling model.noteModifierLike model.sectionLike model.measureLike model.staffLike model.layerLike model.graphicprimitiveLike model.fLike)* } </pre>

<slur>

<slur/> – Indication of 1) a "unified melodic idea" or 2) performance technique.	
Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.typed (@type, @subtype) att.slur.log (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.startendid (@endid) (att.startid (@startid))) (att.duration.timestamp (@dur)) att.slur.vis (att.color (@color)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) (att.visualoffset2 (att.visualoffset2.ho (@startho, @endho)) (att.visualoffset2.to (@startto, @endto)) (att.visualoffset2.vo (@startvo, @endvo))) (att.xy (@x, @y)) (att.xy2 (@x2, @y2)) (att.curvature (@bezier, @bulge, @curvedir)) (att.curverend (@rend)) att.slur.ges

	(att.duration.performed (@dur.ges)) att.slur.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))) (att.joined (@join))
Used by	model.controleventLike.cmn
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expansion orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer
May contain	Empty element
Declaration	<pre>element slur { empty }</pre>
Schematron	<pre><sch:rule context="mei:slur"> <sch:assert test="@startid or @tstamp or @tstamp.ges or @tstamp.real"> Must have one of the attributes: startid, tstamp, tstamp.ges or tstamp.real</sch:assert> <sch:assert test="@endid or @dur">Must have one of the attributes: dur or endid</sch:assert></sch:rule></pre>

<source>

<source> – A bibliographic description of a source used in the creation of the electronic file.	
Module	MEI.header
Attributes	att.datapointing (@data) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.pointing (@xlink:actuate, @xlink:role, @xlink:show, @target, @targettype, @xlink:title)
Used by	
Contained by	MEI.header: sourceDesc
May contain	MEI.header: classification contents editionStmt history key langUsage mensuration meter notesStmt perfMedium physDesc pubStmt relatedItem seriesStmt titleStmt MEI.shared: identifier incip tempo

Declaration	<pre> element source { model.identifierLike*, titleStmt?, macro.bibldescPart, notesStmt?, macro.workPart, classification?, model.inciplike?, contents?, relatedItem* } </pre>
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<sourceDesc>

<sourceDesc> (source description) – A container for the descriptions of the source(s) used in the creation of the electronic file.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id))
Used by	
Contained by	MEI.header: fileDesc
May contain	MEI.header: source
Declaration	<pre> element sourceDesc { source+ } </pre>

<space>

<space/> – A placeholder used to fill an incomplete measure, layer, etc. most often so that the combined duration of the events equals the number of beats in the measure.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.space.log (att.augmentdots (@dots)) (att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.duration.musical (@dur)) (att.fermatapresent (@fermata)) (att.tupletpresent (@tuplet)) (att.space.log.cmn (att.beamed (@beam))) att.space.vis (@compressable) att.space.ges (att.duration.performed (@dur.ges)) att.space.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))

Used by	model.eventLike
Contained by	MEI.cmn: beam tuplet MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.lyrics: verse MEI.mensural: ligature MEI.neumes: ineume syllable uneume MEI.shared: layer
May contain	Empty element
Declaration	<pre>element space { empty }</pre>

<stack>

<stack> (stacked text) – An inline table with a single column.	
Module	MEI.shared
Attributes	<p>att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang)</p> <p>@delim indicates the delimiter used to mark the portions of text that are to be stacked. Status Optional</p> <p>@align specifies how the stacked text components should be aligned. Status Optional</p> <p>Legal values are:</p> <ul style="list-style-type: none"> left left justified. right right justified. center centered. rightdigit aligned on right-most digit.
Used by	model.rendLike
Contained by	MEI.cmn: reh MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear

	<p>MEI.figtable: td th</p> <p>MEI.harmony: f harm</p> <p>MEI.header: accessRestrict acqSource altId classCode condition dimensions event exhibHist extent hand inscription language physLoc physMedium plateNum price provenance sysReq term treatHist treatSched useRestrict watermark</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ref</p> <p>MEI.shared: actor addrLine annot bibl caption date dir dynam edition fw identifier label name num p pgFoot pgFoot2 pgHead pgHead2 rend repository role roleDesc stack syl tempo title</p> <p>MEI.text: head item l</p> <p>MEI.usersymbols: anchoredText line</p>
May contain	<p>MEI.edittrans: abbr expan</p> <p>MEI.figtable: fig</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: address annot bibl date identifier lb name num pb rend repository stack title</p>
Declaration	<pre> element stack { attribute delim { text }?, attribute align { "left" "right" "center" "rightdigit" }?, (text model.textphraseLike) * } </pre>

<staff>

<p><staff> – A group of equidistant horizontal lines on which notes are placed in order to represent pitch or a grouping element for individual 'strands' of notes, rests, etc. that may or may not actually be rendered on staff lines; that is, both diastematic and non-diastematic signs.</p>	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls) att.facsimile (@facs) att.staff.log (@def) (att.meterconformance (@metcon)) att.staff.vis (att.visibility (@visible)) att.staff.gesatt att.staff.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.staffLike
Contained by	<p>MEI.cmn: measure ossia</p> <p>MEI.critapp: lem rdg</p> <p>MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear</p> <p>MEI.shared: ending section</p>

May contain	<p>MEI.cmn: ossia</p> <p>MEI.critapp: app</p> <p>MEI.edittrans: add choice corr damage del gap handShift orig reg restore sic subst supplied unclear</p> <p>MEI.shared: annot layer pb sb scoreDef staffDef</p> <p>MEI.text: div</p> <p>MEI.usersymbols: anchoredText curve line symbol</p>
Declaration	<pre> element staff { (model.applike model.divlike model.milestonelike.music model.staffDeflike model.annotlike model.graphicprimitiveLike model.editlike model.transcriptionlike model.staffPart) * } </pre>
Schematron	<pre> <sch:rule context="mei:staff[@n]"> <sch:assert test="number(@n) = round(number(@n))">The n attribute must be a single integer.</sch:assert></sch:rule> </pre>

<staffDef>

<staffDef> (staff definition) – Container for staff meta-information.	
Module	MEI.shared
Attributes	<p>att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls) att.staffDef.log (att.cleffing.log (@clef.shape, @clef.line, @clef.dis, @clef.dis.place)) (att.duration.default (@dur.default)) (att.keySigDefault.log (@key.accid, @key.mode, @key.pname, @key.sig, @key.sig.mixed)) (att.meterSigDefault.log (@meter.count, @meter.unit)) (att.octavedefault (@octave.default)) (att.transposition (@trans.diat, @trans.semi)) (att.staffDef.log.cmn (att.beaming.log (@beam.group, @beam.rests))) (att.staffDef.log.mensural (@proport.num, @proport.numbase) (att.mensurDefault.log (@mensur.dot, @mensur.loc, @mensur.sign, @mensur.slash) (att.duration.ratio (@num, @numbase)))))</p> <p>att.staffDef.vis (@grid.show, @layerscheme, @lines, @lines.color, @lines.visible, @spacing) (att.cleffing.vis (@clef.color, @clef.visible)) (att.distances (@dynam.dist, @harm.dist, @text.dist)) (att.keySigDefault.vis (@key.sig.show, @key.sig.showchange)) (att.labels.addl (@label.abbr)) (att.lyricstyle (@lyric.align, @lyric.fam, @lyric.name, @lyric.size, @lyric.style, @lyric.weight)) (att.meterSigDefault.vis (@meter.rend, @meter.showchange, @meter.sym)) (att.multipinmeasures</p>

	<p>(@multi.number)) (att.onlinestaff (@ontheLine)) (att.scalable (@scale)) (att.textstyle (@text.fam, @text.name, @text.size, @text.style, @text.weight)) (att.visibility (@visible)) (att.staffDef.vis.cmn (att.beaming.vis (@beam.rend, @beam.slope)) (att.pianopedals (@pedal.style)) (att.rehearsal (@reh.enclse)) (att.slur (@slur.rend)) (att.tie (@tie.rend))) (att.staffDef.vis.mensural (att.mensurDefault.vis (@mensur.color, @mensur.form, @mensur.orient, @mensur.size))) att.staffDef.ges (att.instrumentident (@instr)) (att.timebase (@ppq)) (att.staffDef.ges.tablature (@tab.strings)) att.staffDef.anl</p>
Used by	model.staffDefLike
Contained by	<p>MEI.cmn: measure MEI.critapp: lem rdg MEI.mensural: ligature MEI.neumes: syllable MEI.shared: ending layer part score section staff staffGrp</p>
May contain	<p>MEI.cmn: meterSig MEI.mensural: mensur proport MEI.midi: instrDef MEI.shared: clef clefGrp keySig label layerDef</p>
Declaration	<pre> element staffDef { model.labelLike*, (model.instrDefLike model.layerDefLike model.staffDefPart) * } </pre>
Schematron	<pre> <sch:rule context="mei:staffDef"> <sch:let name="thisstaff" value="@n"/> <sch:assert test="@n">A staffDef must have an n attribute.</sch:assert> <sch:assert test="@lines or preceding::mei:staffDef[@n=\$thisstaff and @lines]">The first occurrence of a staff must declare the number of staff lines.</sch:assert> <sch:assert test="count(me:clef) + count(me:clefGrp) < 2">Only one clef or clefGrp is permitted.</sch:assert></sch:rule> </pre>

Schematron	<pre><sch:rule context="mei:staffDef[ancestor::mei:staff]"> <sch:let name="thisstaff" value="@n"/> <sch:assert test="ancestor::mei:staff/@n eq \$thisstaff">If a staffDef appears in a staff, it must bear the same @n than this staff.</sch:assert></sch:rule></pre>
Schematron	<pre><sch:rule context="mei:staffDef[@clef.line and @lines]"> <sch:assert test="number(@clef.line) <= number(@lines)">The clef position must be less than or equal to the number of lines on the staff.</sch:assert></sch:rule></pre>
Schematron	<pre><sch:rule context="mei:staffDef[@clef.line and not(@lines)]"> <sch:let name="thisstaff" value="@n"/> <sch:let name="stafflines" value="preceding::mei:staffDef[@n=\$thisstaff and @lines][1]/@lines"/> <sch:assert test="number(@clef.line) <= number(\$stafflines)">The clef position must be less than or equal to the number of lines on the staff.</sch:assert></sch:rule></pre>
Schematron	<pre><sch:rule context="mei:staffDef[@tab.strings and @lines]"> <sch:let name="countTokens" value="count(tokenize(normalize-space(@tab.strings), '\s'))"/> <sch:assert test="\$countTokens = 1 or \$countTokens = @lines">The tab.strings attribute must have the same number of values as there are staff lines.</sch:assert></sch:rule></pre>

Schematron	<pre> <sch:rule context="mei:staffDef[@tab.strings and not(@lines)]"> <sch:let name="countTokens" value="count(tokenize(normalize-space(@tab.strings), '\s'))"/> <sch:let name="thisStaff" value="@n"/> <sch:assert test="\$countTokens = 1 or \$countTokens = preceding::mei:staffDef[@n=\$thisStaff and @lines][1]/@lines">The tab.strings attribute must have the same number of values as there are staff lines.</sch:assert></sch:rule> </pre>
Schematron	<pre> <sch:pattern> <sch:rule context="mei:staffDef[@lines.color and @lines]"> <sch:let name="countTokens" value="count(tokenize(normalize-space(@lines.color), '\s'))"/> <sch:assert test="\$countTokens = 1 or \$countTokens = @lines">The lines.color attribute must have either 1) a single value or 2) the same number of values as there are staff lines.</sch:assert></sch:rule> <sch:rule context="mei:staffDef[@lines.color and not(@lines)]"> <sch:let name="countTokens" value="count(tokenize(normalize-space(@lines.color), '\s'))"/> <sch:let name="thisStaff" value="@n"/> <sch:assert test="\$countTokens = 1 or \$countTokens = preceding::mei:staffDef[@n=\$thisStaff and @lines][1]/@lines">The lines.color attribute must have either 1) a single value or 2) the same number of values as there are staff lines.</sch:assert></sch:rule></sch:pattern> </pre>

<staffGrp>

<staffGrp> (staff group) – A group of bracketed or braced staves.	
Module	MEI.shared

Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.declaring (@decls) att.facsimile (@facs) att.staffGrp.logatt.staffGrp.vis (@barthru) (att.labels.addl (@label.abbr)) (att.staffgroupingsym (@symbol)) (att.visibility (@visible)) att.staffGrp.ges (att.instrumentident (@instr)) att.staffGrp.anl
Used by	model.staffGrpLike
Contained by	MEI.critapp: lem rdg MEI.neumes: syllable MEI.shared: scoreDef staffGrp
May contain	MEI.midi: instrDef MEI.shared: grpSym label staffDef staffGrp
Declaration	<pre> element staffGrp { grpSym*, model.labellike*, model.instrDefLike*, (model.staffGrpLike model.staffDefLike)+, grpSym* } </pre>
Schematron	<pre> <sch:rule context="mei:staffGrp"> <sch:let name="countstaves" value="count(descendant::mei:staffDef)"/> <sch:let name="countuniqstaves" value="count(distinct-values(descendant::mei:staffDef/@n))"/> <sch:assert test="\$countstaves eq \$countuniqstaves">Each staffDef must have a unique value for the n attribute.</sch:assert></sch:rule> </pre>

<stdVals>

<stdVals> (standard values) – Specifies the format used when standardized date or number values are supplied.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.datapointing (@data) att.lang (@xml:lang)
Used by	model.editorialDeclPart
Contained by	MEI.header: editorialDecl

May contain	MEI.shared: p
Declaration	<pre>element stdVals { model.pLike+ }</pre>

<styleName>

<styleName> (style name) – A label for a characteristic style of writing or performance, such as 'bebop' or 'rock-n-roll'.	
Module	MEI.namesdates
Attributes	att.bibl (@analog) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.edit (@cert, @evidence) (att.responsibility (@resp)) (att.source (@source)) att.facsimile (@facs) att.lang (@xml:lang) att.name (@nymref, @role) (att.authorized (@authority, @authURI)) (att.canonical (@dbkey)) att.typed (@type, @subtype)
Used by	model.nameLike.label
Contained by	MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.figtable: td th MEI.harmony: f harm MEI.header: accessRestrict acqSource condition dimensions event exhibHist extent hand inscription language physLoc physMedium plateNum price provenance sysReq term treatHist treatSched useRestrict watermark MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ref MEI.shared: actor addrLine annot bibl caption date dir dynam edition fw identifier label name num p pgFoot pgFoot2 pgHead pgHead2 rend repository role roleDesc stack syl tempo title MEI.text: head item l MEI.usersymbols: anchoredText line
May contain	MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address annot bibl date identifier lb name num pb rend repository stack title
Declaration	<pre>element styleName {</pre>

```
( text | model.textphraseLike | model.editLike | model.transcriptionLike )*
```

<subst>

<subst> (substitution) – Groups transcriptional elements when the combination is to be regarded as a single intervention in the text.

Module	MEI.edittrans
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.edit (@cert, @evidence) (att.responsibility (@resp)) (att.source (@source)) att.trans (att.handident (@hand)) (att.sequence (@seq))
Used by	model.editLike
Contained by	MEI.cmn: beam measure tuplet MEI.critapp: lem rdg MEI.edittrans: abbr add choice corr damage del expan orig reg restore sic supplied unclear MEI.figtable: td th MEI.harmony: f fb harm MEI.header: inscription MEI.namesdates: corpName geogName periodName persName styleName MEI.neumes: ineume syllable uneume MEI.shared: addrLine annot caption chord dir dynam ending fw identifier label layer name note num p part pgFoot pgFoot2 pgHead pgHead2 rend score section staff syl tempo title MEI.text: head item l MEI.usersymbols: anchoredText
May contain	MEI.edittrans: add corr damage del gap handShift orig reg restore sic supplied unclear
Declaration	<pre>element subst { model.transcriptionLike, model.transcriptionLike+ }</pre>

<supplied>

<supplied> – Contains material supplied by the transcriber or editor in place of text which cannot be read, either because of physical damage or loss in the original or because it is illegible for any reason.

Module	MEI.edittrans
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Attributes	att.agentident (@agent) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.edit (@cert, @evidence) (att.responsibility (@resp)) (att.source (@source)) att.facsimile (@fac) att.reasonident (@reason)
Used by	model.substPart model.transcriptionLike
Contained by	MEI.cmn: beam measure tuplet MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic subst supplied unclear MEI.figtable: td th MEI.harmony: f fb harm MEI.header: inscription MEI.namesdates: corpName geogName periodName persName styleName MEI.neumes: ineume syllable uneume MEI.shared: addrLine annot caption chord dir dynam ending fw identifier label layer name note num p part pgFoot pgFoot2 pgHead pgHead2 rend score section staff syl tempo title MEI.text: head item l MEI.usersymbols: anchoredText
May contain	MEI.cmn: arpeg bTrem beam beamSpan beatRpt bend breath fTrem fermata gliss hairpin halfmRpt harpPedal mRest mRpt mRpt2 mSpace measure meterSig multiRest multiRpt octave pedal reh slur tie tuplet tupletSpan MEI.cmnOrnaments: mordent trill turn MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig MEI.harmony: f harm MEI.lyrics: lyrics MEI.mensural: ligature mensur proport MEI.midi: midi MEI.namesdates: corpName geogName periodName persName styleName MEI.neumes: ineume uneume MEI.ptrref: ptr ref MEI.shared: accid address annot artic barLine bibl chord clef clefGrp custos date dir dot dynam identifier keySig layer lb name note num pad pb phrase rend repository rest section space stack staff tempo title MEI.usersymbols: anchoredText curve line symbol
Declaration	<pre> element supplied { (text model.textphraseLike model.eventLike </pre>

```

| model.eventLike.neumes
| model.controleventLike
| model.lyricsLike
| model.midiLike
| model.editLike
| model.transcriptionLike
| model.eventLike.measureFilling
| model.noteModifierLike
| model.sectionLike
| model.measureLike
| model.staffLike
| model.layerLike
| model.graphicprimitiveLike
| model.fLike
|
})*
}

```

<surface>

<surface> – Defines a writing surface in terms of a rectangular coordinate space, optionally grouping one or more graphic representations of that space, and rectangular zones of interest within it.

Module	MEI.facsimile
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.coordinated (@ulx, @uly, @lrx, @lry) att.datapointing (@data) att.declaring (@decls) att.startid (@startid)
Used by	
Contained by	MEI.facsimile: facsimile
May contain	MEI.facsimile: zone MEI.figtable: figDesc graphic
Declaration	<pre>element surface { model.figDescLike*, model.graphicLike*, zone* }</pre>

<syl/>

<syl> (syllable) – Individual lyric syllable.

Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.syl.log (@con, @wordpos) att.syl.vis (att.typography (@fontfam, @fontname, @fontsize, @fontstyle, @fontweight))

	(att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) (att.xy (@x, @y)) (att.horizontalalign (@halign)) att.syl.gesatt.syl.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.syllLike
Contained by	MEI.critapp: lem rdg MEI.lyrics: verse MEI.neumes: syllable MEI.shared: note
May contain	MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre> element syl { (text model.textphraseLike.limited model.editLike model.transcriptionLike) * } </pre>

<syllable>

<syllable> – Neume notation can be thought of as "neumed text". Therefore, the syllable element provides high-level organization in this repertoire.	
Module	MEI.neumes
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id))
Used by	model.syllableLike
Contained by	MEI.critapp: lem rdg MEI.mensural: ligature MEI.shared: layer
May contain	MEI.cmn: arpeg bTrem beam beamSpan beatRpt bend breath fTrem fermata gliss hairpin halfmRpt harpPedal meterSig octave pedal reh slur tie tuplet tupletSpan

	<p>MEI.cmnOrnaments: mordent trill turn</p> <p>MEI.critapp: app</p> <p>MEI.edittrans: add choice corr damage del gap handShift orig reg restore sic subst supplied unclear</p> <p>MEI.harmony: harm</p> <p>MEI.lyrics: lyrics verse</p> <p>MEI.mensural: ligature mensur proport</p> <p>MEI.midi: midi</p> <p>MEI.neumes: ineume uneume</p> <p>MEI.shared: accid annot artic barLine chord clef clefGrp custos dir dot dynam keySig note pad pb phrase rest sb scoreDef space staffDef staffGrp syl tempo</p> <p>MEI.text: div</p> <p>MEI.usersymbols: anchoredText curve line symbol</p>
Declaration	<pre>element syllable { (model.applLike model.divLike model.milestoneLike.music model.scoreDefLike model.staffDefLike model.staffGrpLike model.annotLike model.graphicprimitiveLike model.editLike model.transcriptionLike model.syllablePart)* }</pre>

<symbol>

<symbol/> – A reference to a previously defined symbol.					
Module	MEI.usersymbols				
Attributes	<p>att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.color (@color) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.scalable (@scale) att.startid (@startid) att.typed (@type, @subtype) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.xy (@x, @y)</p> <p>@ref contains a reference to a previously-declared user-defined symbol.</p> <table><tr><td>Status</td><td>Required</td></tr><tr><td>Datatype</td><td>data.URI</td></tr></table>	Status	Required	Datatype	data.URI
Status	Required				
Datatype	data.URI				
Used by	model.graphicprimitiveLike				

Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.figtable: figDesc MEI.harmony: harm MEI.neumes: syllable MEI.shared: dir ending layer part pgDesc score section staff tempo MEI.usersymbols: symbolDef
May contain	Empty element
Declaration	<pre>element symbol { attribute ref { data.URI }, empty }</pre>

<symbolDef>

<symbolDef> (symbol definition) – Declaration of an individual symbol in a symbolTable.	
Module	MEI.usersymbols
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.coordinated (@ulx, @uly, @lrx, @lry)
Used by	
Contained by	MEI.usersymbols: symbolTable
May contain	MEI.usersymbols: anchoredText curve line symbol
Declaration	<pre>element symbolDef { model.graphicprimitiveLike+ }</pre>

<symbolTable>

<symbolTable> – Contains individual, user-defined symbols.	
Module	MEI.usersymbols
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id))
Used by	model.symbolTableLike

Contained by	MEI.shared: scoreDef
May contain	MEI.usersymbols: symbolDef
Declaration	<pre>element symbolTable { symbolDef+ }</pre>

<sysReq>

<sysReq> (system requirements) – System requirements for using the electronic item.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.lang (@xml:lang)
Used by	macro.availabilityPart
Contained by	MEI.header: availability
May contain	MEI.edittrans: abbr expan MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre>element sysReq { (text model.textphraseLike.limited) * }</pre>

<table>

<table> – Contains text displayed in tabular form.	
Module	MEI.figtable
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang) att.xy (@x, @y)
Used by	model.tableLike
Contained by	MEI.figtable: figDesc td th

	MEI.header: event MEI.shared: annot fw p pgDesc pgFoot pgFoot2 pgHead pgHead2 titlePage MEI.text: div item quote
May contain	MEI.figtable: tr MEI.shared: caption
Declaration	<pre>element table { model.captionLike?, tr+, model.captionLike? }</pre>

<td>

<td> (table data) – Designates a table cell that contains data as opposed to a cell that contains column or row heading information.	
Module	MEI.figtable
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang) att.xy (@x, @y) att.tabular (@colspan, @rowspan)
Used by	
Contained by	MEI.figtable: tr
May contain	MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig table MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address annot bibl date identifier lb name num p pb rend repository stack title MEI.text: lg list quote
Declaration	<pre>element td { (text model.textcomponentLike model.textphraseLike model.editLike model.transcriptionLike)* }</pre>

<tempo>

<tempo> – Text and symbols descriptive of tempo, mood, or style, e.g., "allarg.", "a tempo", "cantabile", "Moderato", "♩=60", "Moderato ♩=60").	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) (att.facsimile (@facs) att.lang (@xml:lang) att.tempo.log (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.startid (@startid)) att.tempo.vis (att.placement (@place)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) (att.visualoffset2.ho (@startho, @endho)) (att.visualoffset2.to (@startto, @endto)) (att.xy (@x, @y)) att.tempo.ges (att.miditempo (@midi.tempo)) (att.mmtempo (@mm)) att.tempo.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	macro.workPart model.controleventLike
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.header: relatedItem source work MEI.lyrics: verse MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer
May contain	MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title MEI.usersymbols: anchoredText curve line symbol
Declaration	<pre> element tempo { (text model.textphraseLike.limited model.graphicprimitiveLike model.editLike model.transcriptionLike)* } </pre>

Schematron	<pre> <sch:rule context="mei:tempo[ancestor::mei:meiHead]"> <sch:assert test="not(@*[name() != 'label' and name() != 'n' and name() != 'xml:base' and name() != 'xml:id' and name() != 'xml:lang'])">Only label, n, xml:base, xml:id, and xml:lang attributes allowed when this element occurs in the header.</sch:assert></sch:rule> </pre>
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<term>

<term> – Keyword or phrase which describes a resource.	
Module	MEI.header
Attributes	<p>att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog)</p> <p>@classcode contains a reference to the controlled vocabulary from which the term is drawn. The value must match the value of an ID attribute on a classCode element given elsewhere in the document.</p> <p>Status Optional</p> <p>Datatype data.URI</p>
Used by	
Contained by	MEI.header: term termList
May contain	<p>MEI.edittrans: abbr expan</p> <p>MEI.figtable: fig</p> <p>MEI.header: term</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: address bibl date identifier lb name num rend repository stack title</p>
Declaration	<pre> element term { attribute classcode { data.URI }?, (text term model.textphraseLike.limited) * } </pre>

<termList>

<termList> – Collection of text phrases which describe a resource.	
Module	MEI.header
Attributes	<p>att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog)</p> <p>@classcode contains a reference to the controlled vocabulary from which the terms are drawn. The value must match the value of an ID attribute on a classCode element given elsewhere in the document.</p> <p>Status Optional</p> <p>Datatype data.URI</p>
Used by	
Contained by	MEI.header: classification
May contain	MEI.header: term
Declaration	<pre>element termList { attribute classcode { data.URI }?, term+ }</pre>

<th>

<th> (table header) – Designates a table cell containing column or row heading information as opposed to one containing data.	
Module	MEI.figtable
Attributes	<p>att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang) att.xy (@x, @y) att.tabular (@colspan, @rowspan)</p>
Used by	
Contained by	MEI.figtable: tr
May contain	<p>MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear</p> <p>MEI.figtable: fig table</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: address annot bibl date identifier lb name num p pb rend repository stack title</p> <p>MEI.text: lg list quote</p>

Declaration	<pre> element th { (text model.textcomponentLike model.textphraseLike model.editLike model.transcriptionLike)* }</pre>
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<tie>

<tie/> – An indication that two notes of the same pitch form a single note with their combined rhythmic values.	
Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.typed (@type, @subtype) att.tie.log (att.controlevent (att.plist (@plist, @evaluate))) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.startendid (@endid) (att.startid (@startid)))) (att.duration.timestamp (@dur)) att.tie.vis (att.color (@color)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)))) (att.visualoffset2 (att.visualoffset2.ho (@startho, @endho)) (att.visualoffset2.to (@startto, @endto)) (att.visualoffset2.vo (@startvo, @endvo)))) (att.xy (@x, @y)) (att.xy2 (@x2, @y2)) (att.curvature (@bezier, @bulge, @curvedir)) (att.curverend (@rend)) att.tie.gesatt.tie.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))))
Used by	model.controleventLike.cmn
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer
May contain	Empty element
Declaration	<pre> element tie { empty }</pre>

Schematron	<pre><sch:rule context="mei:tie"> <sch:assert test="@startid or @tstamp or @tstamp.ges or @tstamp.real"> Must have one of the attributes: startid, tstamp, tstamp.ges or tstamp.real</sch:assert> <sch:assert test="@endid or @dur">Must have one of the attributes: dur or endid</sch:assert></sch:rule></pre>
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<timeline>

<timeline> – Provides a set of ordered points in time to which musical elements can be linked in order to create a temporal alignment of those elements.	
Module	MEI.linkalign
Attributes	<p>att.common (@label, @n, @xml:base) (att.id (@xml:id))</p> <p>@avref holds the identifier of an <avFile> element that references an external digital media file. Status Optional Datatype data.URI</p> <p>@origin designates the origin of the timeline, i.e. the <when> element associated with the beginning of the timeline. Status Required Datatype data.URI</p>
Used by	model.alignLike
Contained by	MEI.shared: music scoreDef
May contain	MEI.linkalign: when
Declaration	<pre>element timeline { attribute avref { data.URI }?, attribute origin { data.URI }, when* }</pre>

<title>

<title> – Title of a bibliographic entity.					
Module	MEI.shared				
Attributes	<p>att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang) att.name (@nymref, @role) (att.authorized (@authority, @authURI)) (att.canonical (@dbkey)) att.typed (@type, @subtype)</p> <p>@level indicates the bibliographic level for a title.</p> <table> <tr> <td>Status</td><td>Optional</td></tr> <tr> <td>Legal values are:</td><td> <p>a article.</p> <p>m monograph.</p> <p>j journal.</p> <p>s series.</p> <p>u unpublished (including theses and dissertations unless published by a commercial press).</p> </td></tr> </table>	Status	Optional	Legal values are:	<p>a article.</p> <p>m monograph.</p> <p>j journal.</p> <p>s series.</p> <p>u unpublished (including theses and dissertations unless published by a commercial press).</p>
Status	Optional				
Legal values are:	<p>a article.</p> <p>m monograph.</p> <p>j journal.</p> <p>s series.</p> <p>u unpublished (including theses and dissertations unless published by a commercial press).</p>				
Used by	model.titleLike				
Contained by	<p>MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear</p> <p>MEI.figtable: td th</p> <p>MEI.harmony: f harm</p> <p>MEI.header: accessRestrict acqSource condition dimensions event exhibHist extent hand inscription language physLoc physMedium plateNum price provenance seriesStmt sysReq term titleStmt treatHist treatSched useRestrict watermark</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ref</p> <p>MEI.shared: actor addrLine annot bibl caption date dir dynam edition fw identifier label name num p pgFoot pgFoot2 pgHead pgHead2 rend repository role roleDesc stack syl tempo title</p> <p>MEI.text: head item l</p> <p>MEI.usersymbols: anchoredText line</p>				
May contain	<p>MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear</p> <p>MEI.figtable: fig</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.ptrref: ptr ref</p>				

	MEI.shared: address annot bibl date identifier lb name num pb rend repository stack title
Declaration	<pre> element title { attribute level { "a" "m" "j" "s" "u" }?, (text model.textphraseLike model.editLike model.transcriptionLike) * } </pre>

<titlePage>

<titlePage> – Contains a transcription of the title page of a text.	
Module	MEI.shared
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang)
Used by	model.frontPart
Contained by	MEI.header: physDesc MEI.text: back front
May contain	MEI.figtable: table MEI.shared: lb p pb MEI.text: lg list quote
Declaration	<pre> element titlePage { (model.textcomponentLike model.milestoneLike.text)+ } </pre>

<titleStmt>

<titleStmt> (title statement) – Container for title and responsibility meta-data.	
Module	MEI.header
Attributes	att.bibl (@analog) att.common (@label, @n, @xml:base) (att.id (@xml:id))
Used by	
Contained by	MEI.header: fileDesc relatedItem source work
May contain	MEI.header: respStmt

	MEI.shared: title
Declaration	<pre>element titleStmt { model.titleLike+, respStmt* }</pre>

<tr>

<tr> (table row) – A formatting element that contains one or more cells (intersection of a row and a column) in a <table>.	
Module	MEI.figtable
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang) att.xy (@x, @y)
Used by	
Contained by	MEI.figtable: table
May contain	MEI.figtable: td th
Declaration	<pre>element tr { (th td)+ }</pre>

<treatHist>

<treatHist> (treatment history) – A record of the treatment the item has undergone (e.g., de-acidification, restoration, etc.).	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog)
Used by	model.physDescPart
Contained by	MEI.header: physDesc
May contain	MEI.edittrans: abbr expan MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title

Declaration	<pre>element treatHist { (text model.textphraseLike.limited) * }</pre>
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<treasched>

<treasched> (treatment scheduled) – Scheduled treatment, e.g. de-acidification, restoration, etc., for an item.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog)
Used by	model.physDescPart
Contained by	MEI.header: physDesc
May contain	MEI.edittrans: abbr expan MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre>element treatSched { (text model.textphraseLike.limited) * }</pre>

<trill>

<trill/> – Rapid alternation of a note with one (usually at the interval of a second) above.	
Module	MEI.cmnOrnaments
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.trill.log (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@timestamp)) (att.timestamp.performed (@timestamp.ges, @timestamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.startendid (@endid) (att.startid (@startid))) (att.ornamentaccid (@accidupper, @accidlower)) (att.duration.timestamp (@dur)) att.trill.vis (att.color (@color)) (att.placement (@place)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) (att.visualoffset2.ho (@startho, @endho)) (att.visualoffset2.to (@startto, @endto)) (att.xy (@x, @y)) att.trill.ges (att.duration.performed (@dur.ges)) att.trill.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.ornamentLike.cmn

Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer
May contain	Empty element
Declaration	<pre>element trill { empty }</pre>
Schematron	<pre><sch:rule context="mei:trill"> <sch:assert test="@startid or @tstamp or @tstamp.ges or @tstamp.real"> Must have one of the attributes: startid, tstamp, tstamp.ges or tstamp.real</sch:assert></sch:rule></pre>

<trkName>

<trkName> (track name) – MIDI track/sequence name.	
Module	MEI.midi
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.midi.event (att.staffident (@staff)) (att.layerident (@layer)) (att.timestamp.musical (@tstamp))
Used by	
Contained by	MEI.midi: midi
May contain	Character data only
Declaration	<pre>element trkName { text }</pre>

<tuplet>

<tuplet> – A group of notes with "irregular" (sometimes called "irrational") rhythmic values, for example, three notes in the time normally occupied by two or nine in the time of five.	
Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.tuplet.log (@dur) (att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.beamedwith (@beam.with)) (att.augmentdots (@dots)) (att.duration.ratio (@num, @numbase)) (att.startendid (@endid) (att.startid (@startid))) att.tuplet.vis (@bracket.place, @bracket.visible, @dur.visible, @num.format) (att.numberplacement (@num.place, @num.visible)) att.tuplet.ges (att.duration.performed (@dur.ges)) att.tuplet.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))))
Used by	model.eventLike.cmn
Contained by	MEI.cmn: beam tuplet MEI.critapp: lem rdg MEI.edittrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: ineume syllable uneume MEI.shared: layer
May contain	MEI.cmn: bTrem beam beatRpt fTrem halfmRpt meterSig tuplet MEI.critapp: app MEI.edittrans: add choice corr damage del gap handShift orig reg restore sic subst supplied unclear MEI.mensural: ligature mensur proport MEI.shared: barLine chord clef clefGrp custos keySig note pad rest space
Declaration	<pre> element tuplet { (model.eventLike model.applike model.editLike model.transcriptionLike) * } </pre>

<tupletSpan>

<tupletSpan/> (tuplet span) – Alternative element for encoding tuplets, especially useful for tuplets that extend across bar lines.

Module	MEI.cmn
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.tupletSpan.log (@dur) (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.beamedwith (@beam.with)) (att.augmentdots (@dots)) (att.duration.ratio (@num, @numbase)) (att.startendid (@endid) (att.startid (@startid))) att.tupletSpan.vis (att.tuplet.vis (@bracket.place, @bracket.visible, @dur.visible, @num.format) (att.numberplacement (@num.place, @num.visible))) att.tupletSpan.ges (att.tuplet.ges (att.duration.performed (@dur.ges))) att.tupletSpan.anl (att.tuplet.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))))
Used by	model.controleventLike.cmn
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.edittans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer
May contain	Empty element
Declaration	<pre>element tupletSpan { empty }</pre>
Schematron	<pre><sch:rule context="mei:tupletSpan"> <sch:assert test="@startid or @tstamp or @tstamp.ges or @tstamp.real">Must have one of the attributes: startid, tstamp, tstamp.ges or tstamp.real</sch:assert> <sch:assert test="@endid or @dur">Must have one of the attributes: dur or endid</sch:assert></sch:rule></pre>

<turn>

<turn/> – An ornament consisting of four notes — the upper neighbor of the written note, the written note, the lower neighbor, and the written note.

Module	MEI.cmnOrnaments
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.turn.log (@delayed, @form) (att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp))

	(att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.ornamentaccid (@accidupper, @accidlower)) (att.startid (@startid)) att.turn.vis (att.color (@color)) (att.placement (@place)) (att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))) (att.xy (@x, @y)) att.turn.ges att.turn.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))))
Used by	model.ornamentLike.cmn
Contained by	MEI.cmn: measure MEI.critapp: lem rdg MEI.editrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: syllable MEI.shared: layer
May contain	Empty element
Declaration	<pre>element turn { empty }</pre>

<unclear>

<unclear> – Contains material that cannot be transcribed with certainty because it is illegible or inaudible in the source.	
Module	MEI.editrans
Attributes	att.agentident (@agent) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.edit (@cert, @evidence) (att.responsibility (@resp)) (att.source (@source)) att.facsimile (@facs) att.handident (@hand) att.reasonident (@reason)
Used by	model.choicePart model.transcriptionLike
Contained by	MEI.cmn: beam measure tuple MEI.critapp: lem rdg MEI.editrans: abbr add choice corr damage del expan orig reg restore sic subst supplied unclear MEI.figtable: td th MEI.harmony: f fb harm MEI.header: inscription MEI.namesdates: corpName geogName periodName persName styleName MEI.neumes: ineume syllable uneume MEI.shared: addrLine annot caption chord dir dynam ending fw identifier label layer name note num p part pgFoot pgFoot2 pgHead pgHead2 rend score section staff syl tempo title MEI.text: head item l MEI.usersymbols: anchoredText

May contain	<p>MEI.cmn: arpeg bTrem beam beamSpan beatRpt bend breath fTrem fermata gliss hairpin halfmRpt harpPedal mRest mRpt mRpt2 mSpace measure meterSig multiRest multiRpt octave pedal reh slur tie tuplet tupletSpan</p> <p>MEI.cmnOrnaments: mordent trill turn</p> <p>MEI.edittrans: abbr add choice corr damage del expan gap handShift orig reg restore sic subst supplied unclear</p> <p>MEI.figtable: fig</p> <p>MEI.harmony: f harm</p> <p>MEI.lyrics: lyrics</p> <p>MEI.mensural: ligature mensur proport</p> <p>MEI.midi: midi</p> <p>MEI.namesdates: corpName geogName periodName persName styleName</p> <p>MEI.neumes: ineume uneume</p> <p>MEI.ptrref: ptr ref</p> <p>MEI.shared: accid address annot artic barLine bibl chord clef clefGrp custos date dir dot dynam identifier keySig layer lb name note num pad pb phrase rend repository rest section space stack staff tempo title</p> <p>MEI.usersymbols: anchoredText curve line symbol</p>
Declaration	<pre> element unclear { (text model.textphraseLike model.eventLike model.eventLike.neumes model.controleventLike model.lyricsLike model.midiLike model.editLike model.transcriptionLike model.eventLike.measureFilling model.noteModifierLike model.sectionLike model.measureLike model.staffLike model.layerLike model.graphicprimitiveLike model.fLike)* } </pre>

<uneume>

<uneume> (uninterrupted neume) – A graphically-uninterrupted neume sign.	
Module	MEI.neumes

Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.typed (@type, @subtype) att.uneume.log (@form, @name) (att.event (att.timestamp.musical (@timestamp)) (att.timestamp.performed (@timestamp.ges, @timestamp.real)) (att.staffident (@staff)) (att.layerident (@layer))) (att.syltext (@syl)) att.uneume.vis (att.altsym (@altsym)) (att.color (@color)) (att.relativeSize (@size)) (att.visualoffset.ho (@ho)) (att.xy (@x, @y)) (att.visibility (@visible)) att.uneume.gesatt.uneume.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))) (att.harmonicfunction (@hfunc)) (att.melodicfunction (@mfunc)) (att.intervallidesc (@intm) (att.intervalharmonic (@inth))) (att.solfa (@psolfa))
Used by	model.eventLike.neumes
Contained by	MEI.critapp: lem rdg MEI.editrans: abbr add corr damage del expan orig reg restore sic supplied unclear MEI.mensural: ligature MEI.neumes: ineume syllable MEI.shared: layer
May contain	MEI.cmn: bTrem beam beatRpt fTrem halfmRpt meterSig tuplet MEI.critapp: app MEI.editrans: add choice corr damage del gap handShift orig reg restore sic subst supplied unclear MEI.lyrics: verse MEI.mensural: ligature mensur proport MEI.shared: barLine chord clef clefGrp custos keySig note pad rest space
Declaration	<pre> element uneume { (model.eventLike macro.neumeModifierLike model.applike model.editLike model.transcriptionLike model.verseLike) * } </pre>

<unpub>

<unpub> (unpublished) – Used to explicitly indicate that a bibliographic resource is unpublished.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog)
Used by	

Contained by	MEI.header: pubStmt
May contain	Character data only
Declaration	<pre>element unpub { text }</pre>

<useRestrict>

<useRestrict> (usage restrictions) – Container for information about the conditions that affect use of a bibliographic item after access has been granted.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog)
Used by	macro.availabilityPart
Contained by	MEI.header: availability
May contain	MEI.edittrans: abbr expn MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre>element useRestrict { (text model.textphraseLike.limited) * }</pre>

<vel/>

<vel/> (velocity) – MIDI Note-on/off velocity.	
Module	MEI.midi
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.midi.event (att.staffident (@staff)) (att.layerident (@layer)) (att.timestamp.musical (@tstamp)) att.midinumber (@num) @form indicates whether this is note-on or note-off velocity data. <div style="display: flex; justify-content: space-between;">StatusRequired</div>

	<p>Legal values are: on off</p>
Used by	
Contained by	MEI.midi: midi
May contain	Empty element
Declaration	<pre>element vel { attribute form { "on" "off" }, empty }</pre>

<verse>

<verse> – Lyric verse.	
Module	MEI.lyrics
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.facsimile (@facs) att.lang (@xml:lang) att.verse.log (@refrain, @rhythm) att.verse.vis (att.typography (@fontfam, @fontname, @fontsize, @fontstyle, @fontweight)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) (att.xy (@x, @y)) att.verse.gesatt.verse.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)))
Used by	model.verseLike
Contained by	MEI.critapp: lem rdg MEI.lyrics: lyrics MEI.neumes: ineume syllable uneume MEI.shared: note
May contain	MEI.shared: dir dynam lb space syl tempo
Declaration	<pre>element verse { (dir dynam tempo space)*, model.syllLike+, model.lbLike* }</pre>

<watermark>

<watermark> – Contains a description of a watermark or similar device.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog) att.facsimile (@fac)
Used by	model.physDescPart
Contained by	MEI.header: physDesc
May contain	MEI.edittrans: abbr expan MEI.figtable: fig MEI.namesdates: corpName geogName periodName persName styleName MEI.ptrref: ptr ref MEI.shared: address bibl date identifier lb name num rend repository stack title
Declaration	<pre>element watermark { (text model.textphraseLike.limited) * }</pre>

<when>

<when/> – Indicates a point in time either absolutely (using the absolute attribute), or relative to other elements in the same timeline element (using the interval and since attributes).	
Module	MEI.linkalign
Attributes	<p>att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.datapointing (@data)</p> <p>@absolute provides an absolute value for the time associated with a point on a timeline. This attribute is required for the element designated as the origin by the parent timeline.</p> <p>Status Optional</p> <p>Datatype data.ISOTIME</p> <p>@interval specifies the time interval between this time point and the one designated by the since attribute. This attribute can only be interpreted meaningfully in conjunction with the inttype attribute.</p> <p>Status Optional</p> <p>@inttype specifies the kind of values used in the interval attribute.</p> <p>Status Optional</p>

	<p>Legal values are:</p> <ul style="list-style-type: none"> byte byte value. smil Synchronized Multimedia Integration Language. midi MIDI time code. smpte-25 SMPTE 25 EBU. smpte-24 SMPTE 24 Film Sync. smpte-df30 SMPTE 30 Drop. smpte-ndf30 SMPTE 30 Non-Drop. smpte-df29.97 SMPTE 29.97 Drop. smpte-ndf29.97 SMPTE 29.97 Non-Drop. tcf AES Time-code character format. time ISO 24-hour time format: HH:MM:SS.ss. <p>@since identifies the reference point for determining the time of the current when element, which is obtained by adding the interval to the time of the reference point. The value should be the ID of another when element in the same timeline. If the since attribute is omitted and the absolute attribute is not specified, then the reference point is understood to be the immediately preceding when element.</p> <p>Status Optional</p> <p>Datatype data.URI</p>
Used by	
Contained by	MEI.linkalign: timeline
May contain	Empty element
Declaration	<pre> element when { </pre>

```

attribute absolute { data.ISOTIME }?,
attribute interval { text }?,
attribute inttype
{
  "byte"
  | "smil"
  | "midi"
  | "smpte-25"
  | "smpte-24"
  | "smpte-df30"
  | "smpte-ndf30"
  | "smpte-df29.97"
  | "smpte-ndf29.97"
  | "tcf"
  | "time"
}?,
attribute since { data.URI }?,
empty
}

```

<work>

<work> – Provides a detailed description of the non-bibliographic aspects of a text, specifically its history, language use, and high-level musical attributes: key, tempo, meter, and medium of performance.

Module	MEI.header
Attributes	att.datapointing (@data) att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.bibl (@analog)
Used by	
Contained by	MEI.header: workDesc
May contain	MEI.header: classification contents history key langUsage mensuration meter notesStmt perfMedium relatedItem titleStmt MEI.shared: identifier incip tempo
Declaration	<pre> element work { model.identifierLike*, titleStmt?, macro.workPart, notesStmt?, classification?, model.inciplike?, contents?, relatedItem* } </pre>

<workDesc>

<workDesc> (work description) – Grouping mechanism for information describing non-bibliographic aspects of a text.	
Module	MEI.header
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id))
Used by	model.headerPart
Contained by	MEI.header: meiHead
May contain	MEI.header: work
Declaration	<pre>element workDesc { work+ }</pre>

<zone>

<zone> – Defines an area of interest within a surface or graphic file.	
Module	MEI.facsimile
Attributes	att.common (@label, @n, @xml:base) (att.id (@xml:id)) att.coordinated (@ulx, @uly, @lrx, @lry) att.datapointing (@data)
Used by	
Contained by	MEI.facsimile: surface MEI.figtable: graphic
May contain	MEI.figtable: figDesc graphic
Declaration	<pre>element zone { model.figDescLike*, model.graphicLike* }</pre>

Schema mei: Model classes

model.addressLike

model.addressLike groups elements used to represent a postal address.	
Module	MEI.shared
Used by	model.pubStmtPart model.textphraseLike model.textphraseLike.limited
Members	address

model.alignLike

model.alignLike groups elements that are used for temporal alignment.	
Module	MEI.linkalign
Used by	music scoreDef
Members	timeline

model.annotLike

model.annotLike groups annotation-like elements.	
Module	MEI.shared
Used by	ending figDesc layer lem measure model.textphraseLike notesStmt part pgDesc rdg score section staff syllable
Members	annot

model.appLike

model.appLike groups elements that contain a critical apparatus entry.	
Module	MEI.critapp
Used by	beam ending fw ineume layer lem measure note part pgFoot pgFoot2 pgHead pgHead2 rdg score section staff syllable tuplet uneume
Members	app

model.backLike

model.backLike groups elements that may contain back matter.	
Module	MEI.text
Used by	macro.musicPart
Members	back

model.biblLike

model.biblLike groups elements containing a bibliographic description.	
Module	MEI.shared
Used by	model.textphraseLike model.textphraseLike.limited quote
Members	bibl

model.biblPart

model.biblPart groups elements that may appear as part of a bibliographic description.	
Module	MEI.shared
Used by	bibl
Members	model.editionLike [edition]

model.captionLike

model.captionLike groups elements that contain the text of a caption or other text displayed along with a figure.	
Module	MEI.shared
Used by	fig table
Members	caption

model.choicePart

model.choicePart groups elements that may appear as part of the content of a choice element.	
Module	MEI.edittrans

Used by	choice
Members	model.editorialLike [abbr expan] model.editLike [choice subst] corr orig reg sic unclear

model.chordTableLike

model.chordTableLike groups elements that group playable chord definitions.	
Module	MEI.harmony
Used by	scoreDef
Members	chordTable

model.controleventLike

model.controleventLike groups elements, such as dynamics, ties, phrase marks, pedal marks, etc., which depend upon other events, such as notes or rests, for their existence.	
Module	MEI.shared
Used by	abbr add corr damage del expan model.layerPart.mensural model.measurePart model.rdgPart.critapp model.syllablePart orig reg restore sic supplied unclear
Members	model.controleventLike.cmnn [model.ornamentLike.cmnn [mordent trill turn] arpeg beamSpan breath fermata hairpin harpPedal octave pedal reh slur tie tupletSpan] model.controleventLike.harmony [model.harmLike [harm]] dir dynam phrase tempo bend gliss

model.controleventLike.cmnn

model.controleventLike.cmnn groups control events that appear in CMN.	
Module	MEI.cmnn
Used by	model.controleventLike
Members	model.ornamentLike.cmnn [mordent trill turn] arpeg beamSpan breath fermata hairpin harpPedal octave pedal reh slur tie tupletSpan

model.controleventLike.harmony

model.controleventLike.harmony groups elements that function as control events; that is, those events that modify or otherwise depend on the existence of notated events.	
Module	MEI.harmony

Used by	model.controleventLike
Members	model.harmLike [harm]

model.dateLike

model.dateLike groups elements containing date expressions.	
Module	MEI.shared
Used by	change model.pubStmtPart model.textphraseLike model.textphraseLike.limited
Members	date

model.divLike

model.divLike groups elements used to represent generic structural divisions of text.	
Module	MEI.text
Used by	back div ending front layer lem measure part rdg score section staff syllable
Members	div

model.editLike

model.editLike groups elements for editorial interventions that may be useful both in transcribing and in authoring.	
Module	MEI.edittrans
Used by	abbr add addrLine anchoredText annot beam caption chord corpName corr damage del dir dynam ending expan f fb fw geogName harm head identifier ineume inscription item l label layer lem measure model.choicePart model.paracontentPart name note num orig part periodName persName pgFoot pgFoot2 pgHead pgHead2 rdg reg rend restore score section sic staff styleName supplied syl syllable td tempo th title tuplet unclear uneume
Members	choice subst

model.editionLike

model.editionLike groups elements containing bibliographic edition information.	
Module	MEI.shared
Used by	editionStmt model.biblPart

Members	edition
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model.editorialDeclPart

model.editorialDeclPart groups elements that may appear as part of a description of the editorial process applied to the encoding of notation.	
Module	MEI.header
Used by	editorialDecl
Members	correction interpretation normalization segmentation stdVals

model.editorialLike

model.editorialLike groups editorial intervention elements.	
Module	MEI.shared
Used by	model.choicePart model.textphraseLike model.textphraseLike.limited
Members	abbr expansion

model.encodingPart

model.encodingPart groups elements that may appear as part of information regarding the encoding process.	
Module	MEI.header
Used by	encodingDesc
Members	appInfo editorialDecl projectDesc samplingDecl

model.endingLike

model.endingLike groups elements that represent alternative endings.	
Module	MEI.shared
Used by	model.scorePart model.sectionPart
Members	ending

model.eventLike

model.eventLike groups event elements that occur in all notational repertoires.	
Module	MEI.shared
Used by	abbr add beam corr damage del expan ineume model.layerPart model.rdgPart.critapp model.syllablePart orig reg restore sic supplied tuplet unclear uneume
Members	model.keySigLike [keySig] model.meterSigLike [meterSig] model.eventLike.cmn [beam beatRpt bTrem fTrem halfmRpt tuplet] model.eventLike.mensural [mensur proport ligature] barLine chord clef clefGrp custos note pad rest space

model.eventLike.cmn

model.eventLike.cmn groups events that appear in CMN.	
Module	MEI.cmn
Used by	model.eventLike
Members	beam beatRpt bTrem fTrem halfmRpt tuplet

model.eventLike.measureFilling

model.eventLike.measureFilling groups events that appear in CMN and that completely fill a measure.	
Module	MEI.cmn
Used by	abbr add corr damage del expan model.layerPart.cmn model.rdgPart.critapp orig reg restore sic supplied unclear
Members	mRest mRpt mRpt2 mSpace multiRest multiRpt

model.eventLike.mensural

model.eventLike.mensural groups event elements that occur in the mensural repertoire.	
Module	MEI.mensural
Used by	model.eventLike
Members	mensur proport ligature

model.eventLike.neumes

model.eventLike.neumes groups event elements that occur in the neume repertoire.	
Module	MEI.neumes
Used by	abbr add corr damage del expan ineume model.layerPart.neumes model.rdgPart.critapp model.syllablePart orig reg restore sic supplied unclear
Members	ineume uneume

model.fLike

model.fLike groups elements that represent single figured bass elements.	
Module	MEI.harmony
Used by	abbr add corr damage del expan fb orig reg restore sic supplied unclear
Members	f

model.figDescLike

model.figDescLike groups elements that provide a brief prose description of the appearance or content of a graphic figure.	
Module	MEI.figtable
Used by	surface zone
Members	figDesc

model.figbassLike

model.figbassLike groups elements that record figured bass.	
Module	MEI.harmony
Used by	harm
Members	fb

model.figureLike

model.figureLike groups elements representing or containing graphic information such as an illustration or figure.	
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Module	MEI.figtable
Used by	model.textphraseLike model.textphraseLike.limited
Members	fig

model.frontLike

model.frontLike groups elements that may contain front matter.

Module	MEI.text
Used by	macro.musicPart
Members	front

model.frontPart

model.frontPart groups elements that may appear as part of front matter.

Module	MEI.header
Used by	back front model.physDescPart
Members	titlePage

model.graphicLike

model.graphicLike groups elements that indicate the location of an inline graphic, illustration, or figure.

Module	MEI.figtable
Used by	fig incip surface zone
Members	graphic

model.graphicprimitiveLike

model.graphicprimitiveLike groups elements that function as drawing primitives.

Module	MEI.usersymbols
Used by	abbr add corr damage del dir ending expan figDesc harm layer lem measure orig part pgDesc rdg reg restore score section sic staff supplied syllable symbolDef tempo unclear
Members	anchoredText curve line symbol

model.harmLike

model.harmLike groups elements that record harmony.	
Module	MEI.harmony
Used by	model.controleventLike.harmony
Members	harm

model.headLike

model.headLike groups elements used to provide a heading at the start of a text division.	
Module	MEI.text
Used by	castList contents div eventList history instrVoiceGrp lg list perfMedium
Members	head

model.headerPart

model.headerPart groups elements that may appear as part of the MEI header.	
Module	MEI.header
Used by	meiHead
Members	encodingDesc workDesc

model.identifierLike

model.identifierLike groups identifier-like elements.	
Module	MEI.shared
Used by	model.pubStmtPart model.textphraseLike model.textphraseLike.limited relatedItem seriesStmt source work
Members	identifier

model.incipLike

model.incipLike groups elements used to represent a textual or musical incipit.	
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Module	MEI.shared
Used by	relatedItem source work
Members	incip

model.instrDefLike

model.instrDefLike groups elements used to declare a MIDI instrument.

Module	MEI.shared
Used by	instrGrp layerDef staffDef staffGrp
Members	instrDef

model.keyAccidLike

model.keyAccidLike groups elements that represent accidentals in a key signature.

Module	MEI.shared
Used by	keySig
Members	keyAccid

model.keySigLike

model.keySigLike groups elements that have the same function as a key signature.

Module	MEI.shared
Used by	model.eventLike model.staffDefPart scoreDef
Members	keySig

model.lLike

model.lLike groups elements representing metrical components such as verse lines.

Module	MEI.text
Used by	lg
Members	l

model.labelLike

model.labelLike groups elements used to assign a label to other parts of a document.	
Module	MEI.shared
Used by	contents grpSym layerDef staffDef staffGrp
Members	label

model.layerDefLike

model.layerDefLike groups elements that permit declaration of layer properties.	
Module	MEI.shared
Used by	staffDef
Members	layerDef

model.layerLike

model.layerLike groups elements that function as notational layers within a staff.	
Module	MEI.shared
Used by	abbr add corr damage del expan model.rdgPart.critapp model.staffPart orig ossia reg restore sic supplied unclear
Members	layer

model.layerPart

model.layerPart groups notated events that may appear at the layer level in all repertoires.	
Module	MEI.shared
Used by	layer ligature
Members	model.eventLike [model.keySigLike [keySig] model.meterSigLike [meterSig] model.eventLike.cmn [beam beatRpt bTrem fTrem halfmRpt tuplet] model.eventLike.mensural [mensur proport ligature] barLine chord clef clefGrp custos note pad rest space] model.layerPart.cmn [model.eventLike.measureFilling [mRest mRpt mRpt2 mSpace multiRest multiRpt]] model.layerPart.mensuralAndNeumes [model.scoreDefLike [scoreDef] model.staffDefLike [staffDef] model.layerPart.mensural [model.controleventLike [model.controleventLike.cmn [model.ornamentLike.cmn [mordent trill turn] arpeg beamSpan breath fermata hairpin harpPedal octave pedal reh slur tie tupletSpan] model.controleventLike.harmony [model.harmLike [harm]]] dir

[dynam](#) [phrase](#) [tempo](#) [bend](#) [gliss](#)] [model.noteModifierLike](#) [[accid](#) [artic](#) [dot](#)] [model.lyricsLike](#) [[lyrics](#)]]
[model.layerPart.neumes](#) [[model.eventLike.neumes](#) [[ineume](#) [uneume](#)] [model.syllableLike](#) [[syllable](#)]]
[model.midiLike](#) [[midi](#)]]

model.layerPart.cmn

model.layerPart.cmn groups notated events that may appear at the layer level in CMN.

Module	MEI.cmn
Used by	model.layerPart
Members	model.eventLike.measureFilling [mRest mRpt mRpt2 mSpace multiRest multiRpt]

model.layerPart.mensural

model.layerPart.mensural groups notated events that may appear at the layer level in the mensural repertoire.

Module	MEI.mensural
Used by	model.layerPart.mensuralAndNeumes
Members	model.controleventLike [model.controleventLike.cmn [model.ornamentLike.cmn [mordent trill turn] arpeg beamSpan breath fermata hairpin harpPedal octave pedal reh slur tie tupleSpan] model.controleventLike.harmony [model.harmLike [harm]] dir dynam phrase tempo bend gliss] model.noteModifierLike [accid artic dot] model.lyricsLike [lyrics]

model.layerPart.mensuralAndNeumes

model.layerPart.mensuralAndNeumes groups notated events that may appear at the layer level in the mensural and neume repertoires.

Module	MEI.shared
Used by	model.layerPart
Members	model.scoreDefLike [scoreDef] model.staffDefLike [staffDef] model.layerPart.mensural [model.controleventLike [model.controleventLike.cmn [model.ornamentLike.cmn [mordent trill turn] arpeg beamSpan breath fermata hairpin harpPedal octave pedal reh slur tie tupleSpan] model.controleventLike.harmony [model.harmLike [harm]] dir dynam phrase tempo bend gliss] model.noteModifierLike [accid artic dot] model.lyricsLike [lyrics]] model.layerPart.neumes [model.eventLike.neumes [ineume uneume] model.syllableLike [syllable]] model.midiLike [midi]

model.layerPart.neumes

model.layerPart.neumes groups notated events that may appear at the layer level in the neume repertoire.

Module	MEI.neumes
Used by	model.layerPart.mensuralAndNeumes
Members	model.eventLike.neumes [ineume uneume] model.syllableLike [syllable]

model.lbLike

model.lbLike groups elements that function like line breaks.

Module	MEI.shared
Used by	altId classCode model.milestoneLike.text model.textphraseLike.limited reh verse
Members	lb

model.lgLike

model.lgLike groups elements that have a line-grouping function.

Module	MEI.text
Used by	incipText lg model.textcomponentLike
Members	lg

model.listLike

model.listLike groups list-like elements.

Module	MEI.text
Used by	event model.paracontentPart model.textcomponentLike
Members	list

model.locrefLike

model.locrefLike groups elements used for purposes of location and reference.

Module	MEI.ptrref
Used by	application model.textphraseLike model.textphraseLike.limited pgDesc
Members	ptr ref

model.lyricsLike

model.lyricsLike groups elements that represent sung text.	
Module	MEI.lyrics
Used by	abbr add corr damage del expn model.layerPart.mensural model.measurePart model.rdgPart.critapp model.syllablePart orig reg restore sic supplied unclear
Members	lyrics

model.mdivLike

model.mdivLike groups elements used to represent generic structural divisions of music notation.	
Module	MEI.shared
Used by	body mdiv
Members	mdiv

model.measureLike

model.measureLike groups measure-like elements.	
Module	MEI.cmn
Used by	abbr add corr damage del expn model.sectionPart.cmn orig reg restore sic supplied unclear
Members	measure

model.measurePart

model.measurePart groups elements that may appear as part of a measure.	
Module	MEI.cmn
Used by	measure
Members	model.controleventLike [model.controleventLike.cmn [model.ornamentLike.cmn [mordent trill turn] arpeg beamSpan breath fermata hairpin harpPedal octave pedal reh slur tie tupletSpan] model.controleventLike.harmony [model.harmLike [harm]] dir dynam phrase tempo bend gliss] model.staffLike [staff] model.ossiaLike [ossia] model.lyricsLike [lyrics] model.midiLike [midi]

model.measurementLike

model.measurementLike groups elements that represent a measurement.	
Module	MEI.shared
Used by	model.textphraseLike model.textphraseLike.limited
Members	model.numLike [num]

model.metaLike.score

model.metaLike.score groups meta-data elements that may appear in running headers or footers of a score.	
Module	MEI.shared
Used by	scoreDef
Members	pgHead pgHead2 pgFoot pgFoot2

model.meterSigLike

model.meterSigLike groups elements that represent a meter signature.	
Module	MEI.shared
Used by	model.eventLike model.staffDefPart scoreDef
Members	meterSig

model.midiLike

model.midiLike groups elements which group MIDI-like elements.	
Module	MEI.midi
Used by	abbr add corr damage del expan model.layerPart.mensuralAndNeumes model.measurePart model.rdgPart.critapp model.syllablePart orig reg restore sic supplied unclear
Members	midi

model.milestoneLike.music

model.milestoneLike.music groups milestone-style elements found in music notation.	
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Module	MEI.shared
Used by	ending layer lem measure part rdg score section staff syllable
Members	model.pbLike [pb] sb

model.milestoneLike.text

model.milestoneLike.text groups milestone-style elements found in text.	
Module	MEI.shared
Used by	back div front model.textphraseLike titlePage
Members	model.lbLike [lb] model.pbLike [pb]

model.nameLike

model.nameLike groups elements that contain names.	
Module	MEI.shared
Used by	application model.textphraseLike model.textphraseLike.limited respStmt
Members	name

model.nameLike.agent

model.nameLike.agent groups elements which contain names of individuals or corporate bodies.	
Module	MEI.namesdates
Used by	model.textphraseLike model.textphraseLike.limited respStmt
Members	corpName persName

model.nameLike.geogName

model.nameLike.geogName groups geographic name elements.	
Module	MEI.namesdates
Used by	model.nameLike.place model.pubStmtPart
Members	geogName

model.nameLike.label

model.nameLike.label groups elements that serve as stylistic labels.	
Module	MEI.namesdates
Used by	model.textphraseLike model.textphraseLike.limited
Members	periodName styleName

model.nameLike.place

model.nameLike.place groups place name and repository elements.	
Module	MEI.namesdates
Used by	model.textphraseLike model.textphraseLike.limited
Members	model.repositoryLike [repository] model.nameLike.geogName [geogName]

model.noteModifierLike

model.noteModifierLike groups elements that modify note-like features.	
Module	MEI.shared
Used by	abbr add corr damage del expan model.layerPart.mensural model.rdgPart.critapp model.syllablePart note orig reg restore sic supplied unclear
Members	accid artic dot

model.numLike

model.numLike groups elements that denote a number or a quantity.	
Module	MEI.shared
Used by	model.measurementLike
Members	num

model.ornamentLike.cmn

model.ornamentLike.cmn groups CMN ornament elements.	
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Module	MEI.cmnOrnaments
Used by	model.controleventLike.cmn
Members	mordent trill turn

model.ossiaLike

model.ossiaLike groups elements that function like *ossia*.

Module	MEI.cmn
Used by	model.measurePart model.staffPart
Members	ossia

model.pLike

model.pLike groups paragraph-like elements.

Module	MEI.shared
Used by	application changeDesc contents correction editorialDecl incipText interpretation model.textcomponentLike normalization projectDesc samplingDecl segmentation stdVals
Members	p

model.paracontentPart

model.paracontentPart groups elements which may appear as part of the paragraph content model. A paragraph may contain inline elements and all the other block-level elements except *lg* and itself.

Module	MEI.shared
Used by	p
Members	model.textphraseLike [model.addressLike [address] model.annotLike [annot] model.biblLike [bibl] model.dateLike [date] model.editorialLike [abbr expan] model.identifierLike [identifier] model.measurementLike [model.numLike [num]] model.milestoneLike . text [model.lbLike [lb] model.pbLike [pb]] model.nameLike [name] model.rendLike [rend stack] model.titleLike [title] model.figureLike [fig] model.nameLike.agent [corpName persName] model.nameLike.place [model.repositoryLike [repository] model.nameLike.geogName [geogName]] model.nameLike.label [periodName styleName] model.locrefLike [ptr ref]] model.editLike [choice subst] model.transcriptionLike [add corr damage del gap handShift orig reg restore sic supplied unclear] model.tableLike [table] model.listLike [list] model.quoteLike [quote]

model.partLike

model.partLike groups elements that represent a separate performer part.	
Module	MEI.shared
Used by	parts
Members	part

model.partsLike

model.partsLike groups elements that group separate performer parts.	
Module	MEI.shared
Used by	mdiv
Members	parts

model.pbLike

model.pbLike groups pagebreak-like elements.	
Module	MEI.shared
Used by	model.milestoneLike.music model.milestoneLike.text
Members	pb

model.physDescPart

model.physDescPart groups elements that may appear as part of the physical description of a bibliographic item.	
Module	MEI.header
Used by	physDesc
Members	model.repositoryLike [repository] model.frontPart [titlePage] condition dimensions exhibHist extent handList inscription physLoc physMedium plateNum provenance treatHist treatSched watermark

model.pubStmtPart

model.pubStmtPart groups elements that may appear as part of the publication statement for a bibliographic item.	
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Module	MEI.header
Used by	pubStmt
Members	model.addressLike [address] model.dateLike [date] model.identifierLike [identifier] model.nameLike.geogName [geogName] availability respStmt

model.quoteLike

model.quoteLike groups elements used to directly contain quotations.

Module	MEI.text
Used by	model.paracontentPart model.textcomponentLike
Members	quote

model.rdgPart.critapp

model.rdgPart.critapp groups elements that may appear as part of a musical variant.

Module	MEI.critapp
Used by	lem rdg
Members	model.controleventLike [model.controleventLike.cmn [model.ornamentLike.cmn [mordent trill turn] arpeg beamSpan breath fermata hairpin harpPedal octave pedal reh slur tie tupletSpan] model.controleventLike.harmony [model.harmLike [harm]] dir dynam phrase tempo bend gliss] model.eventLike [model.keySigLike [keySig] model.meterSigLike [meterSig] model.eventLike.cmn [beam beatRpt bTrem fTrem halfmRpt tuplet] model.eventLike.mensural [mensur proport ligature] barLine chord clef clefGrp custos note pad rest space] model.layerLike [layer] model.noteModifierLike [accid artic dot] model.sectionPart [model.endingLike [ending] model.scoreDefLike [scoreDef] model.sectionLike [section] model.sectionPart.mensuralAndNeumes [model.sectionPart.mensural model.sectionPart.neumes model.staffLike [staff]] model.staffDefLike [staffDef] model.sectionPart.cmn [model.measureLike [measure]]] model.eventLike.measureFilling [mRest mRpt mRpt2 mSpace multiRest multiRpt] model.eventLike.neumes [ineume uneume] model.syllableLike [syllable] model.lyricsLike [lyrics] model.sylLike [syl] model.verseLike [verse] model.midiLike [midi]

model.rdgPart.text

model.rdgPart.text groups elements that may appear as part of a textual variant.

Module	MEI.text
Used by	
Members	model.textcomponentLike [model.pLike [p] model.tableLike [table] model.listLike [list] model.quoteLike [quote] model.lgLike [lg]] model.textphraseLike.limited [model.addressLike [address]

[model.biblLike \[bibl\]](#) [model.dateLike \[date\]](#) [model.editorialLike \[abbr expan\]](#) [model.identifierLike \[identifier\]](#) [model.lbLike \[lb\]](#) [model.measurementLike \[model.numLike \[num\] \]](#) [model.nameLike \[name\]](#) [model.rendLike \[rend stack\]](#) [model.titleLike \[title\]](#) [model.figureLike \[fig\]](#) [model.nameLike.agent \[corpName persName\]](#) [model.nameLike.place \[model.repositoryLike \[repository\]](#) [model.nameLike.geogName \[geogName\] \]](#) [model.nameLike.label \[periodName styleName\]](#) [model.locrefLike \[ptr ref\] \]](#)

model.rendLike

model.rendLike groups elements that mark typographical features.

Module	MEI.shared
Used by	altId classCode model.textphraseLike model.textphraseLike.limited reh
Members	rend stack

model.repositoryLike

model.repositoryLike groups elements that denote a corporate entity that holds a bibliographic item.

Module	MEI.shared
Used by	model.nameLike.place model.physDescPart
Members	repository

model.resourceLike

model.resourceLike groups non-text components that represent the same content as the musical text.

Module	MEI.shared
Used by	music
Members	facsimile performance

model.scoreDefLike

model.scoreDefLike groups elements that provide score meta-information.

Module	MEI.shared
Used by	lem model.layerPart.mensuralAndNeumes model.scorePart model.sectionPart model.staffPart.mensuralAndNeumes rdg syllable

Members	scoreDef
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model.scoreLike

model.scoreLike groups elements that represent a score.	
Module	MEI.shared
Used by	incip mdiv
Members	score

model.scorePart

model.scorePart groups elements that may appear as part of a score.	
Module	MEI.shared
Used by	part score
Members	model.endingLike [ending] model.scoreDefLike [scoreDef] model.scorePart.mensuralAndNeumes model.sectionLike [section] model.staffDefLike [staffDef]

model.sectionLike

model.sectionLike groups elements that represent a segment of music notation.	
Module	MEI.shared
Used by	abbr add corr damage del expan model.scorePart model.sectionPart orig reg restore sic supplied unclear
Members	section

model.sectionPart

model.sectionPart groups elements that may appear as part of a section.	
Module	MEI.shared
Used by	ending model.rdgPart.critapp section
Members	model.endingLike [ending] model.scoreDefLike [scoreDef] model.sectionLike [section] model.sectionPart.mensuralAndNeumes [model.sectionPart.mensural model.sectionPart.neumes model.staffLike [staff]] model.staffDefLike [staffDef] model.sectionPart.cmn [model.measureLike [measure]]

model.sectionPart.cmn

model.sectionPart.cmn groups elements that may appear as part of a section.	
Module	MEI.cmn
Used by	model.sectionPart
Members	model.measureLike [measure]

model.sectionPart.mensuralAndNeumes

model.sectionPart.mensuralAndNeumes groups elements that may appear as part of a section in the neume repertoire.	
Module	MEI.shared
Used by	model.sectionPart
Members	model.sectionPart.mensural model.sectionPart.neumes model.staffLike [staff]

model.staffDefLike

model.staffDefLike groups elements that permit declaration of staff properties.	
Module	MEI.shared
Used by	layer lem measure model.layerPart.mensuralAndNeumes model.scorePart model.sectionPart model.staffPart.mensuralAndNeumes rdg staff staffGrp syllable
Members	staffDef

model.staffDefPart

model.staffDefPart groups elements that may appear more than once in the declaration of staff features.	
Module	MEI.shared
Used by	staffDef
Members	model.keySigLike [keySig] model.meterSigLike [meterSig] model.staffDefPart.mensural [mensur proport] clef clefGrp

model.staffDefPart.mensural

model.staffDefPart.mensural groups elements that may appear more than once in the declaration of staff features.	
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Module	MEI.mensural
Used by	model.staffDefPart
Members	mensur proport

model.staffGrpLike

model.staffGrpLike groups elements that permit declaration of staff group properties.

Module	MEI.shared
Used by	lem rdg scoreDef staffGrp syllable
Members	staffGrp

model.staffLike

model.staffLike groups elements that function like staves.

Module	MEI.shared
Used by	abbr add corr damage del expan model.measurePart model.sectionPart.mensuralAndNeumes orig ossia reg restore sic supplied unclear
Members	staff

model.staffPart

model.staffPart groups elements that are components of a staff.

Module	MEI.shared
Used by	staff
Members	model.layerLike [layer] model.staffPart.mensuralAndNeumes [model.scoreDefLike [scoreDef] model.staffDefLike [staffDef] model.staffPart.mensural model.staffPart.neumes] model.ossiaLike [ossia]

model.staffPart.mensuralAndNeumes

model.staffPart.mensuralAndNeumes groups elements that are components of a staff in the mensural and neume repertoires.

Module	MEI.shared
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Used by	model.staffPart
Members	model.scoreDefLike [scoreDef] model.staffDefLike [staffDef] model.staffPart.mensural model.staffPart.neumes

model.startLike.corpus

model.startLike.corpus groups elements that may be document elements when the corpus module is invoked.	
Module	MEI.corpus
Used by	
Members	meiCorpus

model.startLike.header

model.startLike.header groups elements that may be document elements when the header module is invoked.	
Module	MEI.header
Used by	
Members	meiHead

model.substPart

model.substPart groups elements that are components of a substitution element.	
Module	MEI.shared
Used by	
Members	add corr damage del orig reg restore sic supplied

model.sylLike

model.sylLike groups elements that contain a lyric syllable.	
Module	MEI.lyrics
Used by	model.rdgPart.critapp model.syllablePart note verse
Members	syl

model.syllableLike

model.syllableLike groups elements that accommodate neumed text.	
Module	MEI.neumes
Used by	model.layerPart.neumes model.rdgPart.critapp
Members	syllable

model.syllablePart

model.syllablePart groups elements that may appear as part of content of a syllable.	
Module	MEI.neumes
Used by	syllable
Members	model.controleventLike [model.controleventLike.cmn [model.ornamentLike.cmn [mordent trill turn] arpeg beamSpan breath fermata hairpin harpPedal octave pedal reh slur tie tupletSpan] model.controleventLike.harmony [model.harmLike [harm]] dir dynam phrase tempo bend gliss] model.eventLike [model.keySigLike [keySig] model.meterSigLike [meterSig] model.eventLike.cmn [beam beatRpt bTrem fTrem halfmRpt tuplet] model.eventLike.mensural [mensur proport ligature] barLine chord clef clefGrp custos note pad rest space] model.noteModifierLike [accid artic dot] model.eventLike.neumes [ineume uneume] model.lyricsLike [lyrics] model.sylLike [syl] model.verseLike [verse] model.midiLike [midi]

model.symbolTableLike

model.symbolTableLike groups elements that group symbol definitions.	
Module	MEI.usersymbols
Used by	scoreDef
Members	symbolTable

model.tableLike

model.tableLike groups table-like elements.	
Module	MEI.figtable
Used by	event model.paracontentPart model.textcomponentLike
Members	table

model.textcomponentLike

model.textcomponentLike groups block-level text elements.	
Module	MEI.shared
Used by	annot div figDesc fw item model.rdgPart.text pgDesc pgFoot pgFoot2 pgHead pgHead2 quote td th titlePage
Members	model.pLike [p] model.tableLike [table] model.listLike [list] model.quoteLike [quote] model.lgLike [lg]

model.textphraseLike

model.textphraseLike Phrase-level text elements.	
Module	MEI.shared
Used by	abbr add addrLine annot bibl caption corpName corr damage date del expan geogName head identifier item ! model.paracontentPart name num orig periodName persName ref reg rend restore sic stack styleName supplied td th title unclear
Members	model.addressLike [address] model.annotLike [annot] model.biblLike [bibl] model.dateLike [date] model.editorialLike [abbr expan] model.identifierLike [identifier] model.measurementLike [model.numLike [num]] model.milestoneLike.text [model.lbLike [lb] model.pbLike [pb]] model.nameLike [name] model.rendLike [rend stack] model.titleLike [title] model.figureLike [fig] model.nameLike.agent [corpName persName] model.nameLike.place [model.repositoryLike [repository] model.nameLike.geogName [geogName]] model.nameLike.label [periodName styleName] model.locrefLike [ptr ref]

model.textphraseLike.limited

model.textphraseLike.limited groups textual elements that occur as part of the representation of the score, as opposed to the textual matter which accompanies it. This class is equivalent to the model.textphraseLike class without the pb element.	
Module	MEI.shared
Used by	accessRestrict acqSource actor anchoredText condition dimensions dir dynam edition event exhibHist extent f fw hand harm inscription label language line model.rdgPart.text pgFoot pgFoot2 pgHead pgHead2 physLoc physMedium plateNum price provenance repository role roleDesc syl sysReq tempo term treatHist treatSched useRestrict watermark
Members	model.addressLike [address] model.biblLike [bibl] model.dateLike [date] model.editorialLike [abbr expan] model.identifierLike [identifier] model.lbLike [lb] model.measurementLike [model.numLike [num]] model.nameLike [name] model.rendLike [rend stack] model.titleLike [title] model.figureLike [fig] model.nameLike.agent [corpName persName] model.nameLike.place [model.repositoryLike [repository] model.nameLike.geogName [geogName]] model.nameLike.label [periodName styleName] model.locrefLike [ptr ref]

model.titleLike

model.titleLike groups elements that denote names of a bibliographic item.	
Module	MEI.shared
Used by	model.textphraseLike model.textphraseLike.limited seriesStmt titleStmt
Members	title

model.transcriptionLike

model.transcriptionLike groups elements used for editorial transcription of pre-existing source materials.	
Module	MEI.edittrans
Used by	abbr add addrLine anchoredText annot beam caption chord corpName corr damage del dir dynam ending expan f fb fw geogName harm head identifier ineume inscription item l label layer lem measure model.paracontentPart name note num orig part periodName persName pgFoot pgFoot2 pgHead pgHead2 rdg reg rend restore score section sic staff styleName subst supplied syl syllable td tempo th title tuplet unclear uneume
Members	add corr damage del gap handShift orig reg restore sic supplied unclear

model.verseLike

model.verseLike groups elements that contain a lyric verse.	
Module	MEI.lyrics
Used by	ineume lyrics model.rdgPart.critapp model.syllablePart note uneume
Members	verse

Schema mei: Attribute classes

att.accid.anl

att.accid.anl Analytical domain attributes.	
Module	MEI.shared
Members	accid
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.accid.ges

att.accid.ges Gestural domain attributes.	
Module	MEI.shared
Members	accid
Attributes	NONE DEFINED

att.accid.log

att.accid.log Logical domain attributes.	
Module	MEI.shared
Members	accid
Attributes	<p> att.accidental (@accid) att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.staffloc (@loc) </p> <p> @func records the function of an accidental. </p> <p> Status Optional </p> <p> Legal values are: caution cautionary accidental. </p> <p> edit editorial accidental. </p>

att.accid.vis

att.accid.vis Visual domain attributes.	
Module	MEI.shared
Members	accid
Attributes	att.color (@color) att.placement (@place) att.visualoffset.ho (@ho) att.visualoffset.vo (@vo) att.xy (@x, @y) att.enclosingchars (@enclose)

att.accidental

att.accidental Attributes for capturing momentary pitch inflection.	
Module	MEI.shared
Members	att.accid.log [accid] att.keySig.log [key keySig] att.note.log [note] keyAccid
Attributes	<div>@accid captures a written accidental. Status Optional Datatype data.ACCIDENTAL.EXPLICIT</div>

att.accidental.performed

att.accidental.performed Attributes for capturing momentary pitch inflection in the gestural domain.	
Module	MEI.shared
Members	att.note.ges [note] chordMember
Attributes	<div>@accid.ges records the performed pitch inflection when it differs from the written accidental. Status Optional Datatype data.ACCIDENTAL.IMPLICIT</div>

att.agentident

att.agentident Attributes for the identification of a causative agent.	
Module	MEI.edittrans
Members	damage supplied unclear

Attributes	@agent signifies the causative agent of damage, illegibility, or other loss of original text.
	Status Optional

att.alignment

att.alignment Temporal alignment attributes.	
Module	MEI.linkalign
Members	att.common.anl [att.accid.anl [accid] att.annot.anl [annot] att.artic.anl [artic] att.barLine.anl [barLine] att.chord.anl [chord] att.clef.anl [clef] att.clefGrp.anl [clefGrp] att.custos.anl [custos] att.dir.anl [dir] att.dot.anl [dot] att.dynam.anl [dynam] att.ending.anl [ending] att.grpSym.anl [grpSym] att.keySig.anl [keySig] att.layer.anl [layer] att.measure.anl [measure] att.meterSig.anl [meterSig] att.note.anl [note] att.part.anl [part] att.parts.anl [parts] att.pb.anl [pb] att.phrase.anl [phrase] att.rest.anl [rest] att.sb.anl [sb] att.score.anl [score] att.section.anl [section] att.space.anl [space] att.staff.anl [staff] att.syl.anl [syl] att.tempo.anl [tempo] att.arpeg.anl [arpeg] att.beam.anl [beam] att.beamSpan.anl [beamSpan] att.beatRpt.anl [beatRpt] att.bend.anl [bend] att.breath.anl [breath] att.bTrem.anl [bTrem] att.fermata.anl [fermata] att.fTrem.anl [fTrem] att.gliss.anl [gliss] att.hairpin.anl [hairpin] att.halfmRpt.anl [halfmRpt] att.harpPedal.anl [harpPedal] att.mRest.anl [mRest] att.mRpt.anl [mRpt] att.mRpt2.anl [mRpt2] att.mSpace.anl [mSpace] att.multiRest.anl [multiRest] att.multiRpt.anl [multiRpt] att.octave.anl [octave] att.ossia.anl [ossia] att.pedal.anl [pedal] att.reh.anl [reh] att.slur.anl [slur] att.tie.anl [tie] att.tuplet.anl [att.tupletSpan.anl [tupletSpan] tuplet] att.ligature.anl [ligature] att.mensur.anl [mensur] att.proport.anl [proport] att.ineume.anl [ineume] att.uneume.anl [uneume] att.mordent.anl [mordent] att.trill.anl [trill] att.turn.anl [turn] att.rdg.anl [lem rdg] att.harm.anl [harm] att.lyrics.anl [lyrics] att.verse.anl [verse] att.midi.anl [midi] f fb cc chan chanPr cue hex marker metaText noteOff noteOn port prog seqNum trkName vel anchoredText curve line symbol]
Attributes	@when indicates the point of occurrence of this feature along a time line. Its value must be the ID of a <when> element. Status Optional Datatype data.URI

att.altsym

att.altsym Attributes supplying pointers to user-defined symbols.	
Module	MEI.shared
Members	att.chord.vis [chord] att.clef.vis [clef] att.custos.vis [custos] att.note.vis [note] att.rest.vis [rest] att.beatRpt.vis [beatRpt] att.breath.vis [breath] att.fermata.vis [fermata] att.halfmRpt.vis [halfmRpt] att.mRest.vis [mRest] att.mRpt.vis [mRpt] att.mRpt2.vis [mRpt2] att.mSpace.vis [mSpace] att.multiRest.vis [multiRest] att.multiRpt.vis [multiRpt] att.uneume.vis [uneume] f
Attributes	@altsym provides a way of pointing to a user-defined symbol. It must contain an ID of a <symbolDef> element elsewhere in the document. Status Optional

	Datatype data.URI
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att.annot.anl

att.annot.anl Analytical domain attributes.	
Module	MEI.shared
Members	annot
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.annot.ges

att.annot.ges Gestural domain attributes.	
Module	MEI.shared
Members	annot
Attributes	att.duration.performed (@dur.ges)

att.annot.log

att.annot.log Logical domain attributes for annot. Values for the type attribute can be taken from any convenient typology of annotation suitable to the work in hand; e.g. annotation, gloss, citation, digression, preliminary, temporary, etc.	
Module	MEI.shared
Members	annot
Attributes	att.startendid (@endid) (att.startid (@startid)) att.duration.timestamp (@dur) att.timestamp.musical (@tstamp) att.timestamp.performed (@tstamp.ges, @tstamp.real) att.staffident (@staff) att.layerident (@layer)

att.annot.vis

att.annot.vis Visual domain attributes.	
Module	MEI.shared
Members	annot

Attributes	NONE DEFINED
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att.arpeg.anl

att.arpeg.anl Analytical domain attributes.	
Module	MEI.cmn
Members	arpeg
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.arpeg.ges

att.arpeg.ges Gestural domain attributes.	
Module	MEI.cmn
Members	arpeg
Attributes	NONE DEFINED

att.arpeg.log

att.arpeg.log Logical domain attributes.	
Module	MEI.cmn
Members	arpeg
Attributes	<p>att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))</p> <p>@order describes the direction in which an arpeggio is to be performed.</p> <p>Status Optional</p> <p>Legal values are:</p> <p>up lowest to highest pitch.</p> <p>down highest to lowest pitch.</p> <p>nonarp non-arpeggiated style (usually rendered with a preceding bracket instead of a wavy line).</p>

att.arpeg.vis

att.arpeg.vis Visual domain attributes.	
Module	MEI.cmn
Members	arpeg
Attributes	att.color (@color) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.xy (@x, @y) @arrow indicates if an arrowhead is to be drawn as part of the arpeggiation symbol. Status Optional Datatype data.BOOLEAN

att.artic.anl

att.artic.anl Analytical domain attributes.	
Module	MEI.shared
Members	artic
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.artic.ges

att.artic.ges Gestural domain attributes.	
Module	MEI.shared
Members	artic
Attributes	NONE DEFINED

att.artic.log

att.artic.log Logical domain attributes.	
Module	MEI.shared
Members	artic
Attributes	att.articulation (@artic) att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.staffloc (@loc)

att.artic.vis

att.artic.vis Visual domain attributes.	
Module	MEI.shared
Members	artic
Attributes	att.color (@color) att.placement (@place) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.xy (@x, @y) att.enclosingchars (@enclose)

att.articulation

att.articulation Attributes for capturing the written signs that describe the method of performance.	
Module	MEI.shared
Members	att.artic.log [artic] att.chord.log [chord] att.note.log [note]
Attributes	<p>@artic encodes the written articulation(s). Articulations are normally encoded in order from the note head outward; that is, away from the stem. See additional notes at att.vis.note. Only articulations should be encoded in the artic attribute; fingerings should be encoded using the <dir> element.</p> <p>Status Optional</p> <p>Datatype data.ARTICULATIONS</p>

att.articulation.performed

att.articulation.performed Attributes describing the method of performance.	
Module	MEI.shared
Members	att.chord.ges [chord] att.note.ges [note]
Attributes	<p>@artic.ges records performed articulation that differs from the written value.</p> <p>Status Optional</p> <p>Datatype data.ARTICULATIONS</p>

att.augmentdots

att.augmentdots Attributes that record the number of dots of augmentation.	
Module	MEI.shared

Members	att.chord.log [chord] att.note.log [note] att.rest.log [rest] att.space.log [space] att.tuplet.log [tuplet] att.tupletSpan.log [tupletSpan]
Attributes	<p>@dots records the number of augmentation dots required by a dotted duration.</p> <p>Status Optional</p> <p>Datatype data.AUGMENTDOT</p>

att.authorized

att.authorized Attributes that describe the source of an controlled value.	
Module	MEI.shared
Members	att.name [name repository title corpName geogName periodName persName styleName] identifier classCode language perfMedium instrumentation instrVoice physMedium resp reg
Attributes	<p>@authority a name or label associated with the controlled vocabulary from which the value is taken.</p> <p>Status Optional</p> <p>@authURI the web-accessible location of the controlled vocabulary from which the value is taken.</p> <p>Status Optional</p> <p>Datatype data.URI</p>

att.bTrem.anl

att.bTrem.anl Analytical domain attributes.	
Module	MEI.cmn
Members	bTrem
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.bTrem.ges

att.bTrem.ges Gestural domain attributes.	
Module	MEI.cmn
Members	bTrem
Attributes	att.tremmeasured (@measperf)

att.bTrem.log

att.bTrem.log Logical domain attributes.	
Module	MEI.cmn
Members	bTrem
Attributes	<p>att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.numbered (@num)</p> <p>@form describes the style of the tremolo.</p> <p>Status Optional</p> <p>Legal values are: meas measured tremolo.</p> <p>unmeas unmeasured tremolo.</p>

att.bTrem.vis

att.bTrem.vis Visual domain attributes.	
Module	MEI.cmn
Members	bTrem
Attributes	att.numberplacement (@num.place, @num.visible)

att.barLine.anl

att.barLine.anl Analytical domain attributes.	
Module	MEI.shared
Members	barLine
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.barLine.ges

att.barLine.ges Gestural domain attributes.	
Module	MEI.shared
Members	barLine

Attributes	att.timestamp.musical (@tstamp)
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att.barLine.log

att.barLine.log Logical domain attributes.	
Module	MEI.shared
Members	barLine
Attributes	att.meterconformance.bar (@metcon, @control) @rend records the appearance and usually the function of the bar line. Status Optional Datatype data.BARRENDITION

att.barLine.vis

att.barLine.vis Visual domain attributes.	
Module	MEI.shared
Members	barLine
Attributes	att.barplacement (@barplace, @taktplace) att.color (@color) att.measurement (@unit) att.width (@width)

att.barplacement

att.barplacement Attributes that capture the placement of bar lines.	
Module	MEI.shared
Members	att.barLine.vis [barLine] att.scoreDef.vis [scoreDef] att.measure.vis [measure]
Attributes	@barplace records the location of a bar line. Status Optional Datatype data.BARPLACE @taktplace If takt bar lines are to be used, then the taktplace attribute may be used to denote the staff location of the shortened bar line. The location may include staff lines, spaces, and the spaces directly above and below the staff. The value ranges between 0 (just below the staff) to 2 * number of staff lines (directly above the staff). For example, on a 5-line staff the lines would be numbered 1,3,5,7, and 9 while the spaces would be numbered 0,2,4,6,8,10. For example, a value of '9' puts the bar line through the top line of a 5-line staff.

		Status	Optional		
		Datatype	data.STAFFLOC		

att.beam.anl

att.beam.anl Analytical domain attributes.					
Module	MEI.cmn				
Members	beam				
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))				

att.beam.ges

att.beam.ges Gestural domain attributes.					
Module	MEI.cmn				
Members	beam				
Attributes	NONE DEFINED				

att.beam.log

att.beam.log Logical domain attributes.					
Module	MEI.cmn				
Members	beam				
Attributes	att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.beamedwith (@beam.with)				

att.beam.vis

att.beam.vis Visual domain attributes.					
Module	MEI.cmn				
Members	beam				
Attributes	att.beamrend (@rend, @slope)				

att.beamSpan.anl

att.beamSpan.anl Analytical domain attributes.	
Module	MEI.cmn
Members	beamSpan
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.beamSpan.ges

att.beamSpan.ges Gestural domain attributes.	
Module	MEI.cmn
Members	beamSpan
Attributes	att.duration.performed (@dur.ges)

att.beamSpan.log

att.beamSpan.log Logical domain attributes.	
Module	MEI.cmn
Members	beamSpan
Attributes	att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.startendid (@endid) (att.startid (@startid)) att.beamedwith (@beam.with) att.duration.musical (@dur)

att.beamSpan.vis

att.beamSpan.vis Visual domain attributes.	
Module	MEI.cmn
Members	beamSpan
Attributes	att.beamrend (@rend, @slope)

att.beamed

att.beamed Attributes that indicate whether an event lies under a beam.	
Module	MEI.cmn
Members	att.chord.log.cmn [att.chord.log [chord]] att.note.log.cmn [att.note.log [note]] att.rest.log.cmn [att.rest.log [rest]] att.space.log.cmn [att.space.log [space]]
Attributes	<p>@beam indicates that this event is "under a beam".</p> <p>Status Optional</p> <p>Datatype data.BEAMS</p>

att.beamedwith

att.beamedwith Attributes indicating cross-staff beaming.	
Module	MEI.cmn
Members	att.beam.log [beam] att.beamSpan.log [beamSpan] att.tuplet.log [tuplet] att.tupletSpan.log [tupletSpan]
Attributes	<p>@beam.with the case of cross-staff beams, the beam.with attribute is used to indicate which staff the beam is connected to; that is, the staff above or the staff below.</p> <p>Status Optional</p> <p>Datatype data.OTHERSTAFF</p>

att.beaming.log

att.beaming.log Used by layerDef, staffDef, and scoreDef to provide default values for attributes in the logical domain related to beaming.	
Module	MEI.cmn
Members	att.layerDef.log.cmn [att.layerDef.log [layerDef]] att.scoreDef.log.cmn [att.scoreDef.log [scoreDef]] att.staffDef.log.cmn [att.staffDef.log [staffDef]]
Attributes	<p>@beam.group provides an example of how automated beaming (including secondary beams) is to be performed.</p> <p>Status Optional</p> <p>@beam.rests indicates whether automatically-drawn beams should include rests shorter than a quarter note duration.</p> <p>Status Optional</p>

	Datatype data.BOOLEAN
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att.beaming.vis

att.beaming.vis Used by layerDef, staffDef, and scoreDef to provide default values for attributes in the visual domain related to beaming.	
Module	MEI.shared
Members	att.layerDef.vis [layerDef] att.scoreDef.vis.cmn [att.scoreDef.vis [scoreDef]] att.staffDef.vis.cmn [att.staffDef.vis [staffDef]]
Attributes	<p>@beam.rend codes whether a beam is "feathered" and in which direction.</p> <p>Status Optional</p> <p>Legal values are: acc beams lines grow farther apart from left to right.</p> <p>rit beam lines grow closer together from left to right.</p> <p>norm beam lines are equally-spaced over the entire length of the beam.</p> <p>@beam.slope captures beam slope.</p> <p>Status Optional</p> <p>Datatype xsd:decimal</p>

att.beamrend

att.beamrend Attributes that record the visual rendition of beams.	
Module	MEI.cmn
Members	att.beam.vis [beam] att.beamSpan.vis [beamSpan]
Attributes	<p>@rend captures whether a beam is "feathered" and in which direction.</p> <p>Status Optional</p> <p>Legal values are: acc (accelerando) indicates that the secondary beams get progressively closer together toward the end of the beam.</p>

	<p>mixed (mixed acc and rit) for beams that are "feathered" in both directions.</p> <p>rit (ritardando) means that the secondary beams become progressively more distance toward the end of the beam.</p> <p>norm (normal) indicates that the secondary beams are equidistant along the course of the beam.</p> <p>@slope records the slope of the beam.</p> <p>Status Optional</p> <p>Datatype xsd:decimal</p>
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att.beamsecondary

att.beamsecondary Attributes that capture information about secondary beaming.	
Module	MEI.cmn
Members	att.chord.vis.cmn [att.chord.vis [chord]] att.note.vis.cmn [att.note.vis [note]]
Attributes	<p>@breaksec presence of this attribute indicates that the secondary beam should be broken following this note/chord. The value of the attribute records the number of beams which should remain unbroken.</p> <p>Status Optional</p> <p>Datatype xsd:positiveInteger</p>

att.beatRpt.anl

att.beatRpt.anl Analytical domain attributes.	
Module	MEI.cmn
Members	beatRpt
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.beatRpt.ges

att.beatRpt.ges Gestural domain attributes.	
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Module	MEI.cmn
Members	beatRpt
Attributes	NONE DEFINED

att.beatRpt.log

att.beatRpt.log Logical domain attributes.	
Module	MEI.cmn
Members	beatRpt
Attributes	att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))

att.beatRpt.vis

att.beatRpt.vis Visual domain attributes.					
Module	MEI.cmn				
Members	beatRpt				
Attributes	att.altsym (@altsym) att.color (@color) att.expandable (@expand) @rend indicates the number of slashes required to render the appropriate beat repeat symbol. When a single beat is repeated, consisting of a single note or chord, it is indicated by a single thick, slanting slash; therefore, the value '1' should be used. The following values should be used when the beat is divided into even notes: 4ths or 8ths=1, 16ths=2, 32nds=3, 64ths=4, 128ths=5. When the beat is comprised of mixed duration values, the symbol is always rendered as 2 slashes and 2 dots. <table><tr><td>Status</td><td>Required</td></tr><tr><td>Datatype</td><td>data.BEATRPT.REND</td></tr></table>	Status	Required	Datatype	data.BEATRPT.REND
Status	Required				
Datatype	data.BEATRPT.REND				

att.bend.anl

att.bend.anl Analytical domain attributes.	
Module	MEI.cmn
Members	bend
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.bend.ges

att.bend.ges Gestural domain attributes.	
Module	MEI.cmn
Members	bend
Attributes	<p>@amount records the amount of detuning. The decimal values should be rendered as a fraction (or an integer plus a fraction) along with the bend symbol.</p> <p>Status Optional</p> <p>Datatype data.BEND.AMOUNT</p>

att.bend.log

att.bend.log Logical domain attributes.	
Module	MEI.cmn
Members	bend
Attributes	<p>att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@timestamp)) (att.timestamp.performed (@timestamp.ges, @timestamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.startendid (@endid) (att.startid (@startid)) att.duration.timestamp (@dur)</p>

att.bend.vis

att.bend.vis Visual domain attributes. If the bulge or bezier attributes are present, the bend should be rendered as a curve. Otherwise, it should be rendered using lines. The ho and vo attributes describe the visual offset of the entire rendered bend. The endho, endvo and startho, startvo attribute pairs may be used to encode start and end points relative to their programmatic placement. For exact placement of the endpoints of the bend, use the x and y attributes.	
Module	MEI.cmn
Members	bend
Attributes	<p>att.color (@color) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.visualoffset2 (att.visualoffset2.ho (@startho, @endho)) (att.visualoffset2.to (@startto, @endto)) (att.visualoffset2.vo (@startvo, @endvo)) att.xy (@x, @y) att.xy2 (@x2, @y2) att.curvature (@bezier, @bulge, @curvedir) att.curverend (@rend)</p>

att.bibl

att.bibl Bibliographic attributes.	
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Module	MEI.shared
Members	annot date edition identifier incip key name repository meiHead accessRestrict acqSource altId availability change changeDesc classCode classification condition correction contents contentItem creation dimensions editionStmt editorialDecl encodingDesc exhibHist extent fileDesc hand handList history incipCode incipText inscription interpretation mensuration meter termList language langUsage normalization notesStmt perfMedium instrumentation ensemble instrVoice instrVoiceGrp physDesc physLoc physMedium plateNum price projectDesc provenance pubStmt relatedItem respStmt revisionDesc samplingDecl segmentation seriesStmt source stdVals sysReq term titleStmt treatHist treatSched unpub useRestrict watermark work eventList event corpName geogName periodName persName styleName
Attributes	<p>@analog contains a reference to a field or element in another descriptive encoding system to which this MEI element is comparable.</p> <p>Status Optional</p>

att.breath.anl

att.breath.anl Analytical domain attributes.	
Module	MEI.cmn
Members	breath
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.breath.ges

att.breath.ges Gestural domain attributes.	
Module	MEI.cmn
Members	breath
Attributes	NONE DEFINED

att.breath.log

att.breath.log Logical domain attributes.	
Module	MEI.cmn
Members	breath
Attributes	att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@timestamp)) (att.timestamp.performed (@timestamp.ges, @timestamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.startendid (@endid) (att.startid (@startid))

att.breath.vis

att.breath.vis Visual domain attributes.	
Module	MEI.cmn
Members	breath
Attributes	att.altsym (@altsym) att.color (@color) att.placement (@place) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.xy (@x, @y)

att.calendared

att.calendared Attributes that indicate the calendar system of a date or other datable element.	
Module	MEI.shared
Members	date event
Attributes	<p>@calendar indicates the calendar system to which a date belongs, for example, Gregorian, Julian, Roman, Mosaic, Revolutionary, Islamic, etc.</p> <p>Status Optional</p> <p>Datatype <code>xsd:NMTOKEN</code></p>

att.canonical

att.canonical attributes that can be used to associate a representation such as a name or title with canonical information about the object being named or referenced.	
Module	MEI.shared
Members	att.name [name repository title corpName geogName periodName persName styleName]
Attributes	<p>@dbkey used to record a value which serves as a primary key in an external database.</p> <p>Status Optional</p> <p>Datatype <code>xsd:NMTOKEN</code></p>

att.channelized

att.channelized Attributes that record MIDI channel information.	
Module	MEI.midi

Members	att.scoreDef.ges [scoreDef] instrDef
Attributes	<p>@midi.channel records a MIDI channel value.</p> <p>Status Optional</p> <p>Datatype data.MIDICHANNEL</p> <p>@midi.duty specifies the 'on' part of the duty cycle as a percentage of a note's duration.</p> <p>Status Optional</p> <p>Datatype data.PERCENT</p> <p>@midi.port sets the MIDI port value.</p> <p>Status Optional</p> <p>Datatype data.MIDIVALUE</p> <p>@midi.track sets the MIDI track.</p> <p>Status Optional</p> <p>Datatype <code>xsd:positiveInteger</code></p>

att.chord.anl

att.chord.anl Analytical domain attributes.	
Module	MEI.shared
Members	chord
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.melodicfunction (@mfunc)

att.chord.ges

att.chord.ges Gestural domain attributes.	
Module	MEI.shared
Members	chord
Attributes	att.articulation.performed (@artic.ges) att.duration.performed (@dur.ges) att.instrumentident (@instr) att.chord.ges.cmn (att.graced (@grace, @grace.time))

att.chord.ges.cmn

att.chord.ges.cmn Gestural domain attributes for CMN features.	
Module	MEI.cmn
Members	att.chord.ges [chord]
Attributes	att.graced (@grace, @grace.time)

att.chord.log

att.chord.log Logical domain attributes for chord. The artic, dots, and dur attributes encode the written articulations, augmentation dots, and duration values. The beam, fermata, lv, slur, syl, tie, and tuplet attributes may be used to indicate the attachment of these things to this chord. If visual information about these things needs to be recorded, then either the elements corresponding to these attributes or the attributes available in the att.vis.chord class should be employed.	
Module	MEI.shared
Members	chord
Attributes	att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.articulation (@artic) att.augmentdots (@dots) att.duration.musical (@dur) att.fermatapresent (@fermata) att.syltext (@syl) att.slurpresent (@slur) att.tiepresent (@tie) att.tupletpresent (@tuplet) att.chord.log.cmn (att.beamed (@beam)) (att.lvpresent (@lv)) (att.ornam (@ornam))

att.chord.log.cmn

att.chord.log.cmn Logical domain attributes for CMN features.	
Module	MEI.cmn
Members	att.chord.log [chord]
Attributes	att.beamed (@beam) att.lvpresent (@lv) att.ornam (@ornam)

att.chord.vis

att.chord.vis Visual domain attributes for chord. The slur, slur.dir, slur.rend, tie, tie.dir, and tie.rend attributes here are syntactic sugar for these attributes on each of the chord's individual notes. The values here apply to all the notes in the chord. If some notes are slurred or tied while others aren't, then the individual note attributes must be used.	
Module	MEI.shared
Members	chord

Attributes	<p>att.altsym (@altsym) att.color (@color) att.relativeSize (@size) att.stemmed (@stem.dir, @stem.len, @stem.pos, @stem.x, @stem.y) (att.stemmed.cmn (@stem.mod, @stem.with)) att.visibility (@visible) att.visualoffset.ho (@ho) att.visualoffset.to (@to) att.xy (@x, @y) att.chord.vis.cmn (att.beamsecondary (@breaksec))</p> <p>@cluster indicates a single alternative note head should be displayed instead of individual note heads. See Read, p. 320-321, re: tone clusters.</p> <p>Status Optional</p> <p>Datatype data.CLUSTER</p>
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att.chord.vis.cmn

att.chord.vis.cmn Visual domain attributes for chord. The slur, slur.dir, slur.rend, tie, tie.dir, and tie.rend attributes here are "syntactic sugar" for these attributes on each of the chord's individual notes. The values here apply to all the notes in the chord. If some notes are slurred or tied while others aren't, then the individual note attributes must be used.

Module	MEI.cmn
Members	att.chord.vis [chord]
Attributes	att.beamsecondary (@breaksec)

att.clef.anl

att.clef.anl Analytical domain attributes.

Module	MEI.shared
Members	clef
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.clef.ges

att.clef.ges Gestural domain attributes.

Module	MEI.shared
Members	clef
Attributes	NONE DEFINED

att.clef.log

att.clef.log Logical domain attributes.

Module	MEI.shared
Members	clef
Attributes	<p>att.clefshape (@shape) att.lineloc (@line) att.octave (@oct) att.octavedisplacement (@dis, @dis.place)</p> <p>@cautionary records the function of the clef. A "cautionary" clef does not change the following pitches.</p> <p>Status Optional</p> <p>Datatype data.BOOLEAN</p>

att.clef.vis

att.clef.vis Visual domain attributes.	
Module	MEI.shared
Members	clef
Attributes	att.altsym (@altsym) att.color (@color)

att.clefGrp.anl

att.clefGrp.anl Analytical domain attributes.	
Module	MEI.shared
Members	clefGrp
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.clefGrp.ges

att.clefGrp.ges Gestural domain attributes.	
Module	MEI.shared
Members	clefGrp
Attributes	NONE DEFINED

att.clefGrp.log

att.clefGrp.log Logical domain attributes.	
Module	MEI.shared

Members	clefGrp
Attributes	NONE DEFINED

att.clefGrp.vis

att.clefGrp.vis Visual domain attributes.	
Module	MEI.shared
Members	clefGrp
Attributes	NONE DEFINED

att.cleffing.log

att.cleffing.log Used by staffDef and scoreDef to provide default values for attributes in the logical domain related to clefs.	
Module	MEI.shared
Members	att.scoreDef.log [scoreDef] att.staffDef.log [staffDef]
Attributes	<p>@clef.shap encodes a value for the clef symbol.</p> <p>Status Optional</p> <p>Datatype data.CLEFSHAPE</p> <p>@clef.line contains a default value for the position of the clef. The value must be in the range between 1 and the number of lines on the staff. The numbering of lines starts with the lowest line of the staff.</p> <p>Status Optional</p> <p>Datatype data.CLEFLINE</p> <p>@clef.dis records the amount of octave displacement to be applied to the clef.</p> <p>Status Optional</p> <p>Datatype data.OCTAVE.DIS</p> <p>@clef.dis.place records the direction of octave displacement to be applied to the clef.</p> <p>Status Optional</p> <p>Datatype data.PLACE</p>

att.cleffing.vis

att.cleffing.vis Used by staffDef and scoreDef to provide default values for attributes in the visual domain related to clefs.	
Module	MEI.shared
Members	att.scoreDef.vis [scoreDef] att.staffDef.vis [staffDef]
Attributes	<p>@clef.color describes the color of the clef.</p> <p>Status Optional</p> <p>Datatype data.COLOR</p> <p>@clef.visible determines whether the clef is to be displayed.</p> <p>Status Optional</p> <p>Datatype data.BOOLEAN</p>

att.clefshape

att.clefshape Attributes that record the shape of a clef.	
Module	MEI.shared
Members	att.clef.log [clef]
Attributes	<p>@shape describes a clef's shape.</p> <p>Status Optional</p> <p>Datatype data.CLEFSHAPE</p>

att.color

att.color Visual color attributes.	
Module	MEI.shared
Members	att.accid.vis [accid] att.artic.vis [artic] att.barLine.vis [barLine] att.chord.vis [chord] att.clef.vis [clef] att.custos.vis [custos] att.dot.vis [dot] att.note.vis [note] att.phrase.vis [phrase] att.rest.vis [rest] att.arppeg.vis [arpeg] att.beatRpt.vis [beatRpt] att.bend.vis [bend] att.breath.vis [breath] att.fermata.vis [fermata] att.gliss.vis [gliss] att.hairpin.vis [hairpin] att.halfmRpt.vis [halfmRpt] att.harpPedal.vis [harpPedal] att.mRpt.vis [mRpt] att.mRpt2.vis [mRpt2] att.pedal.vis [pedal] att.reh.vis [reh] att.slur.vis [slur] att.tie.vis [tie] att.mensur.vis [mensur] att.ineume.vis [ineume] att.uneume.vis [uneume] att.mordent.vis [mordent] att.trill.vis [trill] att.turn.vis [turn] rend curve line symbol

Attributes	@color	used to indicate visual appearance. Do not confuse this with the musical term 'color' as used in pre-CMN notation.
	Status	Optional
	Datatype	data.COLOR

att.coloration

att.coloration Indication of coloration.	
Module	MEI.shared
Members	att.note.vis [note]
Attributes	<p>@colored indicates this feature is 'colored'; that is, it is a participant in a change in rhythmic values. In mensural notation, coloration is indicated by colored notes (red, black, etc.) where void notes would otherwise occur. In CMN, coloration is indicated by an inverse color; that is, the note head is void when it would otherwise be filled and vice versa.</p> <p>Status Optional</p> <p>Datatype data.BOOLEAN</p>

att.common

att.common Attributes common to many elements.	
Module	MEI.shared
Members	abbr accid actor address addrLine annot artic barLine bibl body caption castList castItem castGrp chord clef clefGrp custos date dir dot dynam edition ending expan expansion fw group grpSym identifier incip instrGrp instrDef keyAccid key keySig label layer layerDef lb mdiv music name note num p pad parts part pb pgDesc pgHead pgHead2 pgFoot pgFoot2 phrase rend repository rest role roleDesc sb score scoreDef section space stack staff staffDef staffGrp syl tempo title titlePage meiHead accessRestrict acqSource altId appInfo application availability change changeDesc classCode classification condition correction contents contentItem creation dimensions editionStmt editorialDecl encodingDesc exhibHist extent fileDesc hand handList history incipCode incipText inscription interpretation mensuration meter meterSig termList language langUsage normalization notesStmt perfMedium instrumentation ensemble instrVoice instrVoiceGrp physDesc physLoc physMedium plateNum price projectDesc provenance pubStmt relatedItem respStmt revisionDesc samplingDecl segmentation seriesStmt source sourceDesc stdVals sysReq term titleStmt treatHist treatSched unpub useRestrict watermark workDesc work eventList event arpeg beam beamSpan beatRpt bend breath bTrem fermata fTrem hairpin harpPedal gliss halfmRpt measure mRest mRpt mRpt2 mSpace multiRest multiRpt octave ossia pedal reh slur tie tuplet tupletSpan mensur proport ligature ineume syllable uneume mordent trill turn meiCorpus app lem rdg add choice corr damage del gap handShift orig reg restore sic subst supplied unclear facsimile surface zone graphic fig figDesc table td th tr barre chordDef chordMember chordTable f fb harm timeline when lyrics verse cc chan chanPr cue hex marker metaText midi noteOff noteOn port prog seqNum trkName vel corpName geogName periodName persName styleName performance recording clip avFile ptr ref back quote div front head item lg list anchoredText curve line symbol symbolDef symbolTable

Attributes	att.id (@xml:id)
	@label provides a label for an element. The value may be any string.
	Status Optional
	@n provides a name or number designation for an element. While the value need not be unique, it is required to be a single token.
	Status Optional
	Datatype <code>xsd:NMTOKEN</code>
	@xml:base provides a base URI reference with which applications can resolve relative URI references into absolute URI references.
	Status Optional
	Datatype data.URI

att.common.anl

att.common.anl Common analytical attributes. When the <code>meiLinkAlign</code> module is used, the <code>when</code> attribute is also a member of this attribute class.	
Module	MEI.analysis
Members	att.accid.anl [<code>accid</code>] att.annot.anl [<code>annot</code>] att.artic.anl [<code>artic</code>] att.barLine.anl [<code>barLine</code>] att.chord.anl [<code>chord</code>] att.clef.anl [<code>clef</code>] att.clefGrp.anl [<code>clefGrp</code>] att.custos.anl [<code>custos</code>] att.dir.anl [<code>dir</code>] att.dot.anl [<code>dot</code>] att.dynam.anl [<code>dynam</code>] att.ending.anl [<code>ending</code>] att.grpSym.anl [<code>grpSym</code>] att.keySig.anl [<code>keySig</code>] att.layer.anl [<code>layer</code>] att.measure.anl [<code>measure</code>] att.meterSig.anl [<code>meterSig</code>] att.note.anl [<code>note</code>] att.part.anl [<code>part</code>] att.parts.anl [<code>parts</code>] att.pb.anl [<code>pb</code>] att.phrase.anl [<code>phrase</code>] att.rest.anl [<code>rest</code>] att.sb.anl [<code>sb</code>] att.score.anl [<code>score</code>] att.section.anl [<code>section</code>] att.space.anl [<code>space</code>] att.staff.anl [<code>staff</code>] att.syl.anl [<code>syl</code>] att.tempo.anl [<code>tempo</code>] att.arpeg.anl [<code>arpeg</code>] att.beam.anl [<code>beam</code>] att.beamSpan.anl [<code>beamSpan</code>] att.beatRpt.anl [<code>beatRpt</code>] att.bend.anl [<code>bend</code>] att.breath.anl [<code>breath</code>] att.bTrem.anl [<code>bTrem</code>] att.fermata.anl [<code>fermata</code>] att.fTrem.anl [<code>fTrem</code>] att.gliss.anl [<code>gliss</code>] att.hairpin.anl [<code>hairpin</code>] att.halfmRpt.anl [<code>halfmRpt</code>] att.harpPedal.anl [<code>harpPedal</code>] att.mRest.anl [<code>mRest</code>] att.mRpt.anl [<code>mRpt</code>] att.mRpt2.anl [<code>mRpt2</code>] att.mSpace.anl [<code>mSpace</code>] att.multiRest.anl [<code>multiRest</code>] att.multiRpt.anl [<code>multiRpt</code>] att.octave.anl [<code>octave</code>] att.ossia.anl [<code>ossia</code>] att.pedal.anl [<code>pedal</code>] att.reh.anl [<code>reh</code>] att.slur.anl [<code>slur</code>] att.tie.anl [<code>tie</code>] att.tuplet.anl [<code>tuplet</code>] att.tupletSpan.anl [<code>tupletSpan</code>] att.ligature.anl [<code>ligature</code>] att.mensur.anl [<code>mensur</code>] att.proport.anl [<code>proport</code>] att.ineume.anl [<code>ineume</code>] att.uneume.anl [<code>uneume</code>] att.mordent.anl [<code>mordent</code>] att.trill.anl [<code>trill</code>] att.turn.anl [<code>turn</code>] att.rdg.anl [<code>lem rdg</code>] att.harm.anl [<code>harm</code>] att.lyrics.anl [<code>lyrics</code>] att.verse.anl [<code>verse</code>] att.midi.anl [<code>midi</code>] <code>f fb cc chan chanPr cue hex marker metaText noteOff noteOn port prog seqNum trkName vel anchoredText curve line symbol</code>
Attributes	att.alignment (@when) @copyof points to an element of which the current element is a copy. Status Optional Datatype data.URI @corresp used to point to other elements that correspond to this one in a generic fashion. Status Optional

	<p>Datatype list { data.URI+ }</p>
@next	used to point to the next event(s) in a user-defined collection.
Status	Optional
Datatype	list { data.URI + }
@prev	points to the previous event(s) in a user-defined collection.
Status	Optional
Datatype	list { data.URI + }
@sameas	points to an element that is the same as the current element but is not a literal copy of the current element.
Status	Optional
Datatype	list { data.URI + }
@synch	points to elements that are synchronous with the current element.
Status	Optional
Datatype	list { data.URI + }

att.controlevent

att.controlevent Attributes shared by events which rely on other events for their existence. For example, a slur/phrase marking must be drawn between or over a group of notes. The slur is therefore a control event.	
Module	MEI.shared
Members	att.accid.log [accid] att.artic.log [artic] att.dir.log [dir] att.dot.log [dot] att.dynam.log [dynam] att.phrase.log [phrase] att.tempo.log [tempo] att.arpeg.log [arpeg] att.beamSpan.log [beamSpan] att.bend.log [bend] att.breath.log [breath] att.fermata.log [fermata] att.gliss.log [gliss] att.hairpin.log [hairpin] att.harpPedal.log [harpPedal] att.octave.log [octave] att.pedal.log [pedal] att.slur.log [slur] att.tie.log [tie] att.tupletSpan.log [tupletSpan] att.mordent.log [mordent] att.trill.log [trill] att.turn.log [turn] att.harm.log [harm]
Attributes	att.plist (@plist, @evaluate) att.timestamp.musical (@tstamp) att.timestamp.performed (@tstamp.ges, @tstamp.real) att.staffident (@staff) att.layerident (@layer)

att.coordinated

att.coordinated This attribute class records the position of a feature within a two-dimensional coordinate system.	
Module	MEI.shared
Members	surface zone symbolDef

Attributes	@ulx	indicates the upper-left corner x coordinate.
	Status	Optional
	Datatype	xsd:nonNegativeInteger
	@uly	indicates the upper-left corner y coordinate.
	Status	Optional
	Datatype	xsd:nonNegativeInteger
	@lrx	indicates the lower-right corner x coordinate.
	Status	Optional
	Datatype	xsd:nonNegativeInteger
	@lry	indicates the lower-left corner x coordinate.
	Status	Optional
	Datatype	xsd:nonNegativeInteger

att.crit

att.crit Attributes common to all elements representing variant readings.	
Module	MEI.critapp
Members	lem rdg
Attributes	att.handident (@hand) att.responsibility (@resp) att.sequence (@seq) att.source (@source) @cause classifies the cause for the variant reading, according to any appropriate typology of possible origins. Status Optional Datatype xsd:NMTOKEN

att.curvature

att.curvature Attributes that describe curvature.	
Module	MEI.shared
Members	att.bend.vis [bend] att.phrase.vis.cmn [att.phrase.vis [phrase]] att.slur.vis [slur] att.tie.vis [tie] curve
Attributes	@bezier records the placement of Bezier control points as a series of space-separated xy coordinates, e.g., 19 45 -32 118. Status Optional

	<p>@bulge describes a curve as a set of distance values above or below an imaginary line connecting the endpoints of the curve. The bulge attribute must contain one or more decimal values expressed in inter-line units.</p> <p>Status Optional</p> <p>@curvedir describes a curve with a generic term indicating the direction of curvature.</p> <p>Status Optional</p> <p>Legal values are: above upward curve.</p> <p>below downward curve.</p>
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att.curverend

att.curverend Attributes that record the visual rendition of curves.	
Module	MEI.shared
Members	att.bend.vis [bend] att.phrase.vis.cmn [att.phrase.vis [phrase]] att.slur.vis [slur] att.tie.vis [tie] curve
Attributes	<p>@rend describes the line style of the curve.</p> <p>Status Optional</p> <p>Datatype data.CURVERENDITION</p>

att.custos.anl

att.custos.anl Analytical domain attributes.	
Module	MEI.shared
Members	custos
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.custos.ges

att.custos.ges Gestural domain attributes.	
Module	MEI.shared
Members	custos

Attributes	NONE DEFINED
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att.custos.log

att.custos.log Logical domain attributes.	
Module	MEI.shared
Members	custos
Attributes	<p>att.pitched (att.pitch (@pname)) (att.octave (@oct))</p> <p>@target encodes the target note when its pitch differs from the pitch at which the custos appears.</p> <p>Status Optional</p> <p>Datatype data.URI</p>

att.custos.vis

att.custos.vis Visual domain attributes.	
Module	MEI.shared
Members	custos
Attributes	att.altsym (@altsym) att.color (@color)

att.cutout

att.cutout Attributes that indicate how to render staff lines of the measure containing an element belonging to this attribute class.	
Module	MEI.cmn
Members	att.mRest.vis [mRest] att.mSpace.vis [mSpace]
Attributes	<p>@cutout "Cut-out" style indicated for this measure.</p> <p>Status Optional</p> <p>Legal values are: cutout the staff lines should not be drawn.</p>

att.dateable

att.dateable Attributes common to dates.	
Module	MEI.shared
Members	date application change event corpName periodName persName
Attributes	<p>@enddate contains the end point of a date range in standard ISO form.</p> <p>Status Optional</p> <p>Datatype data.ISODATE</p> <p>@isodate provides the value of a textual date in standard ISO form.</p> <p>Status Optional</p> <p>Datatype data.ISODATE</p> <p>@notafter contains an upper boundary for an uncertain date in standard ISO form.</p> <p>Status Optional</p> <p>Datatype data.ISODATE</p> <p>@notbefore contains a lower boundary, in standard ISO form, for an uncertain date.</p> <p>Status Optional</p> <p>Datatype data.ISODATE</p> <p>@startdate contains the starting point of a date range in standard ISO form.</p> <p>Status Optional</p> <p>Datatype data.ISODATE</p>

att.datapointing

att.datapointing Attributes for linking metadata to data.	
Module	MEI.shared
Members	availability classification correction editorialDecl interpretation langUsage normalization projectDesc relatedItem samplingDecl segmentation source stdVals work surface zone when
Attributes	<p>@data used to link metadata elements to one or more data-containing elements.</p> <p>Status Optional</p> <p>Datatype list { data.URI+ }</p>

att.declaring

att.declaring provides attributes for elements which may be associated with particular contextual elements within the header.	
Module	MEI.shared
Members	body group layer layerDef mdiv music p parts part score section staff staffDef staffGrp measure facsimile surface graphic performance recording clip avFile back div front lg
Attributes	<p>@decls identifies one or more metadata elements within the header, which are understood to apply to the element bearing this attribute and its content.</p> <p>Status Optional</p> <p>Datatype list { data.URI+ }</p>

att.dir.anl

att.dir.anl Analytical domain attributes.	
Module	MEI.shared
Members	dir
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.dir.ges

att.dir.ges Gestural domain attributes.	
Module	MEI.shared
Members	dir
Attributes	att.duration.performed (@dur.ges)

att.dir.log

att.dir.log Logical domain attributes.	
Module	MEI.shared
Members	dir

Attributes	att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.startendid (@endid) (att.startid (@startid)) att.duration.timestamp (@dur)
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att.dir.vis

att.dir.vis Visual domain attributes.	
Module	MEI.shared
Members	dir
Attributes	att.placement (@place) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.visualoffset2.ho (@startho, @endho) att.visualoffset2.to (@startto, @endto) att.xy (@x, @y)

att.distances

att.distances Attributes that describe distance from the staff.	
Module	MEI.shared
Members	att.scoreDef.vis [scoreDef] att.staffDef.vis [staffDef]
Attributes	<p>@dynam.dist records the distance from the staff for dynamic marks in 1/2 inter-line units.</p> <p>Status Optional</p> <p>Datatype xsd:decimal</p> <p>@harm.dist records the default distance from the staff of harmonic indications, such as guitar chord grids or functional labels.</p> <p>Status Optional</p> <p>Datatype xsd:decimal</p> <p>@text.dist determines how far from the staff to render text elements.</p> <p>Status Optional</p> <p>Datatype xsd:decimal</p>

att.dot.anl

att.dot.anl Analytical domain attributes.	
Module	MEI.shared
Members	dot

Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))
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att.dot.ges

att.dot.ges Gestural domain attributes.	
Module	MEI.shared
Members	dot
Attributes	NONE DEFINED

att.dot.log

att.dot.log Logical domain attributes.	
Module	MEI.shared
Members	dot
Attributes	<p>att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.staffloc (@loc)</p> <p>@form records the function of the dot.</p> <p>Status Optional</p> <p>Legal values are: aug augmentation dot.</p> <p>div dot of division.</p>

att.dot.vis

att.dot.vis Visual domain attributes.	
Module	MEI.shared
Members	dot
Attributes	att.color (@color) att.visualoffset.ho (@ho) att.visualoffset.vo (@vo) att.xy (@x, @y)

att.duration.default

att.duration.default Attributes that provide a durational default value.	
Module	MEI.shared
Members	att.layerDef.log [layerDef] att.scoreDef.log [scoreDef] att.staffDef.log [staffDef]
Attributes	<p>@dur.default contains a default duration in those situations when the first note, rest, chord, etc. in a measure does not have a duration specified.</p> <p>Status Optional</p> <p>Datatype data.DURATION</p>

att.duration.musical

att.duration.musical Attributes that express duration in musical terms.	
Module	MEI.shared
Members	att.chord.log [chord] att.note.log [note] att.rest.log [rest] att.space.log [space] att.beamSpan.log [beamSpan] att.halfmRpt.log [halfmRpt] att.mRest.log [mRest]
Attributes	<p>@dur records the duration of a feature using the relative durational values provided by the data.DURATION datatype.</p> <p>Status Optional</p> <p>Datatype data.DURATION</p>

att.duration.performed

att.duration.performed Attributes that record performed duration that differs from a feature's written duration.	
Module	MEI.shared
Members	att.annot.ges [annot] att.chord.ges [chord] att.dir.ges [dir] att.dynam.ges [dynam] att.note.ges [note] att.phrase.ges [phrase] att.rest.ges [rest] att.space.ges [space] att.beamSpan.ges [beamSpan] att.fermata.ges [fermata] att.hairpin.ges [hairpin] att.harpPedal.ges [harpPedal] att.mRest.ges [mRest] att.mSpace.ges [mSpace] att.multiRest.ges [multiRest] att.octave.ges [octave] att.slur.ges [slur] att.tuplet.ges [att.tupletSpan.ges [tupletSpan] tuplet] att.trill.ges [trill] att.harm.ges [harm]
Attributes	<p>@dur.ges records performed duration information that differs from written duration. Its value may be expressed in any convenient form, such as measures[s]+ beat[s].beatpart, ppq (MIDI clicks), Humdrum **recip values, or MusicXML 'divisions', etc.</p> <p>Status Optional</p>

att.duration.ratio

att.duration.ratio Attributes that describe duration as a ratio.	
Module	MEI.shared
Members	att.tuplet.log [tuplet] att.tupletSpan.log [tupletSpan] att.mensur.log [mensuration mensur] att.mensurDefault.log [att.scoreDef.log.mensural [att.scoreDef.log [scoreDef]]] att.staffDef.log.mensural [att.staffDef.log [staffDef]]] att.note.ges.mensural [att.note.ges [note]]] att.proport.log [proport] att.rest.ges.mensural [att.rest.ges [rest]]]
Attributes	<p>@num along with numbase, describes duration as a ratio. num is the first value in the ratio, while numbase is the second.</p> <p>Status Optional</p> <p>Datatype xsd:positiveInteger</p> <p>@numbase along with num, describes duration as a ratio. num is the first value in the ratio, while numbase is the second.</p> <p>Status Optional</p> <p>Datatype xsd:positiveInteger</p>

att.duration.timestamp

att.duration.timestamp Attributes that express duration as a timestamp for the ending point.	
Module	MEI.shared
Members	att.annot.log [annot] att.dir.log [dir] att.dynam.log [dynam] att.phrase.log [phrase] att.bend.log [bend] att.gliss.log [gliss] att.hairpin.log [hairpin] att.octave.log [octave] att.slur.log [slur] att.tie.log [tie] att.trill.log [trill] att.harm.log [harm]
Attributes	<p>@dur records the duration of a feature using the relative durational values provided by the data.MEASUREBEAT datatype.</p> <p>Status Optional</p> <p>Datatype data.MEASUREBEAT</p>

att.dynam.anl

att.dynam.anl Analytical domain attributes.	
Module	MEI.shared
Members	dynam

Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))
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att.dynam.ges

att.dynam.ges Gestural domain attributes.	
Module	MEI.shared
Members	dynam
Attributes	att.duration.performed (@dur.ges) att.midivalue (@val)

att.dynam.log

att.dynam.log Logical domain attributes.	
Module	MEI.shared
Members	dynam
Attributes	att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.startendid (@endid) (att.startid (@startid)) att.duration.timestamp (@dur)

att.dynam.vis

att.dynam.vis Visual domain attributes.	
Module	MEI.shared
Members	dynam
Attributes	att.placement (@place) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.visualoffset2.ho (@startho, @endho) att.visualoffset2.to (@startto, @endto) att.xy (@x, @y)

att.edit

att.edit Attributes describing the nature of an encoded scholarly intervention or interpretation.	
Module	MEI.edittrans
Members	abbr date expan event add corr gap handShift orig reg restore subst supplied unclear corpName geogName periodName persName styleName
Attributes	att.responsibility (@resp) att.source (@source)

	<p>@cert signifies the degree of certainty or precision associated with a feature.</p> <p>Status Optional</p> <p>Datatype data.CERTAINTY</p> <p>@evidence indicates the nature of the evidence supporting the reliability or accuracy of the intervention or interpretation. Suggested values include: 'internal', 'external', 'conjecture'.</p> <p>Status Optional</p> <p>Datatype <code>xsd:NMTOKEN</code></p>
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att.enclosingchars

att.enclosingchars Attributes that capture characters used to enclose symbols having a cautionary or editorial function.	
Module	MEI.shared
Members	att.accid.vis [accid] att.artic.vis [artic] att.note.vis [note] keyAccid
Attributes	<p>@enclose records the characters often used to mark accidentals, articulations, and sometimes notes as having a cautionary or editorial function. For an example of cautionary accidentals enclosed in parentheses, see Read, p. 131, ex. 9-14.</p> <p>Status Optional</p> <p>Datatype data.ENCLOSURE</p>

att.ending.anl

att.ending.anl Analytical domain attributes.	
Module	MEI.shared
Members	ending
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.ending.ges

att.ending.ges Gestural domain attributes.	
Module	MEI.shared
Members	ending
Attributes	NONE DEFINED

att.ending.log

att.ending.log Logical domain attributes.	
Module	MEI.shared
Members	ending
Attributes	NONE DEFINED

att.ending.vis

att.ending.vis Visual domain attributes.	
Module	MEI.shared
Members	ending
Attributes	NONE DEFINED

att.event

att.event Attributes that apply to all written events, e.g., note, chord, rest, etc.	
Module	MEI.shared
Members	att.chord.log [chord] att.note.log [note] att.pad.log [pad] att.rest.log [rest] att.space.log [space] att.beam.log [beam] att.beatRpt.log [beatRpt] att.bTrem.log [bTrem] att.fTrem.log [fTrem] att.halfmRpt.log [halfmRpt] att.mRest.log [mRest] att.mRpt.log [mRpt] att.mRpt2.log [mRpt2] att.mSpace.log [mSpace] att.multiRest.log [multiRest] att.multiRpt.log [multiRpt] att.tuplet.log [tuplet] att.uneume.log [uneume] clefGrp
Attributes	att.timestamp.musical (@tstamp) att.timestamp.performed (@tstamp.ges, @tstamp.real) att.staffident (@staff) att.layerident (@layer)

att.expandable

att.expandable Attributes that indicate whether to render a repeat symbol or the source material to which it refers.	
Module	MEI.cmn
Members	att.beatRpt.vis [beatRpt] att.halfmRpt.vis [halfmRpt] att.mRpt.vis [mRpt] att.mRpt2.vis [mRpt2] att.multiRpt.vis [multiRpt]
Attributes	@expand indicates whether to render a repeat symbol or the source material to which it refers. A value of 'true' renders the source material, while 'false' displays the repeat symbol.

	Status Optional Datatype data.BOOLEAN

att.extent

att.extent Attributes for identification of the extent of editorial assertions.	
Module	MEI.editrans
Members	damage gap
Attributes	@extent indicates the extent of damage or omission. Status Optional

att.fTrem.anl

att.fTrem.anl Analytical domain attributes.	
Module	MEI.cmn
Members	fTrem
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.fTrem.ges

att.fTrem.ges Gestural domain attributes.	
Module	MEI.cmn
Members	fTrem
Attributes	att.tremmeasured (@measperf)

att.fTrem.log

att.fTrem.log Logical domain attributes.	
Module	MEI.cmn
Members	fTrem

Attributes	<p>att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))</p> <p>@form describes the style of the tremolo.</p> <p>Status Optional</p> <p>Legal values are: meas measured tremolo.</p> <p>unmeas unmeasured tremolo.</p>
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att.fTrem.vis

att.fTrem.vis Visual domain attributes.	
Module	MEI.cmn
Members	fTrem
Attributes	att.slashcount (@slash)

att.facsimile

att.facsimile Attributes that associate a feature corresponding with all or part of an image.	
Module	MEI.facsimile
Members	<p>abbr accid actor address addrLine annot artic barLine bibl caption castList castItem castGrp chord clef clefGrp custos date dir dot dynam ending expan fw grpSym identifier keyAccid keySig label layer lb mdiv name note num p pb pgHead pgHead2 pgFoot pgFoot2 phrase repository rest role roleDesc sb section space stack staff staffGrp syl tempo title titlePage meterSig plateNum watermark arpeg beam beamSpan beatRpt bend breath bTrem fermata fTrem hairpin harpPedal gliss halfmRpt measure mRest mRpt mRpt2 mSpace multiRest multiRpt octave ossia pedal reh slur tie tuplet tupletSpan mensur proport ligature ineume uneume mordent trill turn add damage del handShift orig restore sic supplied unclear graphic fig table td th tr f fb harm lyrics verse corpName geogName periodName persName styleName avFile back quote div front head item l lg list anchoredText curve line symbol</p>
Attributes	<p>@facs permits the current element to reference a facsimile image or image zone which corresponds to it.</p> <p>Status Optional</p> <p>Datatype list { data.URI+ }</p>

att.fermata.anl

att.fermata.anl Analytical domain attributes.	
Module	MEI.cmn
Members	fermata
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.fermata.ges

att.fermata.ges Gestural domain attributes.	
Module	MEI.cmn
Members	fermata
Attributes	att.duration.performed (@dur.ges)

att.fermata.log

att.fermata.log Logical domain attributes.	
Module	MEI.cmn
Members	fermata
Attributes	att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.startendid (@endid) (att.startid (@startid))

att.fermata.vis

att.fermata.vis Visual domain attributes.	
Module	MEI.cmn
Members	fermata
Attributes	<p>att.altsym (@altsym) att.color (@color) att.placement (@place) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.xy (@x, @y)</p> <p>@form describes the visual appearance of the fermata; that is, whether it occurs as upright or inverted.</p> <p>Status Optional</p>

	<p>Legal values are:</p> <p>inv inverted, i.e., curve or bracket below the dot.</p> <p>norm upright; i.e., curve or bracket above the dot.</p> <p>@shape describes the visual appearance of the fermata; that is, whether it has a curved or square shape.</p> <p>Status Optional</p> <p>Legal values are:</p> <p>curved a curve above or below the dot.</p> <p>square a bracket above or below the dot.</p>
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att.fermatapresent

att.fermatapresent Attributes indicating the attachment of a fermata to the feature.	
Module	MEI.shared
Members	att.chord.log [chord] att.note.log [note] att.rest.log [rest] att.space.log [space] att.mRest.log [mRest] att.mSpace.log [mSpace]
Attributes	<p>@fermata indicates the attachment of a fermata to this element. If visual information about the fermata needs to be recorded, then a <fermata> element should be employed instead.</p> <p>Status Optional</p> <p>Datatype data.STAFFREL</p>

att.fretlocation

att.fretlocation Attributes that describe a fret location.	
Module	MEI.harmony
Members	barre chordMember
Attributes	<p>@fret records the location at which a string should be stopped against a fret.</p> <p>Status Optional</p> <p>Datatype data.FRET</p>

att.gliss.anl

att.gliss.anl Analytical domain attributes.	
Module	MEI.cmn
Members	gliss
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.gliss.ges

att.gliss.ges Gestural domain attributes.	
Module	MEI.cmn
Members	gliss
Attributes	NONE DEFINED

att.gliss.log

att.gliss.log Logical domain attributes.	
Module	MEI.cmn
Members	gliss
Attributes	att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.startendid (@endid) (att.startid (@startid)) att.duration.timestamp (@dur)

att.gliss.vis

att.gliss.vis Visual domain attributes.	
Module	MEI.cmn
Members	gliss
Attributes	<p>att.color (@color) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.visualoffset2 (att.visualoffset2.ho (@startho, @endho)) (att.visualoffset2.to (@startto, @endto)) (att.visualoffset2.vo (@startvo, @endvo)) att.xy (@x, @y) att.xy2 (@x2, @y2) att.linerend (@rend)</p> <p>@text records a text string, such as 'gliss', that accompanies the glissando mark.</p> <p>Status Optional</p>

att.graced

att.graced Attributes that mark a note or chord as a "grace", how it should "steal" time, and how much time should be allotted to the grace note/chord.	
Module	MEI.cmn
Members	att.chord.ges.cmn [att.chord.ges [chord]] att.note.ges.cmn [att.note.ges [note]]
Attributes	<p>@grace marks a note or chord as a "grace" (without a definitive written duration) and records from which other note/chord it should "steal" time.</p> <p>Status Optional</p> <p>Datatype data.GRACE</p> <p>@grace.time records the amount of time to be "stolen" from a non-grace note/chord.</p> <p>Status Optional</p> <p>Datatype data.PERCENT</p>

att.grpSym.anl

att.grpSym.anl Analytical domain attributes.	
Module	MEI.shared
Members	grpSym
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.grpSym.ges

att.grpSym.ges Gestural domain attributes.	
Module	MEI.shared
Members	grpSym
Attributes	NONE DEFINED

att.grpSym.log

att.grpSym.log Logical domain attributes.	
Module	MEI.shared

Members	grpSym
Attributes	att.staffgroupingsym (@symbol)

att.grpSym.vis

att.grpSym.vis Visual domain attributes.	
Module	MEI.shared
Members	grpSym
Attributes	att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.xy (@x, @y)

att.hairpin.anl

att.hairpin.anl Analytical domain attributes.	
Module	MEI.cmn
Members	hairpin
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.hairpin.ges

att.hairpin.ges Gestural domain attributes.	
Module	MEI.cmn
Members	hairpin
Attributes	att.duration.performed (@dur.ges)

att.hairpin.log

att.hairpin.log Logical domain attributes.	
Module	MEI.cmn
Members	hairpin
Attributes	att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.startendid (@endid) (att.startid (@startid)) att.duration.timestamp (@dur)

	<p>@form captures the visual rendition and function of the hairpin; that is, whether it indicates an increase or a decrease in volume.</p> <p>Status Required</p> <p>Legal values are: cres crescendo; i.e., louder.</p> <p>dim diminuendo; i.e., softer.</p>
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att.hairpin.vis

att.hairpin.vis Visual domain attributes. The **startho** and **startvo** attributes record the horizontal and vertical offsets of the left end, **endho** and **endvo** record the horizontal and vertical offsets of the right end, and the **opening** attribute records the width of the opening in staff inter-line units. The **x** and **y** attributes give the absolute coordinates of the left side of the top line of the hairpin while **x2** and **y2** record the coordinates of the right side of the top line. The position of the end points of the bottom line can be calculated using the top line coordinates and the value of the width attribute.

Module	MEI.cmn
Members	hairpin
Attributes	<p>att.color (@color) att.placement (@place) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.visualoffset2 (att.visualoffset2.ho (@startho, @endho)) (att.visualoffset2.to (@startto, @endto)) (att.visualoffset2.vo (@startvo, @endvo)) att.xy (@x, @y) att.xy2 (@x2, @y2)</p> <p>@opening specifies the distance between the points of the open end of a hairpin dynamic mark.</p> <p>Status Optional</p> <p>Datatype data.INTERLINE</p>

att.halfmRpt.anl

att.halfmRpt.anl Analytical domain attributes.

Module	MEI.cmn
Members	halfmRpt
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.halfmRpt.ges

att.halfmRpt.ges Gestural domain attributes.

Module	MEI.cmn
Members	halfmRpt
Attributes	NONE DEFINED

att.halfmRpt.log

att.halfmRpt.log Logical domain attributes.	
Module	MEI.cmn
Members	halfmRpt
Attributes	att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.duration.musical (@dur)

att.halfmRpt.vis

att.halfmRpt.vis Visual domain attributes.	
Module	MEI.cmn
Members	halfmRpt
Attributes	att.altsym (@altsym) att.color (@color) att.expandable (@expand) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))

att.handident

att.handident Attributes which identify a document hand.	
Module	MEI.shared
Members	att.crit [lem rdg] att.trans [abbr expan add corr del restore subst] damage gap unclear
Attributes	<p>@hand signifies the hand responsible for an action. The value must be the ID of a <hand> element declared in the header.</p> <p>Status Optional</p> <p>Datatype data.URI</p>

att.harm.anl

att.harm.anl Analytical domain attributes.

Module	MEI.harmony
Members	harm
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.harm.ges

att.harm.ges Gestural domain attributes.	
Module	MEI.harmony
Members	harm
Attributes	att.duration.performed (@dur.ges)

att.harm.log

att.harm.log Logical domain attributes.	
Module	MEI.harmony
Members	harm
Attributes	att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) (att.startendid (@endid)) (att.startid (@startid)) (att.duration.timestamp (@dur)) @chordref contains a reference to a <chordDef> element elsewhere in the document. Status Optional Datatype data.URI

att.harm.vis

att.harm.vis Visual domain attributes.	
Module	MEI.harmony
Members	harm
Attributes	att.placement (@place) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) (att.visualoffset2.ho (@startho, @endho)) (att.visualoffset2.to (@startto, @endto)) (att.xy (@x, @y)) @extender indicates the presence of an extension symbol, typically a dash or underscore, drawn from the end of the harmonic indication to the point indicated by the dur attribute. Status Optional

	<p>Datatype data.BOOLEAN</p> <p>@rendgrid describes how the harmonic indication should be rendered.</p> <p>Status Optional</p> <p>Legal values are: grid chord tablature grid.</p> <p>gridtext chord tablature grid and the element's textual content.</p> <p>text textual content of the element.</p>
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att.harmonicfunction

att.harmonicfunction Attributes describing the harmonic function of a single pitch.	
Module	MEI.analysis
Members	att.note.anl [<i>note</i>] att.uneume.anl [<i>uneume</i>]
Attributes	<p>@hfunc describes harmonic function in any convenient typology.</p> <p>Status Optional</p> <p>Datatype <code>xsd:NMTOKEN</code></p>

att.harpPedal.anl

att.harpPedal.anl Analytical domain attributes.	
Module	MEI.cmn
Members	harpPedal
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.harpPedal.ges

att.harpPedal.ges Gestural domain attributes.	
Module	MEI.cmn
Members	harpPedal

Attributes	att.duration.performed (@dur.ges)
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att.harpPedal.log

att.harpPedal.log Logical domain attributes. The pedal setting, i.e., flat, natural, or sharp, for each diatonic pitch name is indicated by the seven letter-named attributes.	
Module	MEI.cmn
Members	harpPedal
Attributes	<p>att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.startendid (@endid) (att.startid (@startid))</p> <p>@c indicates the pedal setting for the harp's C strings.</p> <p>Status Optional</p> <p>Legal values are: f flat. n natural. [Default] s sharp.</p> <p>@d indicates the pedal setting for the harp's D strings.</p> <p>Status Optional</p> <p>Legal values are: f flat. n natural. [Default] s sharp.</p> <p>@e indicates the pedal setting for the harp's E strings.</p> <p>Status Optional</p> <p>Legal values are: f flat. n natural. [Default] s sharp.</p>

@f indicates the pedal setting for the harp's F strings.

Status Optional

Legal values are: **f** flat.

n natural. **[Default]**

s sharp.

@g indicates the pedal setting for the harp's G strings.

Status Optional

Legal values are: **f** flat.

n natural. **[Default]**

s sharp.

@a indicates the pedal setting for the harp's A strings.

Status Optional

Legal values are: **f** flat.

n natural. **[Default]**

s sharp.

@b indicates the pedal setting for the harp's B strings.

Status Optional

Legal values are: **f** flat.

n natural. **[Default]**

s sharp.

att.harpPedal.vis

att.harpPedal.vis Visual domain attributes.	
Module	MEI.cmn
Members	harpPedal
Attributes	att.color (@color) att.placement (@place) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.xy (@x, @y)

att.horizontalalign

att.horizontalalign Attributes that record horizontal alignment.	
Module	MEI.shared
Members	att.syl.vis [syl] rend
Attributes	<p>@halign records horizontal alignment.</p> <p>Status Optional</p> <p>Legal values are:</p> <p>left left aligned.</p> <p>right right aligned.</p> <p>center centered.</p> <p>justify left and right aligned.</p>

att.id

att.id Attributes that uniquely identify an element.	
Module	MEI.shared
Members	att.common [abbr accid actor address addrLine annot artic barLine bibl body caption castList castItem castGrp clef clefGrp custos date dir dot dynam edition ending expan expansion fw group grpSym identifier incip instrGrp instrDef keyAccid key keySig label layer layerDef lb mdiv music name note num p pad parts part pb pgDesc pgHead pgHead2 pgFoot pgFoot2 phrase rend repository rest role roleDesc sb score scoreDef section space stack staff staffDef staffGrp syl tempo title titlePage meiHead accessRestrict acqSource altId appInfo application availability change changeDesc classCode classification condition correction contents contentItem creation dimensions editionStmt editorialDecl encodingDesc exhibHist extent fileDesc hand handList history incipCode incipText inscription interpretation mensuration meter

	meterSig termList language langUsage normalization notesStmt perfMedium instrumentation ensemble instrVoice instrVoiceGrp physDesc physLoc physMedium plateNum price projectDesc provenance pubStmt relatedItem respStmt revisionDesc samplingDecl segmentation seriesStmt source sourceDesc stdVals sysReq term titleStmt treatHist treatSched unpub useRestrict watermark workDesc work eventList event arpeg beam beamSpan beatRpt bend breath bTrem fermata fTrem hairpin harpPedal gliss halfmRpt measure mRest mRpt mRpt2 mSpace multiRest multiRpt octave ossia pedal reh slur tie tuplet tupletSpan mensur proport ligature ineume syllable uneume mordent trill turn meiCorpus app lem rdg add choice corr damage del gap handShift orig reg restore sic subst supplied unclear facsimile surface zone graphic fig figDesc table td th tr barre chordDef chordMember chordTable f fb harm timeline when lyrics verse cc chan chanPr cue hex marker metaText midi noteOff noteOn port prog seqNum trkName vel corpName geogName periodName persName styleName performance recording clip avFile ptr ref back quote div front head item l lg list anchoredText curve line symbol symbolDef symbolTable mei
Attributes	<p>@xml:id regularizes the naming of an element and thus facilitates building links between it and other resources. Each id attribute within a document must have a unique value.</p> <p>Status Optional</p> <p>Datatype <code>xsd:ID</code></p>

att.ineume.anl

att.ineume.anl Analytical domain attributes.	
Module	MEI.neumes
Members	ineume
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.ineume.ges

att.ineume.ges Gestural domain attributes.	
Module	MEI.neumes
Members	ineume
Attributes	NONE DEFINED

att.ineume.log

att.ineume.log Logical domain attributes.	
Module	MEI.neumes
Members	ineume

Attributes	@form	provides a subclass or functional label for the neume.
	Status	Optional
	Datatype	data.INEUMEFORM
	@name	records the name of the neume.
	Status	Optional
	Datatype	data.INEUMENAME

att.ineume.vis

att.ineume.vis Visual domain attributes.	
Module	MEI.neumes
Members	ineume
Attributes	att.color (@color)

att.instrumentident

att.instrumentident Attributes which identify a MIDI instrument.	
Module	MEI.shared
Members	att.chord.ges [chord] att.layerDef.ges [layerDef] att.note.ges [note] att.rest.ges [rest] att.staffDef.ges [staffDef] att.staffGrp.ges [staffGrp] att.mRest.ges [mRest] att.mSpace.ges [mSpace] att.multiRest.ges [multiRest]
Attributes	@instr provides a way of pointing to a MIDI instrument definition. It must contain the ID of an <instrDef> element elsewhere in the document. Status Optional Datatype data.URI

att.internetmedia

att.internetmedia Attributes which record the type of an electronic resource.	
Module	MEI.shared
Members	incipCode incipText graphic avFile ptr ref

Attributes	<p>@mimetype specifies the applicable MIME (multimedia internet mail extension) type. The value should be a valid MIME media type defined by the Internet Engineering Task Force in RFC 2046.</p> <p>Status Optional</p>
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att.intervalharmonic

att.intervalharmonic Attributes that describe harmonic intervals.	
Module	MEI.analysis
Members	att.intervallicdesc [att.note.anl [note] att.uneume.anl [uneume]] chordMember
Attributes	<p>@inth encodes the harmonic interval between this note and other pitches occurring at the same time.</p> <p>Status Optional</p> <p>Datatype <code>xsd:NMTOKENS</code></p>

att.intervallicdesc

att.intervallicdesc Attributes that provide for description of intervallic content.	
Module	MEI.analysis
Members	att.note.anl [note] att.uneume.anl [uneume]
Attributes	<p>att.intervalharmonic (@inth)</p> <p>@intm encodes the melodic interval from the previous pitch. The value may be a general directional indication (u, d, s) or a precise numeric value in half steps.</p> <p>Status Optional</p> <p>Datatype data.INTERVAL.AMOUNT</p>

att.joined

att.joined Attributes indicating that elements are semantically linked; that is, while the parts are encoded separately, together they may be thought of as a single intellectual object.	
Module	MEI.shared
Members	att.measure.anl [measure] att.phrase.anl [phrase] att.slur.anl [slur]
Attributes	<p>@join used for linking visually separate entities that form a single logical entity, for example, multiple slurs broken across a system break that form a single musical phrase. Also used to</p>

	indicate a measure which metrically completes the current one. Record the identifiers of the separately encoded components, excluding the one carrying the attribute.
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	Status Optional
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	Datatype list { data.URI + }
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att.keySig.anl

att.keySig.anl Analytical domain attributes.	
Module	MEI.shared
Members	keySig
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.keySig.ges

att.keySig.ges Gestural domain attributes.	
Module	MEI.shared
Members	keySig
Attributes	NONE DEFINED

att.keySig.log

att.keySig.log Logical domain attributes.	
Module	MEI.shared
Members	key keySig
Attributes	att.accidental (@accid) att.pitch (@pname) @mode indicates major, minor, or other tonality. Status Optional Datatype data.MODE

att.keySig.vis

att.keySig.vis Visual domain attributes.	
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Module	MEI.shared
Members	keySig
Attributes	NONE DEFINED

att.keySigDefault.log

att.keySigDefault.log Used by staffDef and scoreDef to provide default values for attributes in the logical domain related to key signatures.

Module	MEI.shared
Members	att.scoreDef.log [scoreDef] att.staffDef.log [staffDef]
Attributes	<p>@key.accid contains an accidental for the tonic key, if one is required, e.g., if key.pname equals 'c' and key.accid equals 's', then a tonic of C# is indicated.</p> <p>Status Optional</p> <p>Datatype data.ACCIDENTAL.IMPLICIT</p> <p>@key.mode indicates major, minor, or other tonality.</p> <p>Status Optional</p> <p>Datatype data.MODE</p> <p>@key.pname holds the pitch name of the tonic key, e.g. 'c' for the key of C.</p> <p>Status Optional</p> <p>Datatype data.PITCHNAME</p> <p>@key.sig indicates where the key lies in the circle of fifths.</p> <p>Status Optional</p> <p>Datatype data.KEYSIGNATURE</p> <p>@key.sig.mixed Mixed key signatures, e.g. those consisting of a mixture of flats and sharps (Read, p. 143, ex. 9-39), and key signatures with unorthodox placement of the accidentals (Read, p. 141) must be indicated by setting the key.sig attribute to 'mixed' and providing explicit key signature information in the key.sig.mixed attribute or in the <keySig> element. It is intended that key.sig.mixed contain a series of tokens with each token containing pitch name, accidental, and octave, such as 'A4 Cs5 Ef5' that indicate what key accidentals should be rendered and where they should be placed.</p> <p>Status Optional</p> <p>Datatype <code>list { token { pattern = "[a-g][0-9] (\- 1,3 f{1,3} #{1,3} s{1,3} x) " }+ }</code></p>

att.keySigDefault.vis

att.keySigDefault.vis Used by staffDef and scoreDef to provide default values for attributes in the visual domain related to key signatures.	
Module	MEI.shared
Members	att.scoreDef.vis [scoreDef] att.staffDef.vis [staffDef]
Attributes	<p>@key.sig.show indicates whether the key signature should be displayed.</p> <p>Status Optional</p> <p>Datatype data.BOOLEAN</p> <p>@key.sig.showChange indicates whether cautionary accidentals should be displayed at a key change.</p> <p>Status Optional</p> <p>Datatype data.BOOLEAN</p>

att.labels.addl

att.labels.addl Attributes that record labels for a feature in addition to those found in att.common.	
Module	MEI.shared
Members	att.layerDef.vis [layerDef] att.staffDef.vis [staffDef] att.staffGrp.vis [staffGrp]
Attributes	<p>@label.abbr provides a label for a group of staves on pages after the first page. Usually, this label takes an abbreviated form.</p> <p>Status Optional</p>

att.lang

att.lang Language attributes common to text elements.	
Module	MEI.shared
Members	abbr actor address addrLine annot bibl caption castList castItem castGrp date dir dynam expan fw name num p pgDesc pgHead pgHead2 pgFoot pgFoot2 rend repository role roleDesc stack tempo title titlePage meiHead accessRestrict acqSource changeDesc condition correction creation editionStmt editorialDecl exhibHist hand incipText inscription interpretation normalization physMedium projectDesc provenance samplingDecl segmentation stdVals sysReq event figDesc table td th tr lyrics verse corpName geogName periodName persName styleName ref back quote div front head lg list anchoredText
Attributes	@xml:lang identifies the language of the element's content. The values for this attribute are language 'tags' as defined in BCP 47. All language tags that make use of private use sub-tags must be

documented in a corresponding language element in the MEI header whose id attribute is the same as the language tag's value.

Status Optional

Datatype `xsd:language`

att.layer.anl

att.layer.anl Analytical domain attributes.

Module	MEI.shared
Members	layer
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.layer.ges

att.layer.ges Gestural domain attributes.

Module	MEI.shared
Members	layer
Attributes	NONE DEFINED

att.layer.log

att.layer.log Logical domain attributes.

Module	MEI.shared
Members	layer
Attributes	<p>att.meterconformance (@metcon)</p> <p>@def provides a mechanism for linking the layer to a layerDef element.</p> <p>Status Optional</p> <p>Datatype data.URI</p>

att.layer.vis

att.layer.vis Visual domain attributes.

Module	MEI.shared
Members	layer
Attributes	att.visibility (@visible)

att.layerDef.anl

att.layerDef.anl Analytical domain attributes.	
Module	MEI.shared
Members	layerDef
Attributes	NONE DEFINED

att.layerDef.ges

att.layerDef.ges Gestural domain attributes.	
Module	MEI.shared
Members	layerDef
Attributes	att.instrumentident (@instr)

att.layerDef.log

att.layerDef.log Logical domain attributes.	
Module	MEI.shared
Members	layerDef
Attributes	att.duration.default (@dur.default) att.octavedefault (@octave.default) att.layerDef.log.cmn (att.beaming.log (@beam.group, @beam.rests))

att.layerDef.log.cmn

att.layerDef.log.cmn Logical domain attributes.	
Module	MEI.cmn
Members	att.layerDef.log [layerDef]
Attributes	att.beaming.log (@beam.group, @beam.rests)

att.layerDef.vis

att.layerDef.vis Visual domain attributes.	
Module	MEI.shared
Members	layerDef
Attributes	att.labels.addl (@label.abbr) att.beaming.vis (@beam.rend, @beam.slope) att.textstyle (@text.fam, @text.name, @text.size, @text.style, @text.weight) att.visibility (@visible)

att.layerident

att.layerident Attributes that identify the layer to which a feature applies.	
Module	MEI.shared
Members	att.controlevent [att.accid.log [accid] att.artic.log [artic] att.dir.log [dir] att.dot.log [dot] att.dynam.log [dynam] att.phrase.log [phrase] att.tempo.log [tempo] att.arpeg.log [arpeg] att.beamSpan.log [beamSpan] att.bend.log [bend] att.breath.log [breath] att.fermata.log [fermata] att.gliss.log [gliss] att.hairpin.log [hairpin] att.harpPedal.log [harpPedal] att.octave.log [octave] att.pedal.log [pedal] att.slur.log [slur] att.tie.log [tie] att.tupletSpan.log [tupletSpan] att.mordent.log [mordent] att.trill.log [trill] att.turn.log [turn] att.harm.log [harm]] att.event [att.chord.log [chord] att.note.log [note] att.pad.log [pad] att.rest.log [rest] att.space.log [space] att.beam.log [beam] att.beatRpt.log [beatRpt] att.bTrem.log [bTrem] att.fTrem.log [fTrem] att.halfmRpt.log [halfmRpt] att.mRest.log [mRest] att.mRpt.log [mRpt] att.mRpt2.log [mRpt2] att.mSpace.log [mSpace] att.multiRest.log [multiRest] att.multiRpt.log [multiRpt] att.tuplet.log [tuplet] att.uneume.log [uneume] clefGrp att.annot.log [annot] att.lyrics.log [lyrics] att.midi.event [cc chan chanPr cue hex marker metaText noteOff noteOn port prog seqNum trkName vel] att.midi.log [midi]]
Attributes	<p>@layer identifies the layer to which a feature applies.</p> <p>Status Optional</p> <p>Datatype list { xsd:positiveInteger+ }</p>

att.ligature.anl

att.ligature.anl Analytical domain attributes.	
Module	MEI.mensural
Members	ligature
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.ligature.ges

att.ligature.ges Gestural domain attributes.	
Module	MEI.mensural
Members	ligature
Attributes	NONE DEFINED

att.ligature.log

att.ligature.log Logical domain attributes.							
Module	MEI.mensural						
Members	ligature						
Attributes	<table><tr><td>@form</td><td>provides an indication of the function of the ligature.</td></tr><tr><td>Status</td><td>Optional</td></tr><tr><td>Datatype</td><td>data.LIGATUREFORM</td></tr></table>	@form	provides an indication of the function of the ligature.	Status	Optional	Datatype	data.LIGATUREFORM
@form	provides an indication of the function of the ligature.						
Status	Optional						
Datatype	data.LIGATUREFORM						

att.ligature.vis

att.ligature.vis Visual domain attributes.	
Module	MEI.mensural
Members	ligature
Attributes	NONE DEFINED

att.lineloc

att.lineloc Attributes for identifying the staff line with which a feature is associated.					
Module	MEI.shared				
Members	att.clef.log [clef] att.rest.vis.mensural [att.rest.vis [rest]]				
Attributes	<table><tr><td>@line</td><td>indicates the line upon which a feature stands. The value must be in the range between 1 and the number of lines on the staff. The numbering of lines starts with the lowest line of the staff.</td></tr><tr><td>Status</td><td>Optional</td></tr></table>	@line	indicates the line upon which a feature stands. The value must be in the range between 1 and the number of lines on the staff. The numbering of lines starts with the lowest line of the staff.	Status	Optional
@line	indicates the line upon which a feature stands. The value must be in the range between 1 and the number of lines on the staff. The numbering of lines starts with the lowest line of the staff.				
Status	Optional				

	Datatype data.CLEFLINE
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att.linerend

att.linerend Attributes that record the visual rendition of lines.	
Module	MEI.shared
Members	att.gliss.vis [gliss] att.octave.vis [octave] line
Attributes	<p>@rend records the appearance of a line.</p> <p>Status Optional</p> <p>Datatype data.LINERENDITION</p>

att.lvpresent

att.lvpresent Attributes that indicate the presence of an l.v. (laissez vibrer) marking attached to a feature.	
Module	MEI.cmn
Members	att.chord.log.cmn [att.chord.log [chord]] att.note.log.cmn [att.note.log [note]]
Attributes	<p>@lv indicates the attachment of an l.v. (laissez vibrer) sign to this element.</p> <p>Status Optional</p> <p>Datatype data.BOOLEAN</p>

att.lyrics.anl

att.lyrics.anl Analytical domain attributes.	
Module	MEI.lyrics
Members	lyrics
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.lyrics.ges

att.lyrics.ges Gestural domain attributes.	
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Module	MEI.lyrics
Members	lyrics
Attributes	NONE DEFINED

att.lyrics.log

att.lyrics.log Logical domain attributes.	
Module	MEI.lyrics
Members	lyrics
Attributes	att.staffident (@staff) att.layerident (@layer)

att.lyrics.vis

att.lyrics.vis Visual domain attributes.	
Module	MEI.lyrics
Members	lyrics
Attributes	att.placement (@place) att.typography (@fontfam, @fontname, @fontsize, @fontstyle, @fontweight)

att.lyricstyle

att.lyricstyle Attributes that describe default typography of lyrics.	
Module	MEI.shared
Members	att.scoreDef.vis [scoreDef] att.staffDef.vis [staffDef]
Attributes	<p>@lyric.align describes the alignment of lyric syllables associated with a note or chord.</p> <p>Status Optional</p> <p>Datatype <code>xsd:decimal</code></p> <p>@lyric.fam sets the font family default value for lyrics.</p> <p>Status Optional</p> <p>Datatype data.FONTFAMILY</p> <p>@lyric.name sets the font name default value for lyrics.</p> <p>Status Optional</p>

	<p>Datatype data.FONTNAME</p> <p>@lyric.size sets the default font size value for lyrics.</p> <p>Status Optional</p> <p>Datatype xsd:decimal</p> <p>@lyric.style sets the default font style value for lyrics.</p> <p>Status Optional</p> <p>Datatype data.FONTSTYLE</p> <p>@lyric.weight sets the default font weight value for lyrics.</p> <p>Status Optional</p> <p>Datatype data.FONTWEIGHT</p>
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att.mRest.anl

att.mRest.anl Analytical domain attributes.	
Module	MEI.cmn
Members	mRest
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.mRest.ges

att.mRest.ges Gestural domain attributes.	
Module	MEI.cmn
Members	mRest
Attributes	att.duration.performed (@dur.ges) att.instrumentident (@instr)

att.mRest.log

att.mRest.log Logical domain attributes.	
Module	MEI.cmn
Members	mRest

Attributes	att.duration.musical (@dur) att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.fermatapresent (@fermata)
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att.mRest.vis

att.mRest.vis Visual domain attributes.	
Module	MEI.cmn
Members	mRest
Attributes	att.altsym (@altsym) att.cutout (@cutout) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.visibility (@visible) att.xy (@x, @y) att.relativeSize (@size)

att.mRpt.anl

att.mRpt.anl Analytical domain attributes.	
Module	MEI.cmn
Members	mRpt
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.mRpt.ges

att.mRpt.ges Gestural domain attributes.	
Module	MEI.cmn
Members	mRpt
Attributes	NONE DEFINED

att.mRpt.log

att.mRpt.log Logical domain attributes.	
Module	MEI.cmn
Members	mRpt
Attributes	att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))

att.mRpt.vis

att.mRpt.vis Visual domain attributes.	
Module	MEI.cmn
Members	mRpt
Attributes	att.altsym (@altsym) att.color (@color) att.expandable (@expand)

att.mRpt2.anl

att.mRpt2.anl Analytical domain attributes.	
Module	MEI.cmn
Members	mRpt2
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.mRpt2.ges

att.mRpt2.ges Gestural domain attributes.	
Module	MEI.cmn
Members	mRpt2
Attributes	NONE DEFINED

att.mRpt2.log

att.mRpt2.log Logical domain attributes.	
Module	MEI.cmn
Members	mRpt2
Attributes	att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer))

att.mRpt2.vis

att.mRpt2.vis Visual domain attributes.	
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Module	MEI.cmn
Members	mRpt2
Attributes	att.altsym (@altsym) att.color (@color) att.expandable (@expand)

att.mSpace.anl

att.mSpace.anl Analytical domain attributes. Use the n attribute to explicitly encode this measure's position in a string of measures containing only <mRest> elements.

Module	MEI.cmn
Members	mSpace
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.mSpace.ges

att.mSpace.ges Gestural domain attributes.

Module	MEI.cmn
Members	mSpace
Attributes	att.duration.performed (@dur.ges) att.instrumentident (@instr)

att.mSpace.log

att.mSpace.log Logical domain attributes.

Module	MEI.cmn
Members	mSpace
Attributes	att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.fermatapresent (@fermata)

att.mSpace.vis

att.mSpace.vis Visual domain attributes.

Module	MEI.cmn
Members	mSpace

Attributes	att.altsym (@altsym) att.cutout (@cutout) att.visibility (@visible) att.xy (@x, @y)
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att.measure.anl

att.measure.anl Analytical domain attributes.	
Module	MEI.shared
Members	measure
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.joined (@join)

att.measure.ges

att.measure.ges Gestural domain attributes. The tstamp.ges and tstamp.real attributes encode the onset time of the measure. In reality, this is usually the same as the onset time of the first event in the measure.	
Module	MEI.shared
Members	measure
Attributes	att.timestamp.performed (@tstamp.ges, @tstamp.real)

att.measure.log

att.measure.log Logical domain attributes. The n attribute contains a name or number associated with the measure (Read, p. 445). Often, this is an integer, but not always. For example, some measures, especially incomplete measures or those under an ending mark, may have labels that contain an integer plus a suffix, such as '12a'. Measures may even have labels, especially in editorial or analytical uses of MEI, that are entirely non-numeric strings. Measure numbers may be machine-generated instead of encoding them in the markup. However, an explicit measure number should restart numbering with the given value. The join attribute may be used to indicate another measure which metrically completes the current, incomplete one.	
Module	MEI.shared
Members	measure
Attributes	<p>att.meterconformance.bar (@metcon, @control)</p> <p>@left indicates the visual rendition of the left bar line. It is present here only for facilitation of translation from legacy encodings which use it. Usually, it can be safely ignored.</p> <p>Status Optional</p> <p>Datatype data.BARRENDITION</p> <p>@right indicates the function of the right bar line and is structurally important.</p> <p>Status Optional</p>

	Datatype data.BARRENDITION
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att.measure.vis

att.measure.vis Visual domain attributes.	
Module	MEI.cmn
Members	measure
Attributes	att.barplacement (@barplace, @taktplace) att.measurement (@unit) att.width (@width)

att.measurement

att.measurement Attributes that record the unit of measurement in which a value is expressed.																			
Module	MEI.shared																		
Members	att.barLine.vis [barLine] att.measure.vis [measure] num dimensions extent price gap graphic																		
Attributes	<table><tr><td>@unit</td><td>indicates the unit used for a measurement of size.</td></tr><tr><td>Status</td><td>Optional</td></tr><tr><td>Suggested values include:</td><td><table><tr><td>cm</td><td>centimeter.</td></tr><tr><td>mm</td><td>millimeter.</td></tr><tr><td>in</td><td>inch.</td></tr><tr><td>px</td><td>pixel.</td></tr><tr><td>pt</td><td>point.</td></tr><tr><td>pc</td><td>pica.</td></tr></table></td></tr></table>	@unit	indicates the unit used for a measurement of size.	Status	Optional	Suggested values include:	<table><tr><td>cm</td><td>centimeter.</td></tr><tr><td>mm</td><td>millimeter.</td></tr><tr><td>in</td><td>inch.</td></tr><tr><td>px</td><td>pixel.</td></tr><tr><td>pt</td><td>point.</td></tr><tr><td>pc</td><td>pica.</td></tr></table>	cm	centimeter.	mm	millimeter.	in	inch.	px	pixel.	pt	point.	pc	pica.
@unit	indicates the unit used for a measurement of size.																		
Status	Optional																		
Suggested values include:	<table><tr><td>cm</td><td>centimeter.</td></tr><tr><td>mm</td><td>millimeter.</td></tr><tr><td>in</td><td>inch.</td></tr><tr><td>px</td><td>pixel.</td></tr><tr><td>pt</td><td>point.</td></tr><tr><td>pc</td><td>pica.</td></tr></table>	cm	centimeter.	mm	millimeter.	in	inch.	px	pixel.	pt	point.	pc	pica.						
cm	centimeter.																		
mm	millimeter.																		
in	inch.																		
px	pixel.																		
pt	point.																		
pc	pica.																		

att.mediabounds

att.mediabounds attributes that establish the boundaries of a media object.	
Module	MEI.shared

Members	recording clip
Attributes	<p>@begin specifies a point where the relevant content begins. A numerical value must be less and a time value must be earlier than that in the end attribute. Status Optional</p> <p>@end specifies a point where the relevant content ends. If not specified, the end of the content is assumed to be the end point. A numerical value must be greater and a time value must be later than that in the begin attribute. Status Optional</p> <p>@betype type of values used in the begin/end attributes. The begin and end attributes can only be interpreted meaningfully in conjunction with this attribute. Status Optional</p> <p>Legal values are: time a modified ISO time format (HH:MM:SS.ss) where 'HH' should be interpreted as any number of hours and '.ss' should be interpreted as any number of fractional parts of a second.</p>

att.medium

att.medium Attributes describing a writing medium, such as pencil or ink.	
Module	MEI.shared
Members	hand handShift
Attributes	<p>@medium describes the writing medium. Status Optional</p>

att.meiversion

att.meiversion Attributes that record the version of MEI in use.	
Module	MEI.shared
Members	mei music meiHead meiCorpus
Attributes	<p>@meiversion specifies the version number of the MEI Guidelines in use. Status Optional</p> <p>Legal values are: 2012 this version of the schema. [Default]</p>

att.melodicfunction

att.melodicfunction Attributes describing melodic function.	
Module	MEI.analysis
Members	att.chord.anl [chord] att.note.anl [note] att.uneume.anl [uneume]
Attributes	@mfunc describes melodic function in any convenient typology. Status Optional Datatype <code>xsd:NMTOKEN</code>

att.mensur.anl

att.mensur.anl Analytical domain attributes.	
Module	MEI.mensural
Members	mensur
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.mensur.ges

att.mensur.ges Gestural domain attributes.	
Module	MEI.mensural
Members	mensur
Attributes	NONE DEFINED

att.mensur.log

att.mensur.log Logical domain attributes.	
Module	MEI.shared
Members	mensuration mensur
Attributes	att.duration.ratio (@num, @numbase) att.slashcount (@slash) att.staffloc (@loc) @dot specifies whether a dot is to be added to the base symbol. Status Optional

	<p>Datatype data.BOOLEAN</p> <p>@modusmaior describes the maxima-long relationship.</p> <p>Status Optional</p> <p>Datatype data.MODUSMAIOR</p> <p>@modusminor describes the long-breve relationship.</p> <p>Status Optional</p> <p>Datatype data.MODUSMINOR</p> <p>@prolatio describes the semibreve-minim relationship.</p> <p>Status Optional</p> <p>Datatype data.PROLATIO</p> <p>@sign the base symbol in the mensuration sign/time signature of mensural notation.</p> <p>Status Optional</p> <p>Datatype data.MENSURATIONSIGN</p> <p>@tempus describes the breve-semibreve relationship.</p> <p>Status Optional</p> <p>Datatype data.TEMPUS</p>
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att.mensur.vis

att.mensur.vis Visual domain attributes. These attributes describe the physical appearance of the mensuration sign/time signature of mensural notation.	
Module	MEI.mensural
Members	mensur
Attributes	<p>att.color (@color) att.relativesize (@size)</p> <p>@form indicates whether the base symbol is written vertically or horizontally.</p> <p>Status Optional</p> <p>Legal values are: horizontal</p> <p>vertical</p> <p>@orient describes the rotation or reflection of the base symbol.</p> <p>Status Optional</p> <p>Datatype data.ORIENTATION</p>

att.mensurDefault.log

att.mensurDefault.log Used by staffDef and scoreDef to provide default values for attributes in the logical domain related to mensuration.	
Module	MEI.mensural
Members	att.scoreDef.log.mensural [att.scoreDef.log [scoreDef]] att.staffDef.log.mensural [att.staffDef.log [staffDef]]
Attributes	<p>att.duration.ratio (@num, @numbase)</p> <p>@mensur.dot determines if a dot is to be added to the base symbol.</p> <p>Status Optional</p> <p>Datatype data.BOOLEAN</p> <p>@mensur.loc holds the staff location of the mensuration sign.</p> <p>Status Optional</p> <p>Datatype <code>xsd:positiveInteger</code></p> <p>@mensur.sign the base symbol in the mensuration sign/time signature of mensural notation.</p> <p>Status Optional</p> <p>Datatype data.MENSURATIONSIGN</p> <p>@mensur.slash indicates the number lines added to the mensuration sign. For example, one slash is added for what we now call 'alla breve'.</p> <p>Status Optional</p> <p>Datatype <code>xsd:positiveInteger</code></p>

att.mensurDefault.vis

att.mensurDefault.vis Used by staffDef and scoreDef to provide default values for attributes in the visual domain related to mensuration.	
Module	MEI.mensural
Members	att.scoreDef.vis.mensural [att.scoreDef.vis [scoreDef]] att.staffDef.vis.mensural [att.staffDef.vis [staffDef]]
Attributes	<p>@mensur.color holds the color of the mensuration sign. Do not confuse this with the musical term 'color' as used in pre-CMN notation.</p> <p>Status Optional</p> <p>Datatype data.COLOR</p> <p>@mensur.for indicates whether the base symbol is written vertically or horizontally.</p>

	<p>Status Optional</p> <p>Legal values are: horizontal vertical</p> <p>@mensur.orientation describes the rotation or reflection of the base symbol.</p> <p>Status Optional</p> <p>Datatype data.ORIENTATION</p> <p>@mensur.size describes the relative size of the mensuration sign.</p> <p>Status Optional</p> <p>Datatype data.SIZE</p>
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att.meterSig.anl

att.meterSig.anl Analytical domain attributes.	
Module	MEI.shared
Members	meterSig
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.meterSig.ges

att.meterSig.ges Gestural domain attributes.	
Module	MEI.shared
Members	meterSig
Attributes	NONE DEFINED

att.meterSig.log

att.meterSig.log Logical domain attributes.	
Module	MEI.shared
Members	meter meterSig
Attributes	@count captures the number of beats in a measure, that is, the top number of the meter signature.

	<p>Status Optional</p> <p>Datatype <code>xsd:decimal</code></p>
@sym	<p>indicates the use of a meter symbol instead of a numeric meter signature, that is, 'C' for common time or 'C' with a slash for cut time.</p> <p>Status Optional</p> <p>Datatype data.METERSIGN</p>
@unit	<p>contains the number indicating the beat unit, that is, the bottom number of the meter signature.</p> <p>Status Optional</p> <p>Datatype <code>xsd:decimal</code></p>

att.meterSig.vis

att.meterSig.vis Visual domain attributes.	
Module	MEI.shared
Members	meterSig
Attributes	<p>@rend contains an indication of how the meter signature should be rendered.</p> <p>Status Optional</p> <p>Legal values are:</p> <ul style="list-style-type: none"> denomsym the lower number in the meter signature is replaced by a note symbol. norm meter signature rendered using traditional numeric values. invis meter signature not rendered.

att.meterSigDefault.log

att.meterSigDefault.log Used by staffDef and scoreDef to provide default values for attributes in the logical domain related to meter signature.	
Module	MEI.shared
Members	att.scoreDef.log [scoreDef] att.staffDef.log [staffDef]
Attributes	<p>@meter.count captures the number of beats in a measure, that is, the top number of the meter signature.</p>

	<p>Status Optional</p> <p>Datatype <code>xsd:decimal</code></p> <p>@meter.unit contains the number indicating the beat unit, that is, the bottom number of the meter signature.</p> <p>Status Optional</p> <p>Datatype <code>xsd:decimal</code></p>
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att.meterSigDefault.vis

att.meterSigDefault.vis Used by staffDef and scoreDef to provide default values for attributes in the visual domain related to meter signature.	
Module	MEI.shared
Members	att.scoreDef.vis [scoreDef] att.staffDef.vis [staffDef]
Attributes	<p>@meter.render contains an indication of how the meter signature should be rendered.</p> <p>Status Optional</p> <p>Legal values are: denomsym the lower number in the meter signature is replaced by a note symbol.</p> <p>norm meter signature rendered using traditional numeric values.</p> <p>invis meter signature not rendered.</p> <p>@meter.showchange indicates whether a new meter signature should be displayed when the meter signature changes.</p> <p>Status Optional</p> <p>Datatype data.BOOLEAN</p> <p>@meter.symbol indicates the use of a meter symbol instead of a numeric meter signature, that is, 'C' for common time or 'C' with a slash for cut time.</p> <p>Status Optional</p> <p>Datatype data.METERSIGN</p>

att.meterconformance

att.meterconformance Attributes that provide information about a structure's conformance to the prevailing meter.
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Module	MEI.shared
Members	att.layer.log [layer] att.staff.log [staff]
Attributes	<p>@metcon indicates the relationship between the content of a staff or layer and the prevailing meter.</p> <p>Status Optional</p> <p>Legal values are:</p> <ul style="list-style-type: none"> c conformant with the prevailing meter. i incomplete; i.e., not enough beats. o overfull; i.e., too many beats.

att.meterconformance.bar

att.meterconformance.bar Attributes that provide information about a measure's conformance to the prevailing meter.	
Module	MEI.shared
Members	att.barLine.log [barLine] att.measure.log [measure]
Attributes	<p>@metcon indicates the relationship between the content of a measure and the prevailing meter.</p> <p>Status Optional</p> <p>Datatype data.BOOLEAN</p> <p>@control indicates whether or not a bar line is "controlling"; that is, if it indicates a point of alignment across all the parts. Bar lines within a score are usually controlling; that is, they "line up". Bar lines within parts may or may not be controlling. When applied to <measure>, this attribute indicates the nature of the right barline but not the left.</p> <p>Status Optional</p> <p>Datatype data.BOOLEAN</p>

att.midi.anl

att.midi.anl Analytical domain attributes.	
Module	MEI.midi
Members	midi
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.midi.event

att.midi.event Attributes common to MIDI events.	
Module	MEI.midi
Members	cc chan chanPr cue hex marker metaText noteOff noteOn port prog seqNum trkName vel
Attributes	att.staffident (@staff) att.layerident (@layer) att.timestamp.musical (@tstamp)

att.midi.ges

att.midi.ges Gestural domain attributes.	
Module	MEI.midi
Members	midi
Attributes	NONE DEFINED

att.midi.log

att.midi.log Logical domain attributes.	
Module	MEI.midi
Members	midi
Attributes	att.staffident (@staff) att.layerident (@layer)

att.midi.vis

att.midi.vis Visual domain attributes.	
Module	MEI.midi
Members	midi
Attributes	NONE DEFINED

att.midiinstrument

att.midiinstrument Attributes that record MIDI instrument information.	
Module	MEI.midi

Members	instrDef
Attributes	<p>@midi.instrument the MIDI instrument number.</p> <p>Status Optional</p> <p>Datatype data.MIDIVALUE</p> <p>@midi.instrument provides a General MIDI label for the MIDI instrument.</p> <p>Status Optional</p> <p>Datatype data.MIDINAMES</p>

att.midinumber

att.midinumber Attributes that record MIDI numbers.	
Module	MEI.midi
Members	cc chanPr noteOff noteOn port prog vel
Attributes	<p>@num MIDI number in the range set by data.MIDIVALUE.</p> <p>Status Required</p> <p>Datatype data.MIDIVALUE</p>

att.miditempo

att.miditempo Attributes that record MIDI tempo information.	
Module	MEI.midi
Members	att.scoreDef.ges [scoreDef] att.tempo.ges [tempo]
Attributes	<p>@midi.tempo contains a MIDI value, that is, the number of quarter notes per minute in the range from 10 to 1000.</p> <p>Status Optional</p> <p>Datatype data.MIDITEMPO</p>

att.midivalue

att.midivalue Attributes that record MIDI values.	
Module	MEI.midi

Members	att.dynam.ges [dynam] cc
Attributes	<div>@val MIDI number.</div> <div>Status Optional</div> <div>Datatype data.MIDIVALUE</div>

att.mmtempo

att.mmtempo Attributes that record tempo in terms of beats per minute.	
Module	MEI.shared
Members	att.scoreDef.ges [scoreDef] att.tempo.ges [tempo]
Attributes	<div>@mm used to describe tempo in terms of beats (meter signature denominator) per minute, ala M.M. (Maezel's Metronome).</div> <div>Status Optional</div> <div>Datatype data.TEMPOVALUE</div>

att.mordent.anl

att.mordent.anl Analytical domain attributes.	
Module	MEI.cmnOrnaments
Members	mordent
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.mordent.ges

att.mordent.ges Gestural domain attributes.	
Module	MEI.cmnOrnaments
Members	mordent
Attributes	NONE DEFINED

att.mordent.log

att.mordent.log Logical domain attributes.	
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Module	MEI.cmnOrnaments
Members	mordent
Attributes	<p> att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.startendid (@endid) (att.startid (@startid)) att.ornamentaccid (@accidupper, @accidlower) </p> <p> @form Traditionally, the 'normal' mordent is written as a short wavy line with a vertical line through it and the inverted mordent is written without the vertical line. However, the meaning of these signs is sometimes reversed. See Read, p. 245-246. Another attribute in the visual domain would be necessary in order to be completely explicit about which visual symbol is actually to be rendered. </p> <p> Status Optional </p> <p> Legal values are: inv inverted mordent, e.g., performed as the principal note, followed by its upper neighbor, with a return to the principal note. norm "normal" mordent, e.g., performed as the written note, followed by its lower neighbor, with a return to the written note. </p> <p> @long When the long attribute is set to 'yes', a double or long mordent, consisting of 5 notes, is indicated. </p> <p> Status Optional </p> <p> Datatype data.BOOLEAN </p>

att.mordent.vis

att.mordent.vis Visual domain attributes.	
Module	MEI.cmnOrnaments
Members	mordent
Attributes	att.color (@color) att.placement (@place) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))

att.multiRest.anl

att.multiRest.anl Analytical domain attributes.	
Module	MEI.cmn
Members	multiRest
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.multiRest.ges

att.multiRest.ges Gestural domain attributes.	
Module	MEI.cmn
Members	multiRest
Attributes	att.duration.performed (@dur.ges) att.instrumentident (@instr)

att.multiRest.log

att.multiRest.log Logical domain attributes.	
Module	MEI.cmn
Members	multiRest
Attributes	att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.numbered (@num)

att.multiRest.vis

att.multiRest.vis Visual domain attributes.	
Module	MEI.cmn
Members	multiRest
Attributes	att.altsym (@altsym) @block When the block attribute is used, combinations of the 1, 2, and 4 measure rest forms (Read, p. 104) should be rendered instead of the modern form or an alternative symbol. Status Optional Datatype data.BOOLEAN

att.multiRpt.anl

att.multiRpt.anl Analytical domain attributes.	
Module	MEI.cmn
Members	multiRpt
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.multiRpt.ges

att.multiRpt.ges Gestural domain attributes.	
Module	MEI.cmn
Members	multiRpt
Attributes	NONE DEFINED

att.multiRpt.log

att.multiRpt.log Logical domain attributes.	
Module	MEI.cmn
Members	multiRpt
Attributes	att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.numbered (@num)

att.multiRpt.vis

att.multiRpt.vis Visual domain attributes.	
Module	MEI.cmn
Members	multiRpt
Attributes	att.altsym (@altsym) att.expandable (@expand)

att.multinummeasures

att.multinummeasures Attributes that indicate programmatic numbering.	
Module	MEI.shared
Members	att.scoreDef.vis [scoreDef] att.staffDef.vis [staffDef]
Attributes	<p>@multi.nummeasures indicates whether programmatically calculated counts of multiple measures of rest (mRest) and whole measure repeats (mRpt) in parts should be rendered.</p> <p>Status Optional</p> <p>Datatype data.BOOLEAN</p>

att.name

att.name Attributes shared by names.	
Module	MEI.shared
Members	name repository title corpName geogName periodName persName styleName
Attributes	<p>att.authorized (@authority, @authURI) att.canonical (@dbkey)</p> <p>@nymref used to record a pointer to the regularized form of the name elsewhere in the document.</p> <p>Status Optional</p> <p>Datatype data.URI</p> <p>@role used to specify further information about the entity referenced by this name, for example, the occupation of a person or the status of a place.</p> <p>Status Optional</p>

att.note.anl

att.note.anl Analytical domain attributes.	
Module	MEI.shared
Members	note
Attributes	<p>att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))</p> <p>att.harmonicfunction (@hfunc) att.intervallidesc (@intm) (att.intervalharmonic (@inth))</p> <p>att.melodicfunction (@mfunc) att.pitchclass (@pclass) att.solfa (@psolfa)</p>

att.note.ges

att.note.ges Gestural domain attributes.	
Module	MEI.shared
Members	note
Attributes	<p>att.accidental.performed (@accid.ges) att.articulation.performed (@artic.ges) att.duration.performed (@dur.ges) att.instrumentident (@instr) att.note.ges.cmn (@gliss) (att.graced (@grace, @grace.time))</p> <p>att.note.ges.mensural (att.duration.ratio (@num, @numbase)) att.note.ges.tablature (@tab.fret, @tab.string)</p> <p>@oct.ges records performed octave information that differs from the written value.</p> <p>Status Optional</p> <p>Datatype data.OCTAVE</p>

	<p>@pname.ges contains a performed pitch name that differs from the written value.</p> <p>Status Optional</p> <p>Datatype data.PITCHNAME.GES</p> <p>@pnum holds a pitch-to-number mapping, a base-40 or MIDI note number, for example.</p> <p>Status Optional</p> <p>Datatype data.PITCHNUMBER</p>
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att.note.ges.cmn

att.note.ges.cmn Gestural domain attributes.	
Module	MEI.cmn
Members	att.note.ges [note]
Attributes	<p>att.graced (@grace, @grace.time)</p> <p>@gliss indicates that this element participates in a glissando.</p> <p>Status Optional</p> <p>Datatype data.GLISSANDO</p>

att.note.ges.mensural

att.note.ges.mensural Gestural domain attributes.	
Module	MEI.mensural
Members	att.note.ges [note]
Attributes	att.duration.ratio (@num, @numbase)

att.note.ges.tablature

att.note.ges.tablature Gestural domain attributes.	
Module	MEI.tablature
Members	att.note.ges [note]
Attributes	<p>@tab.fret records the fret at which a string should be stopped.</p> <p>Status Optional</p>

	<p>Datatype data.FRETNUMBER</p> <p>@tab.string records which string is to be played.</p> <p>Status Optional</p> <p>Datatype data.STRINGNUMBER</p>
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att.note.log

att.note.log Logical domain attributes.	
Module	MEI.shared
Members	note
Attributes	att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) att.staffident (@staff) (att.layerident (@layer)) att.accidental (@accid) att.articulation (@artic) att.augmentdots (@dots) att.duration.musical (@dur) att.fermatapresent (@fermata) att.pitched att.pitch (@pname)) (att.octave (@oct)) att.syltext (@syl) att.slurpresent (@slur) att.tiepresent (@tie) att.tupletpresent (@tuplet) att.note.log.cmn (att.beamed (@beam)) (att.lvpresent (@lv)) (att.ornam (@ornam)) att.note.log.mensural (@lig)

att.note.log.cmn

att.note.log.cmn Logical domain attributes.	
Module	MEI.cmn
Members	att.note.log [note]
Attributes	att.beamed (@beam) att.lvpresent (@lv) att.ornam (@ornam)

att.note.log.mensural

att.note.log.mensural Logical domain attributes.	
Module	MEI.mensural
Members	att.note.log [note]

Attributes	@lig	indicates this element's participation in a ligature.
	Status	Optional
	Legal values are:	recta
		obliqua

att.note.vis

att.note.vis Visual domain attributes.	
Module	MEI.shared
Members	note
Attributes	<p> att.altsym (@altsym) att.color (@color) att.coloration (@colored) att.enclosingchars (@enclose) att.relatesize (@size) att.stemmed (@stem.dir, @stem.len, @stem.pos, @stem.x, @stem.y) (att.stemmed.cmn (@stem.mod, @stem.with)) att.visibility (@visible) att.visualoffset.ho (@ho) att.visualoffset.to (@to) att.xy (@x, @y) att.note.vis.cmn (att.beamsecondary (@breaksec)) @headshape used to override the head shape normally used for the given duration. </p> <p> Status Optional </p> <p> Datatype data.HEADSHAPE </p>

att.note.vis.cmn

att.note.vis.cmn Visual domain attributes.	
Module	MEI.cmn
Members	att.note.vis [note]
Attributes	att.beamsecondary (@breaksec)

att.numbered

att.numbered Attributes that record numbers to be displayed with a feature.	
Module	MEI.cmn
Members	att.bTrem.log [bTrem] att.multiRest.log [multiRest] att.multiRpt.log [multiRpt]
Attributes	<p> @num records a number or count accompanying a notational feature. </p> <p> Status Optional </p>

	Datatype <code>xsd:positiveInteger</code>
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att.numberplacement

att.numberplacement Attributes that record the placement and visibility of numbers that accompany a bowed tremolo or tuplet.	
Module	MEI.cmn
Members	att.bTrem.vis [bTrem] att.tuplet.vis [att.tupletSpan.vis [tupletSpan] tuplet]
Attributes	<p>@num.place States where the tuplet number will be placed in relation to the note heads.</p> <p>Status Optional</p> <p>Datatype data.PLACE</p> <p>@num.visible Determines if the tuplet number is visible.</p> <p>Status Optional</p> <p>Datatype data.BOOLEAN</p>

att.octave

att.octave Attributes that record written octave.	
Module	MEI.shared
Members	att.pitched [att.custos.log [custos] att.note.log [note] keyAccid chordMember] att.clef.log [clef]
Attributes	<p>@oct captures written octave information.</p> <p>Status Optional</p> <p>Datatype data.OCTAVE</p>

att.octave.anl

att.octave.anl Analytical domain attributes.	
Module	MEI.cmn
Members	octave
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.octave.ges

att.octave.ges Gestural domain attributes.	
Module	MEI.cmn
Members	octave
Attributes	att.duration.performed (@dur.ges)

att.octave.log

att.octave.log Logical domain attributes.	
Module	MEI.cmn
Members	octave
Attributes	att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.octavedisplacement (@dis, @dis.place) att.startendid (@endid) (att.startid (@startid)) att.duration.timestamp (@dur) @coll indicates whether the octave displacement should be performed simultaneously with the written notes, i.e., "coll' ottava". Unlike other octave signs which are indicated by broken lines, coll' ottava typically uses an unbroken line or a series of longer broken lines, ending with a short vertical stroke. See Read, p. 47-48. Status Optional Legal coll values are: coll' ottava (with the octave).

att.octave.vis

att.octave.vis Visual domain attributes.	
Module	MEI.cmn
Members	octave
Attributes	att.xy (@x, @y) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.visualoffset2.ho (@startho, @endho) att.visualoffset2.to (@startto, @endto) att.linerend (@rend)

att.octavedefault

att.octavedefault Attributes that record a default value for octave.	
Module	MEI.shared
Members	att.layerDef.log [layerDef] att.scoreDef.log [scoreDef] att.staffDef.log [staffDef]
Attributes	<p>@octave.default records a default octave specification for use when the first note, rest, chord, etc. in a measure does not have an octave value specified.</p> <p>Status Optional</p> <p>Datatype data.OCTAVE</p>

att.octavedisplacement

att.octavedisplacement Attributes describing the amount and direction of octave displacement.	
Module	MEI.shared
Members	att.clef.log [clef] att.octave.log [octave]
Attributes	<p>@dis records the amount of octave displacement.</p> <p>Status Optional</p> <p>Datatype data.OCTAVE.DIS</p> <p>@dis.place records the direction of octave displacement.</p> <p>Status Optional</p> <p>Datatype data.PLACE</p>

att.onlinestaff

att.onlinestaff Attributes that record placement of notes on a single-line staff.	
Module	MEI.shared
Members	att.scoreDef.vis [scoreDef] att.staffDef.vis [staffDef]
Attributes	<p>@ontheinline determines the placement of notes on a 1-line staff. A value of 'true' places all notes on the line, while a value of 'false' places stems-up notes above the line and stems-down notes below the line.</p> <p>Status Optional</p> <p>Datatype data.BOOLEAN</p>

att.ornam

att.ornam Attributes for marking the presence of an ornament.	
Module	MEI.cmnOrnaments
Members	att.chord.log.cmn [att.chord.log [chord]] att.note.log.cmn [att.note.log [note]]
Attributes	<p>@ornam indicates that this element has an attached ornament. If visual information about the ornament is needed, then one of the elements that represents an ornament (mordent, trill, or turn) should be employed.</p> <p>Status Optional</p> <p>Datatype data.ORNAMS.cmn</p>

att.ornamentaccid

att.ornamentaccid Accidentals associated with ornaments.	
Module	MEI.cmnOrnaments
Members	att.mordent.log [mordent] att.trill.log [trill] att.turn.log [turn]
Attributes	<p>@accidupper records the written accidental associated with an upper neighboring note.</p> <p>Status Optional</p> <p>Datatype data.ACCIDENTAL.EXPLICIT</p> <p>@accidlower records the written accidental associated with a lower neighboring note.</p> <p>Status Optional</p> <p>Datatype data.ACCIDENTAL.EXPLICIT</p>

att.ossia.anl

att.ossia.anl Analytical domain attributes.	
Module	MEI.cmn
Members	ossia
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.ossia.ges

att.ossia.ges Gestural domain attributes.	
Module	MEI.cmn
Members	ossia
Attributes	NONE DEFINED

att.ossia.log

att.ossia.log Logical domain attributes.	
Module	MEI.cmn
Members	ossia
Attributes	NONE DEFINED

att.ossia.vis

att.ossia.vis Visual domain attributes.	
Module	MEI.cmn
Members	ossia
Attributes	NONE DEFINED

att.pad.anl

att.pad.anl Analytical domain attributes.	
Module	MEI.shared
Members	pad
Attributes	NONE DEFINED

att.pad.ges

att.pad.ges Gestural domain attributes.	
Module	MEI.shared

Members	pad
Attributes	NONE DEFINED

att.pad.log

att.pad.log Logical domain attributes.	
Module	MEI.shared
Members	pad
Attributes	att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) @num amount of "padding" to be added, in interline units; that is, in units of 1/2 the distance between adjacent staff lines. Status Required Datatype xsd:decimal

att.pad.vis

att.pad.vis Visual domain attributes.	
Module	MEI.shared
Members	pad
Attributes	NONE DEFINED

att.part.anl

att.part.anl Analytical domain attributes.	
Module	MEI.shared
Members	part
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.part.ges

att.part.ges Gestural domain attributes.	
Module	MEI.shared

Members	part
Attributes	NONE DEFINED

att.part.log

att.part.log Logical domain attributes.	
Module	MEI.shared
Members	part
Attributes	NONE DEFINED

att.part.vis

att.part.vis Visual domain attributes.	
Module	MEI.shared
Members	part
Attributes	NONE DEFINED

att.parts.anl

att.parts.anl Analytical domain attributes.	
Module	MEI.shared
Members	parts
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.parts.ges

att.parts.ges Gestural domain attributes.	
Module	MEI.shared
Members	parts
Attributes	NONE DEFINED

att.parts.log

att.parts.log Logical domain attributes.	
Module	MEI.shared
Members	parts
Attributes	NONE DEFINED

att.parts.vis

att.parts.vis Visual domain attributes.	
Module	MEI.shared
Members	parts
Attributes	NONE DEFINED

att.pb.anl

att.pb.anl Analytical domain attributes.	
Module	MEI.shared
Members	pb
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.pb.ges

att.pb.ges Gestural domain attributes.	
Module	MEI.shared
Members	pb
Attributes	NONE DEFINED

att.pb.log

att.pb.log Logical domain attributes.	
Module	MEI.shared

Members	pb
Attributes	NONE DEFINED

att.pb.vis

att.pb.vis Visual domain attributes.	
Module	MEI.shared
Members	pb
Attributes	<p>@func states the side of a leaf (as in a manuscript) on which the content following the <pb> element occurs.</p> <p>Status Optional</p> <p>Legal values are: verso recto</p>

att.pedal.anl

att.pedal.anl Analytical domain attributes.	
Module	MEI.cmn
Members	pedal
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.pedal.ges

att.pedal.ges Gestural domain attributes.	
Module	MEI.cmn
Members	pedal
Attributes	NONE DEFINED

att.pedal.log

att.pedal.log Logical domain attributes.	
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Module	MEI.cmn				
Members	pedal				
Attributes	<p>att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) (att.startendid (@endid) (att.startid (@startid))</p> <p>@dir records the position of the piano damper pedal.</p> <table> <tr> <td>Status</td><td>Required</td></tr> <tr> <td>Legal values are:</td><td> <p>down depress the pedal.</p> <p>up release the pedal.</p> <p>half half pedal.</p> <p>bounce depress then immediately release the pedal.</p> </td></tr> </table>	Status	Required	Legal values are:	<p>down depress the pedal.</p> <p>up release the pedal.</p> <p>half half pedal.</p> <p>bounce depress then immediately release the pedal.</p>
Status	Required				
Legal values are:	<p>down depress the pedal.</p> <p>up release the pedal.</p> <p>half half pedal.</p> <p>bounce depress then immediately release the pedal.</p>				

att.pedal.vis

att.pedal.vis Visual domain attributes. The place attribute captures the placement of the pedal marking with respect to the staff with which it is associated. Modern publishing standards require the place to be 'below'; however, for transcriptions of manuscript works, this attribute class allows the full range of values.					
Module	MEI.cmn				
Members	pedal				
Attributes	<p>att.color (@color) att.placement (@place) att.xy (@x, @y) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo))</p> <p>@style determines whether piano pedal marks should be rendered as lines or as terms.</p> <table> <tr> <td>Status</td><td>Optional</td></tr> <tr> <td>Legal values are:</td><td> <p>line continuous line with start and end positions rendered by vertical bars and bounces shown by upward-pointing "blips".</p> <p>pedstar pedal down and half pedal rendered with "Ped.", pedal up rendered by "*", pedal "bounce" rendered with "* Ped.".</p> <p>altpedstar pedal up and down indications same as with "pedstar", but bounce is rendered with "Ped." only.</p> </td></tr> </table>	Status	Optional	Legal values are:	<p>line continuous line with start and end positions rendered by vertical bars and bounces shown by upward-pointing "blips".</p> <p>pedstar pedal down and half pedal rendered with "Ped.", pedal up rendered by "*", pedal "bounce" rendered with "* Ped.".</p> <p>altpedstar pedal up and down indications same as with "pedstar", but bounce is rendered with "Ped." only.</p>
Status	Optional				
Legal values are:	<p>line continuous line with start and end positions rendered by vertical bars and bounces shown by upward-pointing "blips".</p> <p>pedstar pedal down and half pedal rendered with "Ped.", pedal up rendered by "*", pedal "bounce" rendered with "* Ped.".</p> <p>altpedstar pedal up and down indications same as with "pedstar", but bounce is rendered with "Ped." only.</p>				

att.phrase.anl

att.phrase.anl Analytical domain attributes.	
Module	MEI.shared
Members	phrase
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.joined (@join)

att.phrase.ges

att.phrase.ges Gestural domain attributes.	
Module	MEI.shared
Members	phrase
Attributes	att.duration.performed (@dur.ges)

att.phrase.log

att.phrase.log Logical domain attributes.	
Module	MEI.shared
Members	phrase
Attributes	att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.startendid (@endid) (att.startid (@startid)) att.duration.timestamp (@dur)

att.phrase.vis

att.phrase.vis Visual domain attributes.	
Module	MEI.shared
Members	phrase
Attributes	att.color (@color) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.visualoffset2 (att.visualoffset2.ho (@startho, @endho)) (att.visualoffset2.to (@startto, @endto)) (att.visualoffset2.vo (@startvo, @endvo)) att.xy (@x, @y) att.xy2 (@x2, @y2) att.phrase.vis.cmn (att.curvature (@bezier, @bulge, @curvedir)) (att.curverend (@rend))

att.phrase.vis.cmn

att.phrase.vis.cmn Visual domain attributes.	
Module	MEI.cmn
Members	att.phrase.vis [phrase]
Attributes	att.curvature (@bezier, @bulge, @curvedir) att.curverend (@rend)

att.pianopedals

att.pianopedals Used by scoreDef and staffDef to provide default description of piano pedal rendition.	
Module	MEI.cmn
Members	att.scoreDef.vis.cmn [att.scoreDef.vis [scoreDef]] att.staffDef.vis.cmn [att.staffDef.vis [staffDef]]
Attributes	<p>@pedal.style determines whether piano pedal marks should be rendered as lines or as terms.</p> <p>Status Optional</p> <p>Legal values are:</p> <p>line continuous line with start and end positions rendered by vertical bars and bounces shown by upward-pointing "blips".</p> <p>pedstar pedal down and half pedal rendered with "Ped.", pedal up rendered by "**", pedal "bounce" rendered with "** Ped.".</p> <p>altpedstar pedal up and down indications same as with "pedstar", but bounce is rendered with "Ped." only.</p>

att.pitch

att.pitch Attributes that record written pitch name.	
Module	MEI.shared
Members	att.pitched [att.custos.log [custos] att.note.log [note] keyAccid chordMember] att.keySig.log [key keySig]
Attributes	<p>@pname contains a written pitch name.</p> <p>Status Optional</p> <p>Datatype data.PITCHNAME</p>

att.pitchclass

att.pitchclass Attributes that describe pitch class.	
Module	MEI.analysis
Members	att.note.anl [note]
Attributes	<p>@pclass holds pitch class information.</p> <p>Status Optional</p> <p>Datatype data.PITCHCLASS</p>

att.pitched

att.pitched Attributes that record written pitch name and octave number.	
Module	MEI.shared
Members	att.custos.log [custos] att.note.log [note] keyAccid chordMember
Attributes	att.pitch (@pname) att.octave (@oct)

att.placement

att.placement Attributes capturing placement information.	
Module	MEI.shared
Members	att.accid.vis [accid] att.artic.vis [artic] att.dir.vis [dir] att.dynam.vis [dynam] att.tempo.vis [tempo] att.breath.vis [breath] att.fermata.vis [fermata] att.hairpin.vis [hairpin] att.harpPedal.vis [harpPedal] att.pedal.vis [pedal] att.reh.vis [reh] att.mordent.vis [mordent] att.trill.vis [trill] att.turn.vis [turn] att.harm.vis [harm] att.lyrics.vis [lyrics]
Attributes	<p>@place captures the placement of the item with respect to the staff with which it is associated.</p> <p>Status Optional</p> <p>Datatype data.STAFFREL</p>

att.plist

att.plist Attributes listing the participants in a user-defined collection.	
Module	MEI.shared

Members	att.controlevent [att.accid.log [accid] att.artic.log [artic] att.dir.log [dir] att.dot.log [dot] att.dynam.log [dynam] att.phrase.log [phrase] att.tempo.log [tempo] att.arpeg.log [arpeg] att.beamSpan.log [beamSpan] att.bend.log [bend] att.breath.log [breath] att.fermata.log [fermata] att.gliss.log [gliss] att.hairpin.log [hairpin] att.harpPedal.log [harpPedal] att.octave.log [octave] att.pedal.log [pedal] att.slur.log [slur] att.tie.log [tie] att.tupletSpan.log [tupletSpan] att.mordent.log [mordent] att.trill.log [trill] att.turn.log [turn] att.harm.log [harm]] annot expansion
Attributes	<p>@plist contains a space separated list of references that identify logical events that participate in a collection, such as notes under a phrase mark.</p> <p>Status Optional</p> <p>Datatype data.URIS</p> <p>@evaluate specifies the intended meaning when the target of a pointer is itself a pointer.</p> <p>Status Optional</p> <p>Legal values are:</p> <p>all if the element pointed to is itself a pointer, then the target of that pointer will be taken, and so on, until an element is found which is not a pointer.</p> <p>one if the element pointed to is itself a pointer, then its target (whether a pointer or not) is taken as the target of this pointer.</p> <p>none no further evaluation of targets is carried out beyond that needed to find the element specified in the pointer's target.</p> <p>Note If no value is given, the application program is responsible for deciding (possibly on the basis of user input) how far to trace a chain of pointers.</p>

att.pointing

att.pointing Attributes common to all linking elements.	
Module	MEI.shared
Members	barLine bibl ending pb section contents incipCode incipText relatedItem source measure lem rdg graphic avFile ptr ref
Attributes	<p>@xlink:actuate defines whether a link occurs automatically or must be requested by the user.</p> <p>Status Optional</p> <p>Legal values are:</p> <p>onLoad load the target resource immediately.</p> <p>onRequest load the target resource upon user request.</p>

	<p>none do not permit loading of the target resource.</p> <p>other behavior other than allowed by the other values of this attribute.</p> <p>@xlink:role indicates a property of the entire link. The value of the role attribute must be a URI.</p> <p>Status Optional</p> <p>Datatype data.URI</p> <p>@xlink:show defines how a remote resource is rendered.</p> <p>Status Optional</p> <p>Legal values are: new open in a new window.</p> <p>replace load the referenced resource in the same window.</p> <p>embed embed the referenced resource at the point of the link.</p> <p>none do not permit traversal to the referenced resource.</p> <p>other behavior other than permitted by the other values of this attribute.</p> <p>@target allows the use of one or more previously-undeclared URIs to identify an external electronic object.</p> <p>Status Optional</p> <p>Datatype data.URIS</p> <p>@targettype contrast with the role attribute, allows the target resource to be characterized using any convenient classification scheme or typology.</p> <p>Status Optional</p> <p>Datatype <code>xsd:NMTOKEN</code></p> <p>@xlink:title contains a human-readable description of the entire link.</p> <p>Status Optional</p>
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att.proport.anl

att.proport.anl Analytical domain attributes.	
Module	MEI.mensural

Members	proport
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.proport.ges

att.proport.ges Gestural domain attributes.	
Module	MEI.mensural
Members	proport
Attributes	NONE DEFINED

att.proport.log

att.proport.log Logical domain attributes. These attributes describe augmentation or diminution of the normal value of the notes in mensural notation as a ratio.	
Module	MEI.mensural
Members	proport
Attributes	att.duration.ratio (@num, @numbase)

att.proport.vis

att.proport.vis Visual domain attributes.	
Module	MEI.mensural
Members	proport
Attributes	NONE DEFINED

att.rdg.anl

att.rdg.anl Analytical domain attributes.	
Module	MEI.critapp
Members	lem rdg
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.rdg.ges

att.rdg.ges Gestural domain attributes.	
Module	MEI.critapp
Members	lem rdg
Attributes	NONE DEFINED

att.rdg.log

att.rdg.log Logical domain attributes.	
Module	MEI.critapp
Members	lem rdg
Attributes	NONE DEFINED

att.rdg.vis

att.rdg.vis Visual domain attributes.	
Module	MEI.critapp
Members	lem rdg
Attributes	NONE DEFINED

att.reasonident

att.reasonident Attributes that identify the reason why an editorial feature is used.	
Module	MEI.edittrans
Members	gap supplied unclear
Attributes	<p>@reason holds a short phrase describing the reason for missing textual material (gap), why material is supplied (supplied), or why transcription is difficult (unclear).</p> <p>Status Optional</p>

att.regularmethod

att.regularmethod Attributes that describe correction and normalization methods.	
Module	MEI.header
Members	correction normalization
Attributes	<p>@method indicates the method employed to mark corrections and normalizations.</p> <p>Status Optional</p> <p>Legal values are: silent corrections and normalizations made silently.</p> <p>tags corrections and normalizations indicated using elements.</p>

att.reh.anl

att.reh.anl Analytical domain attributes.	
Module	MEI.cmn
Members	reh
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.reh.ges

att.reh.ges Gestural domain attributes.	
Module	MEI.cmn
Members	reh
Attributes	NONE DEFINED

att.reh.log

att.reh.log Logical domain attributes.	
Module	MEI.cmn
Members	reh

Attributes	att.staffident (@staff) att.startid (@startid) att.timestamp.musical (@tstamp) att.timestamp.performed (@tstamp.ges, @tstamp.real)
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att.reh.vis

att.reh.vis Visual domain attributes.	
Module	MEI.cmn
Members	reh
Attributes	att.color (@color) att.placement (@place) att.typography (@fontfam, @fontname, @fontsize, @fontstyle, @fontweight) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.xy (@x, @y)

att.rehearsal

att.rehearsal Attributes used by scoreDef and staffDef to provide default information about rehearsal numbers/letters.					
Module	MEI.cmn				
Members	att.scoreDef.vis.cmn [att.scoreDef.vis [scoreDef]] att.staffDef.vis.cmn [att.staffDef.vis [staffDef]]				
Attributes	<p>@reh.enclose describes the enclosing shape for rehearsal marks.</p> <table> <tr> <td>Status</td><td>Optional</td></tr> <tr> <td>Legal values are:</td><td> <p>box enclosed by box.</p> <p>circle enclosed by circle.</p> <p>none no enclosing shape.</p> </td></tr> </table>	Status	Optional	Legal values are:	<p>box enclosed by box.</p> <p>circle enclosed by circle.</p> <p>none no enclosing shape.</p>
Status	Optional				
Legal values are:	<p>box enclosed by box.</p> <p>circle enclosed by circle.</p> <p>none no enclosing shape.</p>				

att.relative-size

att.relative-size Attributes that record relative size.	
Module	MEI.shared
Members	att.chord.vis [chord] att.note.vis [note] att.rest.vis [rest] att.mRest.vis [mRest] att.mensur.vis [mensur] att.uneume.vis [uneume]
Attributes	@size describes the relative size of a feature.

	Status Optional
	Datatype data.SIZE

att.responsibility

att.responsibility Attributes capturing information regarding responsibility for some aspect of the text's creation, transcription, editing, or encoding.	
Module	MEI.shared
Members	att.crit [lem rdg] att.edit [abbr date expansion event add corr gap handShift orig reg restore subst supplied unclear corpName geogName periodName persName styleName] annot change hand
Attributes	<p>@resp captures information regarding responsibility for some aspect of the text's creation, transcription, editing, or encoding. Its value must point to one or more identifiers declared in the document header.</p> <p>Status Optional</p> <p>Datatype list { data.URI+ }</p>

att.rest.anl

att.rest.anl Analytical domain attributes.	
Module	MEI.shared
Members	rest
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.rest.ges

att.rest.ges Gestural domain attributes.	
Module	MEI.shared
Members	rest
Attributes	att.duration.performed (@dur.ges) att.instrumentident (@instr) att.rest.ges.mensural (att.duration.ratio (@num, @numbase))

att.rest.ges.mensural

att.rest.ges.mensural Gestural domain attributes.	
Module	MEI.mensural
Members	att.rest.ges [rest]
Attributes	att.duration.ratio (@num, @numbase)

att.rest.log

att.rest.log Logical domain attributes.	
Module	MEI.shared
Members	rest
Attributes	att.augmentdots (@dots) att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.duration.musical (@dur) att.fermatapresent (@fermata) att.tupletpresent (@tuplet) att.rest.log.cmn (att.beamed (@beam))

att.rest.log.cmn

att.rest.log.cmn Logical domain attributes.	
Module	MEI.cmn
Members	att.rest.log [rest]
Attributes	att.beamed (@beam)

att.rest.vis

att.rest.vis Visual domain attributes.	
Module	MEI.shared
Members	rest
Attributes	att.altsym (@altsym) att.color (@color) att.relative.size (@size) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.xy (@x, @y) att.rest.vis.cmn att.rest.vis.mensural (@spaces) (att.lineloc (@line))

att.rest.vis.cmn

att.rest.vis.cmn Visual domain attributes.	
Module	MEI.cmn
Members	att.rest.vis [rest]
Attributes	NONE DEFINED

att.rest.vis.mensural

att.rest.vis.mensural Visual domain attributes.	
Module	MEI.mensural
Members	att.rest.vis [rest]
Attributes	att.lineloc (@line) @spaces states how many spaces are covered by the rest. Status Optional Datatype xsd:positiveInteger

att.sb.anl

att.sb.anl Analytical domain attributes.	
Module	MEI.shared
Members	sb
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.sb.ges

att.sb.ges Gestural domain attributes.	
Module	MEI.shared
Members	sb
Attributes	NONE DEFINED

att.sb.log

att.sb.log Logical domain attributes.	
Module	MEI.shared
Members	sb
Attributes	NONE DEFINED

att.sb.vis

att.sb.vis Visual domain attributes.	
Module	MEI.shared
Members	sb
Attributes	<p>@rend indicates whether hash marks should be rendered between systems. See Read, p. 436, ex. 26-3.</p> <p>Status Optional</p> <p>Legal values are: hash display hash marks between systems.</p>

att.scalable

att.scalable Attributes that describe relative size.	
Module	MEI.shared
Members	att.staffDef.vis [staffDef] symbol
Attributes	<p>@scale scale factor to be applied to the feature to make it the desired display size.</p> <p>Status Optional</p> <p>Datatype data.PERCENT</p>

att.score.anl

att.score.anl Analytical domain attributes.	
Module	MEI.shared

Members	score
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.score.ges

att.score.ges Gestural domain attributes.	
Module	MEI.shared
Members	score
Attributes	NONE DEFINED

att.score.log

att.score.log Logical domain attributes.	
Module	MEI.shared
Members	score
Attributes	NONE DEFINED

att.score.vis

att.score.vis Visual domain attributes.	
Module	MEI.shared
Members	score
Attributes	NONE DEFINED

att.scoreDef.anl

att.scoreDef.anl Analytical domain attributes.	
Module	MEI.shared
Members	scoreDef
Attributes	NONE DEFINED

att.scoreDef.ges

att.scoreDef.ges Gestural domain attributes for scoreDef. The values set in these attributes act as score-wide defaults for attributes that are not set in descendant elements. For example, the grace attribute value here applies to all the grace attribute values in the score (or, more accurately, until the next <scoreDef> element) without having to individually set each note's grace attribute value. The midi.* attributes function as default values when creating sounding output. The tune.* attributes provide the capability of recording a tuning reference pitch. .

Module	MEI.shared
Members	scoreDef
Attributes	<p>att.channelized (@midi.channel, @midi.duty, @midi.port, @midi.track) att.timebase (@ppq) att.miditempo (@midi.tempo) att.mmtempo (@mm)</p> <p>@tune.pname holds the pitch name of a tuning reference pitch.</p> <p>Status Optional</p> <p>Datatype data.PITCHNAME</p> <p>@tune.Hz holds a value for cycles per second, i.e., Hertz, for a tuning reference pitch.</p> <p>Status Optional</p> <p>Datatype xsd:decimal</p> <p>@tune.temper provides an indication of the tuning system, 'just', for example.</p> <p>Status Optional</p> <p>Datatype data.TEMPERAMENT</p>

att.scoreDef.log

att.scoreDef.log Logical domain attributes for scoreDef in the CMN repertoire. The values set in these attributes act as score-wide defaults for attributes that are not set in descendant elements. .

Module	MEI.shared
Members	scoreDef
Attributes	<p>att.cleffing.log (@clef.shape, @clef.line, @clef.dis, @clef.dis.place) att.duration.default (@dur.default) att.keySigDefault.log (@key.accid, @key.mode, @key.pname, @key.sig, @key.sig.mixed) att.meterSigDefault.log (@meter.count, @meter.unit) att.octavedefault (@octave.default) att.transposition (@trans.diat, @trans.semi) att.scoreDef.log.cmn (att.beaming.log (@beam.group, @beam.rests)) att.scoreDef.log.mensural (att.mensurDefault.log (@mensur.dot, @mensur.loc, @mensur.sign, @mensur.slash) att.duration.ratio (@num, @numbase)))</p>

att.scoreDef.log.cmn

att.scoreDef.log.cmn Logical domain attributes.

Module	MEI.cmn
Members	att.scoreDef.log [scoreDef]
Attributes	att.beaming.log (@beam.group, @beam.rests)

att.scoreDef.log.mensural

att.scoreDef.log.mensural Logical domain attributes for a score in the mensural repertoire. The values set in these attributes act as score-wide defaults for attributes that are not set in descendant elements. The tempus, prolatio, modusmaior, and modusminor attributes specify the relationship between the four principle levels of note value, i.e., the long, breve, semibreve and minim, in mensural notation. Modusminor describes the long-breve relationship, while tempus describes the breve-semibreve, and prolatio the semibreve-minim relationship, respectively. Modusmaior is for the maxima-long relationship. The proport.* attributes describe augmentation or diminution of the normal value of the notes in mensural notation. The num and numbase attributes provide default values.

Module	MEI.mensural
Members	att.scoreDef.log [scoreDef]
Attributes	att.mensurDefault.log (@mensur.dot, @mensur.loc, @mensur.sign, @mensur.slash) (att.duration.ratio (@num, @numbase))

att.scoreDef.vis

att.scoreDef.vis Visual domain attributes for scoreDef in the CMN repertoire.

Module	MEI.shared				
Members	scoreDef				
Attributes	<p> att.barplacement (@barplace, @taktplace) att.cleffing.vis (@clef.color, @clef.visible) att.distances (@dynam.dist, @harm.dist, @text.dist) att.keySigDefault.vis (@key.sig.show, @key.sig.showchange) att.lyricstyle (@lyric.align, @lyric.fam, @lyric.name, @lyric.size, @lyric.style, @lyric.weight) att.meterSigDefault.vis (@meter.rend, @meter.showchange, @meter.sym) att.multinummeasures (@multi.number) att.onlinestaff (@ontheline) att.textstyle (@text.fam, @text.name, @text.size, @text.style, @text.weight) att.scoreDef.vis.cmn (@grid.show) (att.beaming.vis (@beam.rend, @beam.slope)) (att.pianopedals (@pedal.style)) (att.rehearsal (@reh.enclose)) (att.slurrend (@slur.rend)) (att.tierend (@tie.rend)) att.scoreDef.vis.mensural (att.mensurDefault.vis (@mensur.color, @mensur.form, @mensur.orient, @mensur.size)) </p> <p> @ending.render describes where ending marks should be displayed. </p> <table> <tr> <td>Status</td><td>Optional</td></tr> <tr> <td>Legal values are:</td><td> <p>top ending rendered only above top staff.</p> <p>barred ending rendered above staves that have bar lines drawn across them.</p> </td></tr> </table>	Status	Optional	Legal values are:	<p>top ending rendered only above top staff.</p> <p>barred ending rendered above staves that have bar lines drawn across them.</p>
Status	Optional				
Legal values are:	<p>top ending rendered only above top staff.</p> <p>barred ending rendered above staves that have bar lines drawn across them.</p>				

grouped
endings rendered above staff groups.

@mnum.visible indicates whether measure numbers should be displayed.

Status Optional

Datatype [data.BOOLEAN](#)

@music.name sets the default music font name.

Status Optional

Datatype [data.MUSICFONT](#)

@music.size sets the default music font size.

Status Optional

Datatype xsd:decimal

@optimize indicates whether staves without notes, rests, etc. should be displayed. When the value is 'true', empty staves are displayed.

Status Optional

Datatype [data.BOOLEAN](#)

@page.height describes the physical height of the rendered output page.

Status Optional

Datatype xsd:decimal

@page.width describes the physical width of the rendered output page.

Status Optional

Datatype xsd:decimal

@page.units contains the real-world measurement units (inches, centimeters, millimeters) used to describe the rendered page height, width, and margins.

Status Optional

Datatype [data.PGUNITS](#)

@page.top indicates the amount of whitespace at the top of a rendered score page.

Status Optional

Datatype xsd:decimal

@page.bottom indicates the amount of whitespace at the bottom of a rendered score page.

Status Optional

Datatype xsd:decimal

@page.left indicates the amount of whitespace at the left side of a rendered score page.

	Status	Optional
	Datatype	xsd:decimal
@page.rightmar indicates the amount of whitespace at the right side of a rendered score page.		
	Status	Optional
	Datatype	xsd:decimal
@page.panels indicates the number of logical pages to be rendered on a single physical page.		
	Status	Optional
	Datatype	data.PAGE.PANELS
@page.scale indicates how the page should be scaled when rendered.		
	Status	Optional
	Datatype	data.PGSCALE
@spacing.note indicates a note's spacing relative to its time value.		
	Status	Optional
	Datatype	xsd:decimal
@spacing.notefont indicates the note spacing of output.		
	Status	Optional
	Datatype	xsd:decimal
@spacing.staff indicates the minimum amount of space between staves in the same system.		
	Status	Optional
	Datatype	xsd:decimal
@spacing.system indicates a space-separated pair of numbers describing the minimum and maximum amount of space between systems.		
	Status	Optional
@system.leftmar indicates the amount of whitespace at the left system margin relative to page.leftmar.		
	Status	Optional
	Datatype	xsd:decimal
@system.rightmar indicates the amount of whitespace at the right system margin relative to page.rightmar.		
	Status	Optional
	Datatype	xsd:decimal
@system.topmar indicates the distance from page's top edge to the first system; used for first page only.		
	Status	Optional
	Datatype	xsd:decimal

att.scoreDef.vis.cmn

att.scoreDef.vis.cmn Visual domain attributes.	
Module	MEI.cmn
Members	att.scoreDef.vis [scoreDef]
Attributes	<p>att.beaming.vis (@beam.rend, @beam.slope) att.pianopedals (@pedal.style) att.rehearsal (@reh.enclose) att.slurrend (@slur.rend) att.tierend (@tie.rend)</p> <p>@grid.show determines whether to display guitar chord grids.</p> <p>Status Optional</p> <p>Datatype data.BOOLEAN</p>

att.scoreDef.vis.mensural

att.scoreDef.vis.mensural Visual domain attributes for scoreDef in the mensural repertoire.	
Module	MEI.mensural
Members	att.scoreDef.vis [scoreDef]
Attributes	att.mensurDefault.vis (@mensur.color, @mensur.form, @mensur.orient, @mensur.size)

att.section.anl

att.section.anl Analytical domain attributes.	
Module	MEI.shared
Members	section
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.section.ges

att.section.ges Gestural domain attributes.	
Module	MEI.shared
Members	section
Attributes	NONE DEFINED

att.section.log

att.section.log Logical domain attributes.	
Module	MEI.shared
Members	section
Attributes	NONE DEFINED

att.section.vis

att.section.vis Visual domain attributes.	
Module	MEI.shared
Members	section
Attributes	<div>@restart indicates that staves begin again with this section. Status Optional Datatype data.BOOLEAN</div>

att.sequence

att.sequence Attributes that describe order within a collection of features.	
Module	MEI.shared
Members	att.crit [lem rdg] att.trans [abbr expan add corr del restore subst]
Attributes	<div>@seq used to assign a sequence number related to the order in which the encoded features carrying this attribute are believed to have occurred. Status Optional Datatype xsd:positiveInteger</div>

att.slashcount

att.slashcount Attributes for recording the number of slashes that accompany a feature.	
Module	MEI.shared
Members	att.fTrem.vis [fTrem] att.mensur.log [mensuration mensur]

Attributes	@slash	indicates the number of slashes present.
	Status	Optional
	Datatype	data.SLASH

att.slur.anl

att.slur.anl Analytical domain attributes.	
Module	MEI.cmn
Members	slur
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.joined (@join)

att.slur.ges

att.slur.ges Gestural domain attributes.	
Module	MEI.cmn
Members	slur
Attributes	att.duration.performed (@dur.ges)

att.slur.log

att.slur.log Logical domain attributes.	
Module	MEI.cmn
Members	slur
Attributes	att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.startendid (@endid) (att.startid (@startid)) att.duration.timestamp (@dur)

att.slur.vis

att.slur.vis Visual domain attributes for slur. The vo attribute is the vertical offset (from its normal position) of the entire rendered slur/phrase mark.	
Module	MEI.cmn

Members	slur
Attributes	att.color (@color) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.visualoffset2 (att.visualoffset2.ho (@startho, @endho)) (att.visualoffset2.to (@startto, @endto)) (att.visualoffset2.vo (@startvo, @endvo)) att.xy (@x, @y) att.xy2 (@x2, @y2) att.curvature (@bezier, @bulge, @curvedir) att.curverend (@rend)

att.slurpresent

att.slurpresent Attributes for marking the presence of a slur.	
Module	MEI.shared
Members	att.chord.log [chord] att.note.log [note]
Attributes	<div>@slur indicates that this element participates in a slur. If visual information about the slur needs to be recorded, then a <slur> element should be employed.</div> <div>Status Optional</div> <div>Datatype data.SLURS</div>

att.slurrend

att.slurrend Attributes that describe the rendition of slurs.	
Module	MEI.cmn
Members	att.scoreDef.vis.cmn [att.scoreDef.vis [scoreDef]] att.staffDef.vis.cmn [att.staffDef.vis [staffDef]]
Attributes	<div>@slur.rend describes the line style of the slur.</div> <div>Status Optional</div> <div>Datatype data.CURVERENDITION</div>

att.solfa

att.solfa Attributes that specify pitch using sol-fa.	
Module	MEI.analysis
Members	att.note.anl [note] att.uneume.anl [uneume]
Attributes	<div>@psolfa contains sol-fa designation, e.g., do, re, mi, etc., in either a fixed or movable Do system.</div> <div>Status Optional</div>

att.source

att.source Attributes common to elements that may refer to a source.	
Module	MEI.critapp
Members	att.crit [lem rdg] att.edit [abbr date expan event add corr gap handShift orig reg restore subst supplied unclear corpName geogName periodName persName styleName] annot custos expansion label lb pb sb
Attributes	<p>@source contains a list of one or more pointers indicating the sources which attest to a given reading. Each value should correspond to the ID of a <source> element located in the document header.</p> <p>Status Optional</p> <p>Datatype list { data.URI+ }</p>

att.space.anl

att.space.anl Analytical domain attributes.	
Module	MEI.shared
Members	space
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.space.ges

att.space.ges Gestural domain attributes.	
Module	MEI.shared
Members	space
Attributes	att.duration.performed (@dur.ges)

att.space.log

att.space.log Logical domain attributes.	
Module	MEI.shared
Members	space
Attributes	att.augmentdots (@dots) att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.duration.musical

	(@dur) att.fermatapresent (@fermata) att.tupletpresent (@tuplet) att.space.log.cmn (att.beamed (@beam))
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att.space.log.cmn

att.space.log.cmn Logical domain attributes for CMN features.	
Module	MEI.cmn
Members	att.space.log [space]
Attributes	att.beamed (@beam)

att.space.vis

att.space.vis Visual domain attributes.	
Module	MEI.shared
Members	space
Attributes	<p>@compressible indicates whether a space is 'compressible', i.e., if it may be removed at the discretion of processing software.</p> <p>Status Optional</p> <p>Datatype data.BOOLEAN</p>

att.staff.anl

att.staff.anl Analytical domain attributes.	
Module	MEI.shared
Members	staff
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.staff.ges

att.staff.ges Gestural domain attributes.	
Module	MEI.shared
Members	staff

Attributes	NONE DEFINED
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att.staff.log

att.staff.log Logical domain attributes.	
Module	MEI.shared
Members	staff
Attributes	<p>att.meterconformance (@metcon)</p> <p>@def provides a mechanism for linking the staff to a staffDef element.</p> <p>Status Optional</p> <p>Datatype data.URI</p>

att.staff.vis

att.staff.vis Visual domain attributes.	
Module	MEI.shared
Members	staff
Attributes	att.visibility (@visible)

att.staffDef.anl

att.staffDef.anl Analytical domain attributes.	
Module	MEI.shared
Members	staffDef
Attributes	NONE DEFINED

att.staffDef.ges

att.staffDef.ges Gestural domain attributes for staffDef in the CMN repertoire.	
Module	MEI.shared
Members	staffDef
Attributes	att.instrumentident (@instr) att.timebase (@ppq) att.staffDef.ges.tablature (@tab.strings)

att.staffDef.ges.tablature

att.staffDef.ges.tablature Gestural domain attributes for staffDef in tablature.	
Module	MEI.tablature
Members	att.staffDef.ges [staffDef]
Attributes	<p>@tab.strings provides a *written* pitch and octave for each open string.</p> <p>Status Optional</p> <p>Datatype <code>list { token { pattern = "[a-g][\-\#fs]?[0-9]" }+ }</code></p>

att.staffDef.log

att.staffDef.log Logical domain attributes for staffDef.	
Module	MEI.shared
Members	staffDef
Attributes	<p>att.cleffing.log (@clef.shape, @clef.line, @clef.dis, @clef.dis.place) att.duration.default (@dur.default)</p> <p>att.keySigDefault.log (@key.accid, @key.mode, @key.pname, @key.sig, @key.sig.mixed)</p> <p>att.meterSigDefault.log (@meter.count, @meter.unit) att.octavedefault (@octave.default)</p> <p>att.transposition (@trans.diat, @trans.semi) att.staffDef.log.cmn (att.beaming.log (@beam.group, @beam.rest)) att.staffDef.log.mensural (@proport.num, @proport.numbase) (att.mensurDefault.log (@mensur.dot, @mensur.loc, @mensur.sign, @mensur.slash) (att.duration.ratio (@num, @numbase)))</p>

att.staffDef.log.cmn

att.staffDef.log.cmn Logical domain attributes for staffDef in the CMN repertoire.	
Module	MEI.cmn
Members	att.staffDef.log [staffDef]
Attributes	att.beaming.log (@beam.group, @beam.rest)

att.staffDef.log.mensural

att.staffDef.log.mensural Logical domain attributes for staffDef in the mensural repertoire.	
Module	MEI.mensural
Members	att.staffDef.log [staffDef]

Attributes	<p>att.mensurDefault.log (@mensur.dot, @mensur.loc, @mensur.sign, @mensur.slash) (att.duration.ratio (@num, @numbase))</p> <p>@proport.num Together, proport.num and proport.numbase specify a proportional change as a ratio, e.g., 1:3. Proport.num is for the first value in the ratio.</p> <p>Status Optional</p> <p>Datatype <code>xsd:positiveInteger</code></p> <p>@proport.numbase Together, proport.num and proport.numbase specify a proportional change as a ratio, e.g., 1:3. Proport.numbase is for the second value in the ratio.</p> <p>Status Optional</p> <p>Datatype <code>xsd:positiveInteger</code></p>
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att.staffDef.vis

att.staffDef.vis Visual domain attributes for staffDef.	
Module	MEI.shared
Members	staffDef
Attributes	<p>att.cleffing.vis (@clef.color, @clef.visible) att.distances (@dynam.dist, @harm.dist, @text.dist) att.keySigDefault.vis (@key.sig.show, @key.sig.showchange) att.labels.addl (@label.abbr) att.lyricstyle (@lyric.align, @lyric.fam, @lyric.name, @lyric.size, @lyric.style, @lyric.weight) att.meterSigDefault.vis (@meter.rend, @meter.showchange, @meter.sym) att.multinummeasures (@multi.number) att.onlinestaff (@ontheline) att.scalable (@scale) att.textstyle (@text.fam, @text.name, @text.size, @text.style, @text.weight) att.visibility (@visible) att.staffDef.vis.cmn (att.beaming.vis (@beam.rend, @beam.slope)) (att.pianopedals (@pedal.style)) (att.rehearsal (@reh.enclose)) (att.slurrend (@slur.rend)) (att.tierend (@tie.rend)) att.staffDef.vis.mensural (att.mensurDefault.vis (@mensur.color, @mensur.form, @mensur.orient, @mensur.size))</p> <p>@grid.show determines whether to display guitar chord grids.</p> <p>Status Optional</p> <p>Datatype data.BOOLEAN</p> <p>@layerscheme indicates the number of layers and their stem directions.</p> <p>Status Optional</p> <p>Datatype data.LAYERScheme</p> <p>@lines indicates the number of staff lines.</p> <p>Status Optional</p> <p>Datatype <code>xsd:positiveInteger</code></p> <p>@lines.colors captures the colors of the staff lines. The value is structured; that is, it should have the same number of space-separated RGB values as the number of lines indicated by the lines attribute. A line can be made invisible by assigning it the same RGB value as the background, usually white.</p>

	<p>Status Optional</p> <p>Datatype data.COLORS</p> <p>@lines.visible records whether all staff lines are visible.</p> <p>Status Optional</p> <p>Datatype data.BOOLEAN</p> <p>@spacing records the absolute distance (as opposed to the relative distances recorded in <scoreDef> elements) between this staff and the preceding one in the same system. This value is meaningless for the first staff in a system since the spacing.system attribute indicates the spacing between systems.</p> <p>Status Optional</p> <p>Datatype xsd:decimal</p>
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att.staffDef.vis.cmn

att.staffDef.vis.cmn Visual domain attributes for staffDef in the CMN repertoire.	
Module	MEI.cmn
Members	att.staffDef.vis [staffDef]
Attributes	att.beaming.vis (@beam.rend, @beam.slope) att.pianopedals (@pedal.style) att.rehearsal (@reh.enclose) att.slurrend (@slur.rend) att.tierend (@tie.rend)

att.staffDef.vis.mensural

att.staffDef.vis.mensural Visual domain attributes for the mensural repertoire.	
Module	MEI.mensural
Members	att.staffDef.vis [staffDef]
Attributes	att.mensurDefault.vis (@mensur.color, @mensur.form, @mensur.orient, @mensur.size)

att.staffGrp.anl

att.staffGrp.anl Analytical domain attributes.	
Module	MEI.shared
Members	staffGrp
Attributes	NONE DEFINED

att.staffGrp.ges

att.staffGrp.ges Gestural domain attributes.	
Module	MEI.shared
Members	staffGrp
Attributes	att.instrumentident (@instr)

att.staffGrp.log

att.staffGrp.log Logical domain attributes.	
Module	MEI.shared
Members	staffGrp
Attributes	NONE DEFINED

att.staffGrp.vis

att.staffGrp.vis Visual domain attributes.	
Module	MEI.shared
Members	staffGrp
Attributes	<p>att.labels.addl (@label.abbr) att.staffgroupingsym (@symbol) att.visibility (@visible)</p> <p>@barthru indicates whether bar lines go across the space between staves (true) or are only drawn across the lines of each staff (false).</p> <p>Status Optional</p> <p>Datatype data.BOOLEAN</p>

att.staffgroupingsym

att.staffgroupingsym Attributes that describe the symbol used to group a set of staves.	
Module	MEI.shared
Members	att.grpSym.log [grpSym] att.staffGrp.vis [staffGrp]
Attributes	<p>@symbol specifies the symbol used to group a set of staves.</p> <p>Status Optional</p>

	<p>Legal values are:</p> <p>brace curved symbol, i.e., {.</p> <p>bracket square symbol, i.e., [.</p> <p>line line symbol, i.e., .</p> <p>none grouping symbol missing.</p>
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att.staffident

att.staffident Attributes for identifying the staff associated with the current feature.	
Module	MEI.shared
Members	att.controlevent [att.accid.log [accid] att.artic.log [artic] att.dir.log [dir] att.dot.log [dot] att.dynam.log [dynam] att.phrase.log [phrase] att.tempo.log [tempo] att.arppeg.log [arppeg] att.beamSpan.log [beamSpan] att.bend.log [bend] att.breath.log [breath] att.fermata.log [fermata] att.gliss.log [gliss] att.hairpin.log [hairpin] att.harpPedal.log [harpPedal] att.octave.log [octave] att.pedal.log [pedal] att.slur.log [slur] att.tie.log [tie] att.tupletSpan.log [tupletSpan] att.mordent.log [mordent] att.trill.log [trill] att.turn.log [turn] att.harm.log [harm]] att.event [att.chord.log [chord] att.note.log [note] att.pad.log [pad] att.rest.log [rest] att.space.log [space] att.beam.log [beam] att.beatRpt.log [beatRpt] att.bTrem.log [bTrem] att.fTrem.log [fTrem] att.halfmRpt.log [halfmRpt] att.mRest.log [mRest] att.mRpt.log [mRpt] att.mRpt2.log [mRpt2] att.mSpace.log [mSpace] att.multiRest.log [multiRest] att.multiRpt.log [multiRpt] att.tuplet.log [tuplet] att.uneume.log [uneume] clefGrp att.annot.log [annot] att.reh.log [reh] att.lyrics.log [lyrics] att.midi.event [cc chan chanPr cue hex marker metaText noteOff noteOn port prog seqNum trkName vel] att.midi.log [midi]
Attributes	<p>@staff signifies the staff on which a notated event occurs or to which a control event applies. Mandatory when applicable.</p> <p>Status Mandatory when applicable</p> <p>Datatype list { xsd:positiveInteger+ }</p>

att.staffloc

att.staffloc Attributes that identify location on a staff in terms of lines and spaces.	
Module	MEI.shared
Members	att.accid.log [accid] att.artic.log [artic] att.dot.log [dot] att.mensur.log [mensuration mensur] keyAccid
Attributes	<p>@loc holds the staff location of the feature.</p>

Status	Optional
Datatype	<u>data.STAFFLOC</u>

att.startendid

att.startendid Attributes recording the identifiers of the first and last elements of a sequence of elements to which the current element is associated.	
Module	MEI.shared
Members	att.annot.log [annot] att.dir.log [dir] att.dynam.log [dynam] att.phrase.log [phrase] att.beamSpan.log [beamSpan] att.bend.log [bend] att.breath.log [breath] att.fermata.log [fermata] att.gliss.log [gliss] att.hairpin.log [hairpin] att.harpPedal.log [harpPedal] att.octave.log [octave] att.pedal.log [pedal] att.slur.log [slur] att.tie.log [tie] att.tuplet.log [tuplet] att.tupletSpan.log [tupletSpan] att.mordent.log [mordent] att.trill.log [trill] att.harm.log [harm] barre curve line
Attributes	att.startid (@startid) @endid indicates the final element in a sequence of events to which the feature applies. Status Optional Datatype data.URI

att.startid

att.startid Attributes that identify a relative starting point.	
Module	MEI.shared
Members	att.startendid [att.annot.log [annot] att.dir.log [dir] att.dynam.log [dynam] att.phrase.log [phrase] att.beamSpan.log [beamSpan] att.bend.log [bend] att.breath.log [breath] att.fermata.log [fermata] att.gliss.log [gliss] att.hairpin.log [hairpin] att.harpPedal.log [harpPedal] att.octave.log [octave] att.pedal.log [pedal] att.slur.log [slur] att.tie.log [tie] att.tuplet.log [tuplet] att.tupletSpan.log [tupletSpan] att.mordent.log [mordent] att.trill.log [trill] att.harm.log [harm] barre curve line att.tempo.log [tempo] att.reh.log [reh] att.turn.log [turn] surface recording clip anchoredText symbol
Attributes	<p>@startid holds a reference to the first element in a sequence of events to which the feature applies.</p> <p>Status Optional</p> <p>Datatype data.URI</p>

att.stemmed

att.stemmed	Attributes that describe the properties of stemmed features; that is, chords and notes.
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Module	MEI.shared
Members	att.chord.vis [chord] att.note.vis [note]
Attributes	<p>att.stemmed.cmn (@stem.mod, @stem.with)</p> <p>@stem.dir describes the direction of a stem.</p> <p>Status Optional</p> <p>Datatype data.STEMDIRECTION</p> <p>@stem.len encodes the stem length.</p> <p>Status Optional</p> <p>Datatype xsd:decimal</p> <p>@stem.pos records the position of the stem in relation to the note head(s).</p> <p>Status Optional</p> <p>Datatype data.STEMPOSITION</p> <p>@stem.x records the output x coordinate of the stem's attachment point.</p> <p>Status Optional</p> <p>Datatype xsd:decimal</p> <p>@stem.y records the output y coordinate of the stem's attachment point.</p> <p>Status Optional</p> <p>Datatype xsd:decimal</p>

att.stemmed.cmn

att.stemmed.cmn Attributes that describe the properties of stemmed features; that is, chords and notes.	
Module	MEI.cmn
Members	att.stemmed [att.chord.vis [chord] att.note.vis [note]]
Attributes	<p>@stem.mod encodes any stem "modifiers"; that is, symbols rendered on the stem, such as tremolo or Sprechstimme indicators.</p> <p>Status Optional</p> <p>Datatype data.STEMMODIFIER</p> <p>@stem.with contains an indication of which staff a note or chord that logically belongs to the current staff should be visually placed on; that is, the one above or the one below.</p> <p>Status Optional</p> <p>Datatype data.OTHERSTAFF</p>

att.syl.anl

att.syl.anl Analytical domain attributes.	
Module	MEI.shared
Members	syl
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.syl.ges

att.syl.ges Gestural domain attributes.	
Module	MEI.shared
Members	syl
Attributes	NONE DEFINED

att.syl.log

att.syl.log Logical domain attributes.	
Module	MEI.shared
Members	syl
Attributes	<p>@con describes the symbols typically used to indicate breaks between syllables and their functions.</p> <p>Status Optional</p> <p>Legal values are:</p> <ul style="list-style-type: none"> s space (word separator). d dash (syllable separator). u underscore (syllable extension). t tilde (syllable elision). <p>@wordpos records the position of a syllable within a word.</p> <p>Status Optional</p>

	<p>Legal values are:</p> <p>i (initial) first syllable.</p> <p>m (medial) neither first nor last syllable.</p> <p>t (terminal) last syllable.</p>
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att.syl.vis

att.syl.vis Visual domain attributes.	
Module	MEI.shared
Members	syl
Attributes	att.typography (@fontfam, @fontname, @fontsize, @fontstyle, @fontweight) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.xy (@x, @y) att.horizontalalign (@halign)

att.syltext

att.syltext Attributes that hold associated sung text syllables.	
Module	MEI.shared
Members	att.chord.log [chord] att.note.log [note] att.uneume.log [uneume]
Attributes	<p>@syl holds an associated sung text syllable.</p> <p>Status Optional</p>

att.tabular

att.tabular Attributes shared by table cells.	
Module	MEI.figtable
Members	td th
Attributes	<p>@colspan the number of columns spanned by this cell.</p> <p>Status Optional</p> <p>Datatype xsd:positiveInteger</p>

	<p>@rowspan the number of rows spanned by this cell.</p> <p>Status Optional</p> <p>Datatype xsd:positiveInteger</p>
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att.tempo.anl

att.tempo.anl Analytical domain attributes.	
Module	MEI.shared
Members	tempo
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.tempo.ges

att.tempo.ges Gestural domain attributes.	
Module	MEI.shared
Members	tempo
Attributes	att.miditempo (@midi.tempo) att.mmtempo (@mm)

att.tempo.log

att.tempo.log Logical domain attributes.	
Module	MEI.shared
Members	tempo
Attributes	att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.startid (@startid)

att.tempo.vis

att.tempo.vis Visual domain attributes.	
Module	MEI.shared
Members	tempo

Attributes	att.placement (@place) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.visualoffset2.ho (@startho, @endho) att.visualoffset2.to (@startto, @endto) att.xy (@x, @y)
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att.textstyle

att.textstyle Attributes that describe default text typography.	
Module	MEI.shared
Members	att.layerDef.vis [layerDef] att.scoreDef.vis [scoreDef] att.staffDef.vis [staffDef]
Attributes	<p>@text.fam provides a default value for the font family name of text (other than lyrics) when this information is not provided on the individual elements.</p> <p>Status Optional</p> <p>Datatype data.FONTFAMILY</p> <p>@text.name provides a default value for the font name of text (other than lyrics) when this information is not provided on the individual elements.</p> <p>Status Optional</p> <p>Datatype data.FONTNAME</p> <p>@text.size provides a default value for the font size of text (other than lyrics) when this information is not provided on the individual elements.</p> <p>Status Optional</p> <p>Datatype <code>xsd:decimal</code></p> <p>@text.style provides a default value for the font style of text (other than lyrics) when this information is not provided on the individual elements.</p> <p>Status Optional</p> <p>Datatype data.FONTSTYLE</p> <p>@text.weight provides a default value for the font weight for text (other than lyrics) when this information is not provided on the individual elements.</p> <p>Status Optional</p> <p>Datatype data.FONTWEIGHT</p>

att.tie.anl

att.tie.anl Analytical domain attributes.	
Module	MEI.cmn
Members	tie

Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))
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att.tie.ges

att.tie.ges Gestural domain attributes.	
Module	MEI.cmn
Members	tie
Attributes	NONE DEFINED

att.tie.log

att.tie.log Logical domain attributes.	
Module	MEI.cmn
Members	tie
Attributes	att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.startendid (@endid) (att.startid (@startid)) att.duration.timestamp (@dur)

att.tie.vis

att.tie.vis Visual domain attributes. The vo attribute is the vertical offset (from its normal position) of the entire rendered tie. The startho, startvo, endho, and endvo attributes describe the horizontal and vertical offsets of the start and end points of the tie in terms of staff interline distance; that is, in units of 1/2 the distance between adjacent staff lines. Startto and endto describe the start and end points in terms of time; that is, beats.	
Module	MEI.cmn
Members	tie
Attributes	att.color (@color) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.visualoffset2 (att.visualoffset2.ho (@startho, @endho)) (att.visualoffset2.to (@startto, @endto)) (att.visualoffset2.vo (@startvo, @endvo)) att.xy (@x, @y) att.xy2 (@x2, @y2) att.curvature (@bezier, @bulge, @curvedir) att.curverend (@rend)

att.tiepresent

att.tiepresent Attributes that indicate the presence of a tie.	
Module	MEI.shared

Members	att.chord.log [chord] att.note.log [note]
Attributes	<p>@tie indicates that this element participates in a tie. If visual information about the tie needs to be recorded, then a <tie> element should be employed.</p> <p>Status Optional</p> <p>Datatype data.TIES</p>

att.tierend

att.tierend Attributes that describe the rendition of ties.	
Module	MEI.cmn
Members	att.scoreDef.vis.cmn [att.scoreDef.vis [scoreDef]] att.staffDef.vis.cmn [att.staffDef.vis [staffDef]]
Attributes	<p>@tie.rend describes the line style of the tie.</p> <p>Status Optional</p> <p>Datatype data.CURVERENDITION</p>

att.timebase

att.timebase Attributes that record time-base information.	
Module	MEI.midi
Members	att.scoreDef.ges [scoreDef] att.staffDef.ges [staffDef]
Attributes	<p>@ppq indicates the number of pulses (sometimes referred to as ticks or divisions) per quarter note. Unlike MIDI, MEI permits different values for a score and individual staves.</p> <p>Status Optional</p> <p>Datatype <code>xsd:positiveInteger</code></p>

att.timestamp.musical

att.timestamp.musical Attributes that record a time stamp in terms of musical time, i.e., beats[fractional beat part].	
Module	MEI.shared
Members	att.controlevent [att.accid.log [accid] att.artic.log [artic] att.dir.log [dir] att.dot.log [dot] att.dynam.log [dynam] att.phrase.log [phrase] att.tempo.log [tempo] att.arpeg.log [arpeg] att.beamSpan.log [beamSpan] att.bend.log [bend] att.breath.log [breath] att.fermata.log [fermata] att.gliss.log [gliss] att.hairpin.log [hairpin] att.harpPedal.log [harpPedal] att.octave.log [octave] att.pedal.log [pedal]

	att.slur.log [slur] att.tie.log [tie] att.tupletSpan.log [tupletSpan] att.mordent.log [mordent] att.trill.log [trill] att.turn.log [turn] att.harm.log [harm]] att.event [att.chord.log [chord] att.note.log [note] att.pad.log [pad] att.rest.log [rest] att.space.log [space] att.beam.log [beam] att.beatRpt.log [beatRpt] att.bTrem.log [bTrem] att.fTrem.log [fTrem] att.halfmRpt.log [halfmRpt] att.mRest.log [mRest] att.mRpt.log [mRpt] att.mRpt2.log [mRpt2] att.mSpace.log [mSpace] att.multiRest.log [multiRest] att.multiRpt.log [multiRpt] att.tuplet.log [tuplet] att.uneume.log [uneume] clefGrp att.annot.log [annot] att.barLine.ges [barLine] att.reh.log [reh] att.midi.event [cc chan chanPr cue hex marker metaText noteOff noteOn port prog seqNum trkName vel]
Attributes	<p>@timestamp encodes the onset time in terms of musical time, i.e., beats[.fractional_beat_part].</p> <p>Status Optional</p> <p>Datatype data.BEAT</p>

att.timestamp.performed

att.timestamp.performed Attributes that record a time stamp in terms of relative or real time.	
Module	MEI.shared
Members	att.controlevent [att.accid.log [accid] att.artic.log [artic] att.dir.log [dir] att.dot.log [dot] att.dynam.log [dynam] att.phrase.log [phrase] att.tempo.log [tempo] att.arpeg.log [arpeg] att.beamSpan.log [beamSpan] att.bend.log [bend] att.breath.log [breath] att.fermata.log [fermata] att.gliss.log [gliss] att.hairpin.log [hairpin] att.harpPedal.log [harpPedal] att.octave.log [octave] att.pedal.log [pedal] att.slur.log [slur] att.tie.log [tie] att.tupletSpan.log [tupletSpan] att.mordent.log [mordent] att.trill.log [trill] att.turn.log [turn] att.harm.log [harm]] att.event [att.chord.log [chord] att.note.log [note] att.pad.log [pad] att.rest.log [rest] att.space.log [space] att.beam.log [beam] att.beatRpt.log [beatRpt] att.bTrem.log [bTrem] att.fTrem.log [fTrem] att.halfmRpt.log [halfmRpt] att.mRest.log [mRest] att.mRpt.log [mRpt] att.mRpt2.log [mRpt2] att.mSpace.log [mSpace] att.multiRest.log [multiRest] att.multiRpt.log [multiRpt] att.tuplet.log [tuplet] att.uneume.log [uneume] clefGrp att.annot.log [annot] att.measure.ges [measure] att.reh.log [reh]
Attributes	<p>@timestamp.ges used to record the onset time in pulses per quarter note (ppq, MusicXML divisions, or MIDI clicks) since the start of the file.</p> <p>Status Optional</p> <p>Datatype <code>xsd:nonNegativeInteger</code></p> <p>@timestamp.real used to record the onset time in terms of ISO time since the start of the file.</p> <p>Status Optional</p> <p>Datatype data.ISOTIME</p>

att.trans

att.trans Attributes for elements encoding authorial or scribal intervention when transcribing manuscript or similar sources.
--

Module	MEI.edittrans
Members	abbr expan add corr del restore subst
Attributes	att.handident (@hand) att.sequence (@seq)

att.transposition

att.transposition Attributes that describe transposition.	
Module	MEI.shared
Members	att.scoreDef.log [scoreDef] att.staffDef.log [staffDef]
Attributes	<p>@trans.diate records the amount of diatonic pitch shift, e.g., C to C\sharp = 0, C to D\flat = 1, necessary to calculate the sounded pitch from the written one.</p> <p>Status Optional</p> <p>Datatype <code>xsd:decimal</code></p> <p>@trans.semit records the amount of pitch shift in semitones, e.g., C to C\sharp = 1, C to D\flat = 1, necessary to calculate the sounded pitch from the written one.</p> <p>Status Optional</p> <p>Datatype <code>xsd:decimal</code></p>

att.tremmeasured

att.tremmeasured Attributes that describe measured tremolandi.	
Module	MEI.cmn
Members	att.bTrem.ges [bTrem] att.fTrem.ges [fTrem]
Attributes	<p>@measperl the performed duration of an individual note in a measured tremolo.</p> <p>Status Optional</p> <p>Datatype data.DURATION.cmn</p>

att.trill.anl

att.trill.anl Analytical domain attributes.	
Module	MEI.cmnOrnaments
Members	trill

Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))
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att.trill.ges

att.trill.ges Gestural domain attributes.	
Module	MEI.cmnOrnaments
Members	trill
Attributes	att.duration.performed (@dur.ges)

att.trill.log

att.trill.log Logical domain attributes.	
Module	MEI.cmnOrnaments
Members	trill
Attributes	att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.startendid (@endid) (att.startid (@startid)) att.ornamentaccid (@accidupper, @accidlower) att.duration.timestamp (@dur)

att.trill.vis

att.trill.vis Visual domain attributes.	
Module	MEI.cmnOrnaments
Members	trill
Attributes	att.color (@color) att.placement (@place) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.visualoffset2.ho (@startho, @endho) att.visualoffset2.to (@startto, @endto) att.xy (@x, @y)

att.tuplet.anl

att.tuplet.anl Analytical domain attributes.	
Module	MEI.cmn
Members	att.tupletSpan.anl [tupletSpan] tuplet
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.tuplet.ges

att.tuplet.ges Gestural domain attributes.	
Module	MEI.cmn
Members	att.tupletSpan.ges [tupletSpan] tuplet
Attributes	att.duration.performed (@dur.ges)

att.tuplet.log

att.tuplet.log Logical domain attributes.	
Module	MEI.cmn
Members	tuplet
Attributes	att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.beamedwith (@beam.with) att.augmentdots (@dots) att.duration.ratio (@num, @numbase) att.startendid (@endid) (att.startid (@startid)) @dur records the duration of the tuplet using the optionally dotted, relative durational values provided by the data.DURATION datatype. When the tuplet duration is "irrational", @dur may contain multiple, space-separated values that add up to the total duration. For unmeasured music, use the attributes found in att.duration.ratio (num and numbase) to capture the tuplet's duration instead of this attribute. Status Optional Datatype <pre>list { token { pattern = "(long breve 1 2 4 8 16 32 64 128 256 1024 2048) (\.)*" }+ }</pre>

att.tuplet.vis

att.tuplet.vis Visual domain attributes.	
Module	MEI.cmn
Members	att.tupletSpan.vis [tupletSpan] tuplet
Attributes	att.numberplacement (@num.place, @num.visible) @bracket.placed to state where a tuplet bracket will be placed in relation to the note heads. Status Optional Datatype data.PLACE @bracket.visible whether a bracket should be rendered with a tuplet. Status Optional

	<p>Datatype data.BOOLEAN</p> <p>@dur.visible determines if the tuplet duration is visible.</p> <p>Status Optional</p> <p>Datatype data.BOOLEAN</p> <p>@num.format controls how the num:numbase ratio is to be displayed.</p> <p>Status Optional</p> <p>Legal values are:</p> <ul style="list-style-type: none"> count only the num attribute is displayed, e.g., '7'. ratio both the num and numbase attributes are displayed, e.g., '7:4'.
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att.tupletSpan.anl

att.tupletSpan.anl Analytical domain attributes.	
Module	MEI.cmn
Members	tupletSpan
Attributes	att.tuplet.anl (att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))))

att.tupletSpan.ges

att.tupletSpan.ges Gestural domain attributes.	
Module	MEI.cmn
Members	tupletSpan
Attributes	att.tuplet.ges (att.duration.performed (@dur.ges))

att.tupletSpan.log

att.tupletSpan.log Logical domain attributes.	
Module	MEI.cmn
Members	tupletSpan

Attributes	<p> att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) att.beamedwith (@beam.with) att.augmentdots (@dots) att.duration.ratio (@num, @numbase) att.startendid (@endid) (att.startid (@startid)) </p> <p> @dur records the duration of the tuplet using the optionally dotted, relative durational values provided by the data.DURATION datatype. When the tuplet duration is "irrational", a @dur may contain multiple, space-separated values that add up to the total duration. For unmeasured music, use the attributes found in att.duration.ratio (num and numbase) to capture the tuplet's duration instead of this attribute. </p> <p> Status Optional </p> <p> Datatype <code>list { token { pattern = "(long breve 1 2 4 8 16 32 64 128 256 1024 2048) (\.)*" }+ }</code> </p>
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att.tupletSpan.vis

att.tupletSpan.vis Visual domain attributes.	
Module	MEI.cmn
Members	tupletSpan
Attributes	att.tuplet.vis (@bracket.place, @bracket.visible, @dur.visible, @num.format) (att.numberplacement (@num.place, @num.visible))

att.tupletpresent

att.tupletpresent Attributes for indicating the presence of a tuplet.	
Module	MEI.shared
Members	att.chord.log [chord] att.note.log [note] att.rest.log [rest] att.space.log [space]
Attributes	<p> @tuplet indicates that this feature participates in a tuplet. If visual information about the tuplet needs to be recorded, then a <tuplet> element should be employed. </p> <p> Status Optional </p> <p> Datatype data.TUPLETS </p>

att.turn.anl

att.turn.anl Analytical domain attributes.	
Module	MEI.cmnOrnaments
Members	turn

Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))
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att.turn.ges

att.turn.ges Gestural domain attributes.	
Module	MEI.cmnOrnaments
Members	turn
Attributes	NONE DEFINED

att.turn.log

att.turn.log Logical domain attributes.	
Module	MEI.cmnOrnaments
Members	turn
Attributes	<p>att.controlevent (att.plist (@plist, @evaluate)) (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) (att.staffident (@staff)) (att.layerident (@layer)) (att.ornamentaccid (@accidupper, @accidlower) att.startid (@startid))</p> <p>@delayed When the delayed attribute is set to 'true', the turn begins on the second half of the beat. See Read, p. 246.</p> <p>Status Optional</p> <p>Datatype data.BOOLEAN</p> <p>@form indicates the style of the turn.</p> <p>Status Optional</p> <p>Legal values are: inv inverted turn, e.g., begins on the note below the written note.</p> <p>norm "normal" turn, e.g., begins on the note above the written note.</p>

att.turn.vis

att.turn.vis Visual domain attributes.	
Module	MEI.cmnOrnaments
Members	turn

Attributes	att.color (@color) att.placement (@place) att.visualoffset (att.visualoffset.ho (@ho)) (att.visualoffset.to (@to)) (att.visualoffset.vo (@vo)) att.xy (@x, @y)
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att.typed

att.typed Attributes which can be used to classify or sub-classify features.	
Module	MEI.shared
Members	abbr annot dir ending expan expansion fw identifier incip label lb mdiv name parts part repository score section title altId application eventList measure slur tie ineume uneume app lem rdg damage orig restore graphic corpName geogName periodName persName styleName avFile div anchoredText curve line symbol
Attributes	<p>@type characterizes the element in some sense, using any convenient classification scheme or typology.</p> <p>Status Optional</p> <p>Datatype <code>xsd:NMTOKEN</code></p> <p>@subtype provide any sub-classification for the element, additional to that given by its type attribute.</p> <p>Status Optional</p> <p>Datatype <code>xsd:NMTOKEN</code></p>

att.typography

att.typography Typographical attributes.	
Module	MEI.shared
Members	att.syl.vis [syl] att.reh.vis [reh] att.lyrics.vis [lyrics] att.verse.vis [verse] accid artic rend
Attributes	<p>@fontfam contains the name of a font-family.</p> <p>Status Optional</p> <p>Datatype data.FONTFAMILY</p> <p>@fontname holds the name of a font.</p> <p>Status Optional</p> <p>Datatype data.FONTNAME</p> <p>@fontsize indicates the size of a font in printers' points, i.e., 1/72nd of an inch.</p> <p>Status Optional</p> <p>Datatype <code>xsd:decimal</code></p>

	<p>@fontstyle records the style of a font, i.e, italic, oblique, or normal.</p> <p>Status Optional</p> <p>Datatype data.FONTSTYLE</p> <p>@fontweight used to indicate bold type.</p> <p>Status Optional</p> <p>Datatype data.FONTWEIGHT</p>
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att.uneume.anl

att.uneume.anl Analytical domain attributes.	
Module	MEI.neumes
Members	uneume
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when)) att.harmonicfunction (@hfunc) att.melodicfunction (@mfunc) att.intervallidesc (@intm) att.intervalharmonic (@inth)) att.solfa (@psolfa)

att.uneume.ges

att.uneume.ges Gestural domain attributes.	
Module	MEI.neumes
Members	uneume
Attributes	NONE DEFINED

att.uneume.log

att.uneume.log Logical domain attributes.	
Module	MEI.neumes
Members	uneume
Attributes	att.event (att.timestamp.musical (@tstamp)) (att.timestamp.performed (@tstamp.ges, @tstamp.real)) att.staffident (@staff)) (att.layerident (@layer)) att.syltext (@syl) <p>@form provides a subclass or functional label for the neume.</p> <p>Status Optional</p> <p>Datatype data.UNEUMEFORM</p>

	@name records the name of the neume. Status Optional Datatype data.UNEUMENAME
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att.uneume.vis

att.uneume.vis Visual domain attributes.	
Module	MEI.neumes
Members	uneume
Attributes	att.altsym (@altsym) att.color (@color) att.relativesize (@size) att.visualoffset.ho (@ho) att.xy (@x, @y) att.visibility (@visible)

att.verse.anl

att.verse.anl Analytical domain attributes.	
Module	MEI.lyrics
Members	verse
Attributes	att.common.anl (@copyof, @corresp, @next, @prev, @sameas, @synch) (att.alignment (@when))

att.verse.ges

att.verse.ges Gestural domain attributes.	
Module	MEI.lyrics
Members	verse
Attributes	NONE DEFINED

att.verse.log

att.verse.log Logical domain attributes. The n attribute should be used for verse numbers. Numbers need not be consecutive; they may also be expressed as ranges, e.g. 2-3,6.	
Module	MEI.lyrics
Members	verse

Attributes	@refrain used to indicate a common, usually centered, refrain (Mup User's Guide, p. 44). Status Optional Datatype data.BOOLEAN
	@rhythm used to specify a rhythm for the lyric syllables that differs from that of the notes on the staff, e.g. '4,4,4,4' when the rhythm of the notes is '4.,8,4.,8'. Status Optional

att.verse.vis

att.verse.vis Visual domain attributes.	
Module	MEI.lyrics
Members	verse
Attributes	att.typography (@fontfam, @fontname, @fontsize, @fontstyle, @fontweight) att.visualoffset.to (@to) att.visualoffset.vo (@vo) att.xy (@x, @y)

att.visibility

att.visibility Attributes describing whether a feature should be displayed.	
Module	MEI.shared
Members	att.chord.vis [chord] att.layer.vis [layer] att.layerDef.vis [layerDef] att.note.vis [note] att.staff.vis [staff] att.staffDef.vis [staffDef] att.staffGrp.vis [staffGrp] att.mRest.vis [mRest] att.mSpace.vis [mSpace] att.uneume.vis [uneume]
Attributes	@visible indicates if a feature should be rendered when the notation is presented graphically or sounded when it is presented in an aural form. Status Optional Datatype data.BOOLEAN

att.visualoffset

att.visualoffset Visual offset attributes. Some items may have their location recorded in terms of offsets from their programmatically-determined location. The ho attribute records the horizontal offset while vo records the vertical. The to attribute holds a timestamp offset, the most common use of which is as an alternative to the ho attribute.	
Module	MEI.shared

Members	att.artic.vis [artic] att.dir.vis [dir] att.dynam.vis [dynam] att.grpSym.vis [grpSym] att.phrase.vis [phrase] att.rest.vis [rest] att.syl.vis [syl] att.tempo.vis [tempo] att.arpeg.vis [arpeg] att.bend.vis [bend] att.breath.vis [breath] att.fermata.vis [fermata] att.gliss.vis [gliss] att.hairpin.vis [hairpin] att.halfmRpt.vis [halfmRpt] att.harpPedal.vis [harpPedal] att.mRest.vis [mRest] att.octave.vis [octave] att.pedal.vis [pedal] att.reh.vis [reh] att.slur.vis [slur] att.tie.vis [tie] att.mordent.vis [mordent] att.trill.vis [trill] att.turn.vis [turn] att.harm.vis [harm] anchoredText curve line symbol
Attributes	att.visualoffset.ho (@ho) att.visualoffset.to (@to) att.visualoffset.vo (@vo)

att.visualoffset.ho

att.visualoffset.ho Horizontal offset attributes.	
Module	MEI.shared
Members	att.visualoffset [att.artic.vis [artic] att.dir.vis [dir] att.dynam.vis [dynam] att.grpSym.vis [grpSym] att.phrase.vis [phrase] att.rest.vis [rest] att.syl.vis [syl] att.tempo.vis [tempo] att.arpeg.vis [arpeg] att.bend.vis [bend] att.breath.vis [breath] att.fermata.vis [fermata] att.gliss.vis [gliss] att.hairpin.vis [hairpin] att.halfmRpt.vis [halfmRpt] att.harpPedal.vis [harpPedal] att.mRest.vis [mRest] att.octave.vis [octave] att.pedal.vis [pedal] att.reh.vis [reh] att.slur.vis [slur] att.tie.vis [tie] att.mordent.vis [mordent] att.trill.vis [trill] att.turn.vis [turn] att.harm.vis [harm] anchoredText curve line symbol] att.accid.vis [accid] att.chord.vis [chord] att.dot.vis [dot] att.note.vis [note] att.uneume.vis [uneume]
Attributes	<p>@ho records a horizontal adjustment to a feature's programmatically-determined location in terms of staff interline distance; that is, in units of 1/2 the distance between adjacent staff lines.</p> <p>Status Optional</p> <p>Datatype data.INTERLINE</p>

att.visualoffset.to

att.visualoffset.to Horizontal offset attributes specified in terms of time.	
Module	MEI.shared
Members	att.visualoffset [att.artic.vis [artic] att.dir.vis [dir] att.dynam.vis [dynam] att.grpSym.vis [grpSym] att.phrase.vis [phrase] att.rest.vis [rest] att.syl.vis [syl] att.tempo.vis [tempo] att.arpeg.vis [arpeg] att.bend.vis [bend] att.breath.vis [breath] att.fermata.vis [fermata] att.gliss.vis [gliss] att.hairpin.vis [hairpin] att.halfmRpt.vis [halfmRpt] att.harpPedal.vis [harpPedal] att.mRest.vis [mRest] att.octave.vis [octave] att.pedal.vis [pedal] att.reh.vis [reh] att.slur.vis [slur] att.tie.vis [tie] att.mordent.vis [mordent] att.trill.vis [trill] att.turn.vis [turn] att.harm.vis [harm] anchoredText curve line symbol] att.chord.vis [chord] att.note.vis [note] att.verse.vis [verse]
Attributes	<p>@to records a timestamp adjustment of a feature's programmatically-determined location in terms of musical time; that is, beats.</p> <p>Status Optional</p>

	Datatype data.TSTAMPOFFSET
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att.visualoffset.vo

att.visualoffset.vo Vertical offset attributes.	
Module	MEI.shared
Members	att.visualoffset [att.artic.vis [artic] att.dir.vis [dir] att.dynam.vis [dynam] att.grpSym.vis [grpSym] att.phrase.vis [phrase] att.rest.vis [rest] att.syl.vis [syl] att.tempo.vis [tempo] att.arpeg.vis [arpeg] att.bend.vis [bend] att.breath.vis [breath] att.fermata.vis [fermata] att.gliss.vis [gliss] att.hairpin.vis [hairpin] att.halfmRpt.vis [halfmRpt] att.harpPedal.vis [harpPedal] att.mRest.vis [mRest] att.octave.vis [octave] att.pedal.vis [pedal] att.reh.vis [reh] att.slur.vis [slur] att.tie.vis [tie] att.mordent.vis [mordent] att.trill.vis [trill] att.turn.vis [turn] att.harm.vis [harm] anchoredText curve line symbol] att.accid.vis [accid] att.dot.vis [dot] att.verse.vis [verse]
Attributes	<p>@vo records the vertical adjustment of a feature's programmatically-determined location in terms of staff interline distance; that is, in units of 1/2 the distance between adjacent staff lines.</p> <p>Status Optional</p> <p>Datatype data.INTERLINE</p>

att.visualoffset2

att.visualoffset2 Visual offset attributes. Some items may have their location recorded in terms of pairs of offsets from their programmatically-determined location. The startho and endho attributes record the horizontal offsets of the start and end points of the item, respectively. Similarly, the startvo and endvo attributes record the vertical offsets of the start and end points of the item. The startto and endto attributes hold timestamp offsets, the most common use of which is as alternatives to the ho attributes.	
Module	MEI.shared
Members	att.phrase.vis [phrase] att.bend.vis [bend] att.gliss.vis [gliss] att.hairpin.vis [hairpin] att.slur.vis [slur] att.tie.vis [tie] curve line
Attributes	att.visualoffset2.ho (@startho, @endho) att.visualoffset2.to (@startto, @endto) att.visualoffset2.vo (@startvo, @endvo)

att.visualoffset2.ho

att.visualoffset2.ho Horizontal offset requiring a pair of attributes.	
Module	MEI.shared

Members	att.visualoffset2 [att.phrase.vis [phrase] att.bend.vis [bend] att.gliss.vis [gliss] att.hairpin.vis [hairpin] att.slur.vis [slur] att.tie.vis [tie] curve line] att.dir.vis [dir] att.dynam.vis [dynam] att.tempo.vis [tempo] att.octave.vis [octave] att.trill.vis [trill] att.harm.vis [harm]
Attributes	<p>@startho records the horizontal adjustment of a feature's programmatically-determined start point. Status Optional Datatype data.INTERLINE</p> <p>@endho records the horizontal adjustment of a feature's programmatically-determined end point. Status Optional Datatype data.INTERLINE</p>

att.visualoffset2.to

att.visualoffset2.to Horizontal offset attributes requiring a pair of attributes specified in terms of time.	
Module	MEI.shared
Members	att.visualoffset2 [att.phrase.vis [phrase] att.bend.vis [bend] att.gliss.vis [gliss] att.hairpin.vis [hairpin] att.slur.vis [slur] att.tie.vis [tie] curve line] att.dir.vis [dir] att.dynam.vis [dynam] att.tempo.vis [tempo] att.octave.vis [octave] att.trill.vis [trill] att.harm.vis [harm]
Attributes	<p>@startto records a timestamp adjustment of a feature's programmatically-determined start point. Status Optional Datatype data.TSTAMPOFFSET</p> <p>@endto records a timestamp adjustment of a feature's programmatically-determined end point. Status Optional Datatype data.TSTAMPOFFSET</p>

att.visualoffset2.vo

att.visualoffset2.vo Vertical offset attributes requiring a pair of attributes.	
Module	MEI.shared
Members	att.visualoffset2 [att.phrase.vis [phrase] att.bend.vis [bend] att.gliss.vis [gliss] att.hairpin.vis [hairpin] att.slur.vis [slur] att.tie.vis [tie] curve line]
Attributes	<p>@startvo records a vertical adjustment of a feature's programmatically-determined start point. Status Optional Datatype data.INTERLINE</p>

	<p>@endvo records a vertical adjustment of a feature's programmatically-determined end point.</p> <p>Status Optional</p> <p>Datatype data.INTERLINE</p>
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att.width

att.width Attributes that describe horizontal dimensions.	
Module	MEI.shared
Members	att.barLine.vis [barLine] att.measure.vis [measure] graphic
Attributes	<p>@width measurement of the horizontal dimension of an entity. This value can only be interpreted meaningfully in combination with the units attribute. The width attribute may be used to capture measure width data for interchange with music printing systems that utilize this information for printing. On <barLine> the width attribute captures the width of the preceding measure.</p> <p>Status Optional</p> <p>Datatype xsd:decimal</p>

att.xy

att.xy Output coordinate attributes. Some elements may have their exact rendered *output* coordinates recorded. x and y attributes indicate where to place the rendered output. Recording the coordinates of a feature in a facsimile requires the use of the facs attribute.	
Module	MEI.shared
Members	att.accid.vis [accid] att.artic.vis [artic] att.chord.vis [chord] att.dir.vis [dir] att.dot.vis [dot] att.dynam.vis [dynam] att.grpSym.vis [grpSym] att.note.vis [note] att.phrase.vis [phrase] att.rest.vis [rest] att.syl.vis [syl] att.tempo.vis [tempo] att.arpeg.vis [arpeg] att.bend.vis [bend] att.breath.vis [breath] att.fermata.vis [fermata] att.gliss.vis [gliss] att.hairpin.vis [hairpin] att.harpPedal.vis [harpPedal] att.mRest.vis [mRest] att.mSpace.vis [mSpace] att.octave.vis [octave] att.pedal.vis [pedal] att.reh.vis [reh] att.slur.vis [slur] att.tie.vis [tie] att.uneume.vis [uneume] att.trill.vis [trill] att.turn.vis [turn] att.harm.vis [harm] att.verse.vis [verse] keyAccid p fig table td th tr quote head lg list anchoredText curve line symbol
Attributes	<p>@x encodes an x coordinate for a feature in an output coordinate system. When it is necessary to record the placement of a feature in a facsimile image, use the facs attribute.</p> <p>Status Optional</p> <p>Datatype xsd:decimal</p> <p>@y encodes an y coordinate for a feature in an output coordinate system. When it is necessary to record the placement of a feature in a facsimile image, use the facs attribute.</p> <p>Status Optional</p>

	Datatype <code>xsd:decimal</code>
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att.xy2

att.xy2 Output coordinate attributes. Some elements may need 2 coordinate pairs to record their rendered *output* coordinates. The attributes indicate where to place the rendered output. Recording the coordinates of a feature in a facsimile requires the use of the facs attribute. .	
Module	MEI.shared
Members	att.phrase.vis [phrase] att.bend.vis [bend] att.gliss.vis [gliss] att.hairpin.vis [hairpin] att.slur.vis [slur] att.tie.vis [tie] curve line
Attributes	<div><div>@x2 encodes the optional 2nd x coordinate. Status Optional Datatype <code>xsd:decimal</code></div><div>@y2 encodes the optional 2nd y coordinate. Status Optional Datatype <code>xsd:decimal</code></div></div>

Schema mei: Data Types

data.ACCIDENTAL.EXPLICIT

data.ACCIDENTAL.EXPLICIT Accidental attribute values. nf (natural-flat) and ns (natural-sharp) are used to cancel double flats and double sharps, respectively.	
Module	MEI
Used by	
Declaration	<pre> data.ACCIDENTAL.EXPLICIT = "s" "f" "ss" "x" "ff" "xs" "ts" "tf" "n" "nf" "ns" "su" "sd" "fu" "fd" "nu" "nd" </pre>

data.ACCIDENTAL.IMPLICIT

data.ACCIDENTAL.IMPLICIT Accidental attribute values.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.accidental.performed • att.keySigDefault.log
Declaration	<pre> data.ACCIDENTAL.IMPLICIT = "s" "f" "ss" "ff" "n" </pre>

data.ARTICULATION

data.ARTICULATION The following list of articulations mostly corresponds to symbols from the Western Musical Symbols portion of the Unicode Standard. The dot and stroke values may be used in cases where interpretation is difficult or not desirable.	
Module	MEI
Used by	data.ARTICULATIONS
Declaration	<pre>data.ARTICULATION = "acc" "stacc" "ten" "stacciss" "marc" "marc-stacc" "spicc" "doit" "rip" "plop" "fall" "bend" "flip" "smear" "dnbow" "upbow" "harm" "snap" "fingernail" "ten-stacc" "damp" "dampall" "open" "stop" "dbltongue" "trpltongue" "heel" "toe" "tap" "lhpizz" "dot" "stroke"</pre>

data.ARTICULATIONS

data.ARTICULATIONS One or more values from the list given in the definition of data.ARTICULATION.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.articulation

	<ul style="list-style-type: none"> • att.articulation.performed
Declaration	<pre>data.ARTICULATIONS = list { data.ARTICULATION+ }</pre>

data.AUGMENTDOT

data.AUGMENTDOT Dots attribute values (number of augmentation dots) (Read, 113-119, ex. 8-21).	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.augmentdots
Declaration	<pre>data.AUGMENTDOT = xsd:nonNegativeInteger { maxInclusive = "4" }</pre>

data.BARPLACE

data.BARPLACE Placement of bar lines. The value 'staff' describes the traditional placement of bar lines.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.barplacement
Declaration	<pre>data.BARPLACE = "mensur" "staff" "takt"</pre>

data.BARRENDITION

data.BARRENDITION Renderings of bar lines. Some values correspond to the Western Musical Symbols portion of the Unicode Standard.
--

Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.barLine.log• att.measure.log
Declaration	<pre>data.BARRENDITION = "dashed" "dotted" "dbl" "dbldashed" "dbldotted" "end" "invis" "rptstart" "rptboth" "rptend" "single"</pre>

data.BEAM

data.BEAM Beam attribute values: initial, medial, terminal. Nested beaming is permitted.	
Module	MEI
Used by	data.BEAMS
Declaration	<pre>data.BEAM = token { pattern = "[i m t][1-6]" }</pre>

data.BEAMS

data.BEAMS One or more from the list given in the definition of the BEAM datatype.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.beamed

Declaration	<pre>data.BEAMS = list { data.BEAM+ }</pre>
-------------	---

data.BEAT

data.BEAT A beat location, i.e., [0-9](\.[0-9]*)? The value must fall between 0 and the numerator of the time signature + 1, where 0 represents the left bar line and the upper bound represents the right bar line. For example, in 12/8 the value must be in the range from 0 to 13.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.timestamp.musical
Declaration	<pre>data.BEAT = xsd:decimal { minInclusive = "0" }</pre>

data.BEATRPT.REND

data.BEATRPT.REND Visual and performance information for a repeated beat symbol.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.beatRpt.vis
Declaration	<pre>data.BEATRPT.REND = xsd:positiveInteger { pattern = "4 8 16 32 64 128" } token { pattern = "mixed" }</pre>

data.BEND.AMOUNT

data.BEND.AMOUNT Either a decimal value or a token. The decimal values are limited to .25, .5, .75, or 1, while the token values are restricted to 'full'.

Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.bend.ges
Declaration	<pre>data.BEND.AMOUNT = xsd:decimal { pattern = "1 \.25 \.5 \.75" } token { pattern = "full" }</pre>

data.BOOLEAN

data.BOOLEAN Boolean attribute values.	
Module	MEI
Used by	<p>Element:</p> <ul style="list-style-type: none">• f/@extender• hand/@initial• instrVoice/@solo <p>Attribute Classes:</p> <ul style="list-style-type: none">• att.arpeg.vis• att.beaming.log• att.clef.log• att.cleffing.vis• att.coloration• att.expandable• att.harm.vis• att.keySigDefault.vis• att.lvpresent• att.mensur.log• att.mensurDefault.log• att.meterSigDefault.vis• att.meterconformance.bar• att.mordent.log• att.multiRest.vis• att.multinummeasures• att.numberplacement• att.onlinestaff

	<ul style="list-style-type: none"> • att.scoreDef.vis • att.scoreDef.vis.cmn • att.section.vis • att.space.vis • att.staffDef.vis • att.staffGrp.vis • att.tuplet.vis • att.turn.log • att.verse.log • att.visibility
Declaration	<pre>data.BOOLEAN = "true" "false"</pre>

data.CERTAINTY

data.CERTAINTY Values for certainty attribute. Certainty may be expressed by one of the values 'high', 'medium', or 'low'. The value 'unknown' should be used in cases where the encoder does not wish to assert an opinion.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.edit
Declaration	<pre>data.CERTAINTY = "high" "medium" "low" "unknown"</pre>

data.CLEFLINE

data.CLEFLINE Clef line attribute values. The value must be in the range between 1 and the number of lines on the staff. The numbering of lines starts with the lowest line of the staff.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.cleffing.log

	<ul style="list-style-type: none">• att.lineLoc
Declaration	<div>data.CLEFLINE = xsd:positiveInteger</div>

data.CLEFSHAPE

data.CLEFSHAPE Clef shape attribute values (Read, p.53-56). Some values correspond to the Unicode Standard.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.cleffing.log• att.clefshape
Declaration	<div>data.CLEFSHAPE = "G" "GG" "F" "C" "perc" "TAB"</div>

data.CLUSTER

data.CLUSTER Tone-cluster rendition.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.chord.vis
Declaration	<div>data.CLUSTER = "whbox" "blbox"</div>

data.COLOR

data.COLOR Either a hexadecimal color value, i.e., #[0-9A-Fa-f]{6,6} OR a descriptive word, i.e., aqua, black, blue, fuchsia, gray, green, lime, maroon, navy, olive, purple, red, silver, teal, white, or yellow, for colors defined by the HTML 4.01 specification.

Module	MEI
Used by	<p>Data Types:</p> <ul style="list-style-type: none"> • data.COLORS <p>Attribute Classes:</p> <ul style="list-style-type: none"> • att.cleffing.vis • att.color • att.mensurDefault.vis
Declaration	<pre>data.COLOR = token { pattern = "(#[0-9A-Fa-f]{6,6} aqua black blue fuchsia gray green lime maroon navy olive purple red silver teal white yellow)" }</pre>

data.COLORS

data.COLORS One or more values from the list given in the definition of data.COLOR.

Module	MEI
Used by	<p>Attribute Classes:</p> <ul style="list-style-type: none"> • att.staffDef.vis
Declaration	<pre>data.COLORS = list { data.COLOR+ }</pre>

data.CURVERENDITION

data.CURVERENDITION Renderings of curves.

Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.curverend• att.slurrend• att.tierend
Declaration	<pre>data.CURVERENDITION = "narrow" "medium" "wide" "dashed" "dotted"</pre>

data.DEGREES

data.DEGREES 360th-unit measure of a circle's circumference; optionally signed decimal number between -360 and 360.	
Module	MEI
Used by	Element: <ul style="list-style-type: none">• rend/@rotation
Declaration	<pre>data.DEGREES = xsd:decimal { maxInclusive = "360.0" minInclusive = "-360.0" }</pre>

data.DURATION

data.DURATION Logical, that is, written, duration attribute values.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.duration.default• att.duration.musical
Declaration	<pre>data.DURATION = data.DURATION.cmn data.DURATION.mensural</pre>

data.DURATION.cmn

data.DURATION.cmn Logical, that is, written, duration attribute values for the CMN repertoire.	
Module	MEI.cmn
Used by	<p>Data Types:</p> <ul style="list-style-type: none"> • data.DURATION <p>Attribute Classes:</p> <ul style="list-style-type: none"> • att.tremmeasured
Declaration	<pre> data.DURATION.cmn = "long" "breve" "1" "2" "4" "8" "16" "32" "64" "128" "256" "512" "1024" "2048" </pre>

data.DURATION.mensural

data.DURATION.mensural Logical, that is, written, duration attribute values for the mensural repertoire.	
Module	MEI.mensural
Used by	data.DURATION
Declaration	<pre> data.DURATION.mensural = "maxima" "longa" "brevis" "semibrevis" "minima" "semiminima" "fusa" "semifusa" </pre>

data.ENCLOSURE

data.ENCLOSURE Enclosures for editorial notes and accidentals.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.enclosingchars
Declaration	<pre>data.ENCLOSURE = "paren" "brack"</pre>

data.FINGER.FRET

data.FINGER.FRET In a guitar chord diagram, a label indicating which finger, if any, should be used to play an individual string. The values 'x' and 'o' indicate stopped and open strings, respectively.	
Module	MEI
Used by	Element: <ul style="list-style-type: none">• chordMember/@fing
Declaration	<pre>data.FINGER.FRET = xsd:positiveInteger { minInclusive = "1" maxInclusive = "4" } token { pattern = "x o" }</pre>

data.FONTFAMILY

data.FONTFAMILY Font family (for text) attribute values. Mup-acceptable values: avantgarde, bookman, courier, helvetica, newcentury, palatino, times.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.lyricstyle• att.textstyle• att.typography

Declaration	<pre>data.FONTFAMILY = token</pre>
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data.FONTNAME

data.FONTNAME Font name (for text) attribute values. Mup-acceptable values: rom, ital, bold, boldital.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.lyricstyle • att.textstyle • att.typography
Declaration	<pre>data.FONTNAME = token</pre>

data.FONTSTYLE

data.FONTSTYLE Font style (for text) attribute values. Mup-acceptable values: ital, 'normal' = 'rom' in Mup.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.lyricstyle • att.textstyle • att.typography
Declaration	<pre>data.FONTSTYLE = "ital" "normal" "oblique"</pre>

data.FONTWEIGHT

data.FONTWEIGHT Font weight (for text) attribute values.

Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.lyricstyle• att.textstyle• att.typography
Declaration	<pre>data.FONTWEIGHT = "bold"</pre>

data.FRET

data.FRET In a guitar chord diagram, the fret where the finger should be placed. Since guitar chord diagrams are limited to the range of frets that fall under the hand, the value here is also limited. The pos (position) attribute on the chordDef element must be used to indicate at which fret this range begins.

Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.fretlocation
Declaration	<pre>data.FRET = xsd:positiveInteger { minInclusive = "1" maxInclusive = "5" }</pre>

data.FRETNUMBER

data.FRETNUMBER In string tablature, the fret number, i.e., [1-9]. The value 'o' may be used instead of a numerical value to indicate the open string.

Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.note.ges.tablature

Declaration	<pre>data.FRETNUMBER = xsd:nonNegativeInteger { minInclusive = "1" maxInclusive = "9" } token { pattern = "o" }</pre>
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data.GLISSANDO

data.GLISSANDO Analytical glissando attribute values.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> att.note.ges.cmn
Declaration	<pre>data.GLISSANDO = "i" "m" "t"</pre>

data.GRACE

data.GRACE Do grace notes get time from the current (acc) or previous (unacc) one?.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> att.graced
Declaration	<pre>data.GRACE = "acc" "unacc" "unknown"</pre>

data.HEADSHAPE

data.HEADSHAPE Note head shapes. Some values map to Unicode characters, others to Mup characters.	
Module	MEI
Used by	Attribute Classes:

	<ul style="list-style-type: none">att.note.vis
Declaration	<div><pre>data.HEADSHAPE = "quarter" "half" "whole" "dblwhole" "filldiamond" "diamond" "dwdiamond" "fillisotriangle" "isotriangle" "dwhisotriangle" "fillpiewedge" "piewedge" "dwhpiewedge" "fillrectangle" "rectangle" "dwhrectangle" "fillrtriangle" "rtriangle" "dwrtriangle" "fillurtriangle" "urtriangle" "dwurtriangle" "fillsemicircle" "semicircle" "dwsemicircle" "fillslash" "slash" "dwslash" "x" "blank" "circlex" "cross"</pre></div>

data.IDREF

data.IDREF an ID reference.	
Module	MEI
Used by	data.IDREFS
Declaration	<div><pre>data.IDREF = xsd.IDREF</pre></div>

data.IDREFS

data.IDREFS One or more IDREFs.	
Module	MEI
Used by	NONE
Declaration	<pre>data.IDREFS = list { data.IDREF+ }</pre>

data.INEUMEFORM

data.INEUMEFORM Interrupted neume forms.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.ineume.log
Declaration	<pre>data.INEUMEFORM = "liquescent1" "liquescent2" "tied" "tiedliquescent1" "tiedliquescent2"</pre>

data.INEUMENAME

data.INEUMENAME Interrupted neume, i.e. neume written as 2 or more sub-neumes.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.ineume.log

Declaration	<pre>data.INEUMENAME = "pessubpunctis" "climacus" "scandicus" "bistropa" "tristropa" "pressusminor" "pressusmaior"</pre>
-------------	--

data.INTERLINE

data.INTERLINE Distance expressed in terms of staff interline distance; that is, units of 1/2 the distance between adjacent staff lines.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.hairpin.vis• att.visualoffset.ho• att.visualoffset.vo• att.visualoffset2.ho• att.visualoffset2.vo
Declaration	<pre>data.INTERLINE = xsd:decimal</pre>

data.INTERVAL.AMOUNT

data.INTERVAL.AMOUNT Either a token indicating direction of the interval but not its precise value or a decimal value in half steps. Decimal values are permitted to accommodate micro-tuning.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.intervallidesc

Declaration	<pre>data.INTERVAL.AMOUNT = xsd:decimal token { pattern = "u d s" }</pre>
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data.ISODATE

data.ISODATE ISO date formats.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.dataable
Declaration	<pre>data.ISODATE = xsd:date xsd:gYear xsd:gMonth xsd:gDay xsd:gYearMonth xsd:gMonthDay xsd:time xsd:dateTime token { pattern = "[0-9.,DHMPRSTWYZ/:\-]+" }</pre>

data.ISOTIME

data.ISOTIME ISO 24-hour time format: HH:MM:SS.ss, i.e., [0-9][0-9]:[0-9][0-9]:[0-9][0-9](\.[0-9]*)?.	
Module	MEI
Used by	Element: <ul style="list-style-type: none">• when/@absolute Attribute Classes: <ul style="list-style-type: none">• att.timestamp.performed
Declaration	<pre>data.ISOTIME = xsd:time</pre>

data.KEYSIGNATURE

data.KEYSIGNATURE Key signature may be indicated by a value showing where the key is in the circle of fifths. Mixed key signatures, e.g. those consisting of a mixture of flats and sharps, and key signatures with unorthodox placement of the accidentals (Read, p. 143) must be indicated by setting the key.sig attribute to 'mixed' and providing explicit key signature information in the key.sig.mixed attribute.

Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.keySigDefault.log
Declaration	<pre>data.KEYSIGNATURE = token { pattern = "mixed 0 [1-7][f s]" }</pre>

data.KEYSIGTOKEN

data.KEYSIGTOKEN A token describing the pitch name, inflection, and octave number of an altered pitch in a key signature.

Module	MEI
Used by	NONE
Declaration	<pre>data.KEYSIGTOKEN = token { pattern = "[a-g][s f ss x ff n nf ns su sd fu fd nu nd][0-9]" }</pre>

data.LAYERScheme

data.LAYERScheme Indicates how stems should be drawn when more than one layer is present and stem directions are not indicated on the notes/chords themselves. '1' indicates that there is only a single layer on a staff. '2o' means there are two layers with opposing stems. '2f' indicates two 'free' layers; that is, opposing stems will be drawn unless one of the layers has 'space'. In that case, stem direction in the remaining layer will be determined as if there were only one layer. '3o' and '3f' are analogous to '2o' and '2f' with three layers allowed.

Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.staffDef.vis

Declaration	<pre>data.LAYERScheme = "1" "2o" "2f" "3o" "3f"</pre>
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data.LIGATUREFORM

data.LIGATUREFORM Ligature forms.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.ligature.log
Declaration	<pre>data.LIGATUREFORM = "recta" "obliqua"</pre>

data.LINERENDITION

data.LINERENDITION Renderings of lines.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.linerend
Declaration	<pre>data.LINERENDITION = "narrow" "medium" "wide" "dashed" "dotted" "wavy"</pre>

data.MEASUREBEAT

data.MEASUREBEAT A count of measures plus a beat location, i.e., [0-9]+m *\+ *[0-9]+(\.[0-9]*)?.	
Module	MEI
Used by	Attribute Classes:

	<ul style="list-style-type: none">• att.duration.timestamp
Declaration	<pre>data.MEASUREBEAT = token { pattern = "([0-9]+m?s*\+\s*)?[0-9]+(\.?[0-9]*)?" }</pre>

data.MENSURATIONSIGN

data.MENSURATIONSIGN Mensuration attribute values.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.mensur.log• att.mensurDefault.log
Declaration	<pre>data.MENSURATIONSIGN = "C" "0"</pre>

data.METERSIGN

data.METERSIGN Meter.sym attribute values for CMN.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.meterSig.log• att.meterSigDefault.vis
Declaration	<pre>data.METERSIGN = "common" "cut"</pre>

data.MIDICHANNEL

data.MIDICHANNEL MIDI channel numbers.	
Module	MEI
Used by	<p>Element:</p> <ul style="list-style-type: none"> chan/@num <p>Attribute Classes:</p> <ul style="list-style-type: none"> att.channelized
Declaration	<pre>data.MIDICHANNEL = xsd:positiveInteger { maxInclusive = "16" }</pre>

data.MIDINAMES

data.MIDINAMES General MIDI instrument names.	
Module	MEI
Used by	<p>Attribute Classes:</p> <ul style="list-style-type: none"> att.midiinstrument
Declaration	<pre>data.MIDINAMES = "Acoustic_Grand_Piano" "Bright_Acoustic_Piano" "Electric_Grand_Piano" "Honky-tonk_Piano" "Electric_Piano_1" "Electric_Piano_2" "Harpsichord" "Clavi" "Celesta" "Glockenspiel" "Music_Box" "Vibraphone" "Marimba" "Xylophone" "Tubular_Bells" "Dulcimer" "Drawbar_Organ" "Percussive_Organ" "Rock_Organ"</pre>

| "Church_Organ"
| "Reed_Organ"
| "Accordion"
| "Harmonica"
| "Tango_Accordion"
| "Acoustic_Guitar_nylon"
| "Acoustic_Guitar_steel"
| "Electric_Guitar_jazz"
| "Electric_Guitar_clean"
| "Electric_Guitar_muted"
| "Overdriven_Guitar"
| "Distortion_Guitar"
| "Guitar_harmonics"
| "Acoustic_Bass"
| "Electric_Bass_finger"
| "Electric_Bass_pick"
| "Fretless_Bass"
| "Slap_Bass_1"
| "Slap_Bass_2"
| "Synth_Bass_1"
| "Synth_Bass_2"
| "Violin"
| "Viola"
| "Cello"
| "Contrabass"
| "Tremolo_Strings"
| "Pizzicato_Strings"
| "Orchestral_Harp"
| "Timpani"
| "String_Ensemble_1"
| "String_Ensemble_2"
| "SynthStrings_1"
| "SynthStrings_2"
| "Choir_Aahs"
| "Voice_Oohs"
| "Synth_Voice"
| "Orchestra_Hit"
| "Trumpet"
| "Trombone"
| "Tuba"
| "Muted_Trumpet"
| "French_Horn"
| "Brass_Section"
| "SynthBrass_1"
| "SynthBrass_2"
| "Soprano_Sax"
| "Alto_Sax"
| "Tenor_Sax"
| "Baritone_Sax"
| "Oboe"
| "English_Horn"
| "Bassoon"
| "Clarinet"
| "Piccolo"
| "Flute"
| "Recorder"
| "Pan_Flute"
| "Blown_Bottle"
| "Shakuhachi"
| "Whistle"
| "Ocarina"
| "Lead_1_square"
| "Lead_2_sawtooth"

```
| "Lead_3_calliope"  
| "Lead_4_chiff"  
| "Lead_5_charang"  
| "Lead_6_voice"  
| "Lead_7_fifths"  
| "Lead_8_bass_and_lead"  
| "Pad_1_new_age"  
| "Pad_2_warm"  
| "Pad_3_polysynth"  
| "Pad_4_choir"  
| "Pad_5_bowed"  
| "Pad_6_metallic"  
| "Pad_7_halo"  
| "Pad_8_sweep"  
| "FX_1_rain"  
| "FX_2_soundtrack"  
| "FX_3_crystal"  
| "FX_4_atmosphere"  
| "FX_5_brightness"  
| "FX_6_goblins"  
| "FX_7_echoes"  
| "FX_8_sci-fi"  
| "Sitar"  
| "Banjo"  
| "Shamisen"  
| "Koto"  
| "Kalimba"  
| "Bagpipe"  
| "Fiddle"  
| "Shanai"  
| "Tinkle_Bell"  
| "Agogo"  
| "Steel_Drums"  
| "Woodblock"  
| "Taiko_Drum"  
| "Melodic_Tom"  
| "Synth_Drum"  
| "Reverse_Cymbal"  
| "Guitar_Fret_Noise"  
| "Breath_Noise"  
| "Seashore"  
| "Bird_Tweet"  
| "Telephone_Ring"  
| "Helicopter"  
| "Applause"  
| "Gunshot"  
| "Acoustic_Bass_Drum"  
| "Bass_Drum_1"  
| "Side_Stick"  
| "Acoustic_Snare"  
| "Hand_Clap"  
| "Electric_Snare"  
| "Low_Floor_Tom"  
| "Closed_Hi_Hat"  
| "High_Floor_Tom"  
| "Pedal_Hi-Hat"  
| "Low_Tom"  
| "Open_Hi-Hat"  
| "Low-Mid_Tom"  
| "Hi-Mid_Tom"  
| "Crash_Cymbal_1"  
| "High_Tom"  
| "Ride_Cymbal_1"
```

	<div><div>"Chinese_Cymbal" "Ride_Bell" "Tambourine" "Splash_Cymbal" "Cowbell" "Crash_Cymbal_2" "Vibraslap" "Ride_Cymbal_2" "Hi_Bongo" "Low_Bongo" "Mute_Hi_Conga" "Open_Hi_Conga" "Low_Conga" "High_Timbale" "Low_Timbale" "High_Agogo" "Low_Agogo" "Cabasa" "Maracas" "Short_Whistle" "Long_Whistle" "Short_Guiro" "Long_Guiro" "Claves" "Hi_Wood_Block" "Low_Wood_Block" "Mute_Cuica" "Open_Cuica" "Mute_Triangle" "Open_Triangle"</div></div>
--	--

data.MIDITEMPO

data.MIDITEMPO MIDI quarter notes per minute: positive integer in the range 10-1000.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">att.miditempo
Declaration	<div>data.MIDITEMPO = xsd:positiveInteger { minInclusive = "10" maxInclusive = "1000" }</div>

data.MIDIVALUE

data.MIDIVALUE MIDI values in the following range.
--

Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.channelized• att.midiinstrument• att.midinumber• att.midivalue
Declaration	<pre>data.MIDIVALUE = xsd:nonNegativeInteger { maxInclusive = "127" }</pre>

data.MODE

data.MODE Modes.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.keySig.log• att.keySigDefault.log
Declaration	<pre>data.MODE = "major" "minor" "dorian" "phrygian" "lydian" "mixolydian" "aeolian" "locrian"</pre>

data.MODUSMAIOR

data.MODUSMAIOR Maxima-long relationship values.	
Module	MEI
Used by	Attribute Classes:

	<ul style="list-style-type: none">• att.mensur.log
Declaration	<div>data.MODUSMAIOR = xsd:positiveInteger { minInclusive = "2" maxInclusive = "3" }</div>

data.MODUSMINOR

data.MODUSMINOR Long-breve relationship values.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.mensur.log
Declaration	<div>data.MODUSMINOR = xsd:positiveInteger { minInclusive = "2" maxInclusive = "3" }</div>

data.MUSICFONT

data.MUSICFONT Music font family.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.scoreDef.vis
Declaration	<div>data.MUSICFONT = token</div>

data.OCTAVE

data.OCTAVE Oct attribute values. The default values conform to Acoustical Society of America representation. Read, p. 44.
--

Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.note.ges • att.octave • att.octavedefault
Declaration	<pre>data.OCTAVE = xsd:nonNegativeInteger { maxInclusive = "9" }</pre>

data.OCTAVE.DIS

data.OCTAVE.DIS The amount of octave displacement; that is, '8' (as in '8va' for 1 octave), '15' (for 2 octaves), or rarely '22' (for 3 octaves).	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.cleffing.log • att.octavedisplacement
Declaration	<pre>data.OCTAVE.DIS = xsd:positiveInteger { pattern = "8 15 22" }</pre>

data.ORIENTATION

data.ORIENTATION Rotation or reflection of base symbol values.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.mensur.vis • att.mensurDefault.vis

Declaration	<pre>data.ORIENTATION = token { pattern = "reversed 90CW 90CCW" }</pre>
-------------	---

data.ORNAM.cmn

data.ORNAM.cmn CMN ornam attribute values: A = appoggiatura (upper neighbor); a = acciaccatura (lower neighbor); b = bebung; l = ascending slide; i = descending slide; k = delayed turn; K = 5-note turn; m = mordent (alternation with lower neighbor); M = inverted mordent (alternation with upper neighbor); N = Nachschlag (upper neighbor); n = Nachschlag (lower neighbor); S = turn; s = inverted turn; t = trill commencing on auxiliary note; T = trill commencing on principal note; O = generic / unspecified ornament.

Module	MEI.cmnOrnaments
Used by	data.ORNAMS.cmn
Declaration	<pre>data.ORNAM.cmn = token { pattern = "[A a b I i K k M m N n S s T t O] (A a S s K k)?(T t M m)(I i S s)?" }</pre>

data.ORNAMS.cmn

data.ORNAMS.cmn One or more values from the list given in the data.ORNAM.cmn datatype.

Module	MEI.cmnOrnaments
Used by	Attribute Classes: <ul style="list-style-type: none">• att.ornam
Declaration	<pre>data.ORNAMS.cmn = list { data.ORNAM.cmn+ }</pre>

data.OTHERSTAFF

data.OTHERSTAFF For musical material designated to appear on another staff, the location of the staff relative to the current one; i.e., the staff above or the staff below.

Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.beamedwith • att.stemmed.cmn
Declaration	<pre>data.OTHERSTAFF = "above" "below"</pre>

data.PAGE.PANELS

data.PAGE.PANELS The number of panels per page.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.scoreDef.vis
Declaration	<pre>data.PAGE.PANELS = xsd:positiveInteger { minInclusive = "1" maxInclusive = "2" }</pre>

data.PERCENT

data.PERCENT Positive decimal number plus '%', i.e., [0-9]+(\.[0-9]*)?\%.	
Module	MEI
Used by	<p>Data Types:</p> <ul style="list-style-type: none"> • data.PGSCALE <p>Attribute Classes:</p> <ul style="list-style-type: none"> • att.channelized • att.graced • att.scalable

Declaration	<pre>data.PERCENT = token { pattern = "[0-9]+(\.[0-9]*)?" }</pre>
-------------	---

data.PGSCALE

data.PGSCALE Page scale factor. Page.scale may be expressed as a percentage of a programmatically-determined "usual" size or as a ratio of virtual units to real-world units.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.scoreDef.vis
Declaration	<pre>data.PGSCALE = data.PERCENT data.RATIO</pre>

data.PGUNITS

data.PGUNITS Values for real-world unit attributes.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.scoreDef.vis
Declaration	<pre>data.PGUNITS = "in" "cm" "mm"</pre>

data.PITCHCLASS

data.PITCHCLASS Pclass (pitch class) attribute values.	
Module	MEI
Used by	Attribute Classes:

	<ul style="list-style-type: none"> • att.pitchclass
Declaration	<pre>data.PITCHCLASS = xsd:nonNegativeInteger { maxInclusive = "11" }</pre>

data.PITCHNAME

data.PITCHNAME The pitch names (gamut) used within a single octave. The default values conform to Acoustical Society of America representation.

Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.keySigDefault.log • att.pitch • att.scoreDef.ges
Declaration	<pre>data.PITCHNAME = token { pattern = "[a-g]" }</pre>

data.PITCHNAME.GES

data.PITCHNAME.GES Gestural pitch names need an additional value for when the notated pitch is not to be sounded.

Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.note.ges
Declaration	<pre>data.PITCHNAME.GES = token { pattern = "[a-g] none" }</pre>

data.PITCHNUMBER

data.PITCHNUMBER Pnum (pitch number, e.g. MIDI) attribute values.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.note.ges
Declaration	<pre>data.PITCHNUMBER = xsd:nonNegativeInteger</pre>

data.PLACE

data.PLACE Location of symbol relative to other notational components.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.cleffing.log• att.numberplacement• att.octavedisplacement• att.tuplet.vis
Declaration	<pre>data.PLACE = "above" "below"</pre>

data.PROLATIO

data.PROLATIO Semibreve-minim relationship values.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.mensur.log

Declaration	<pre>data.PROLATIO = xsd:positiveInteger { minInclusive = "2" maxInclusive = "3" }</pre>
-------------	--

data.RATIO

data.RATIO A ratio, i.e., [0-9]+(\.[0-9]*)?:[0-9]+(\.[0-9]*)? For example, "40:7.2319".	
Module	MEI
Used by	data.PGSCALE
Declaration	<pre>data.RATIO = token { pattern = "[0-9]+(\.[0-9]*)?:[0-9]+(\.[0-9]*)?" }</pre>

data.SIZE

data.SIZE Relative size attribute values.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.mensurDefault.vis • att.relativesize
Declaration	<pre>data.SIZE = "normal" "cue"</pre>

data.SLASH

data.SLASH The number of slashes to be rendered for tremolandi.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.slashcount

Declaration	<pre>data.SLASH = xsd:positiveInteger { minInclusive = "1" maxInclusive = "6" }</pre>
-------------	---

data.SLUR

data.SLUR i=initial, m=medial, t=terminal. Number is used to match endpoints of the slur when slurs are nested or overlap, e.g. <note slur='i1 i2'/><note slur='t1'/><note slur='t2'/> encodes the fact that two slurs begin on note 1, one which terminates on note 2 and one which terminates on note 3.

Module	MEI
Used by	data.SLURS
Declaration	<pre>data.SLUR = token { pattern = "[i m t][1-6]" }</pre>

data.SLURDIRECTION

data.SLURDIRECTION Slur direction.

Module	MEI
Used by	NONE
Declaration	<pre>data.SLURDIRECTION = "up" "down"</pre>

data.SLURS

data.SLURS One or more from the list given in the definition of data.SLUR.

Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.slurpresent

Declaration	<pre>data.SLURS = list { data.SLUR+ }</pre>
-------------	---

data.STAFFLOC

data.STAFFLOC Staff location. The value '0' indicates the bottom line of the current staff; positive values are used for positions above the bottom line and negative values for the positions below. For example, in treble clef, 1 = F4, 2 = G4, 3 = A4, etc. and -1 = C4, -2 = B4, and so on. .

Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.barplacement • att.staffloc
Declaration	<pre>data.STAFFLOC = xsd:integer</pre>

data.STAFFREL

data.STAFFREL Location of musical material relative to a staff.

Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.fermatapresent • att.placement
Declaration	<pre>data.STAFFREL = "above" "below" "within"</pre>

data.STEMDIRECTION

data.STEMDIRECTION Stem direction.

Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.stemmed
Declaration	<pre>data.STEMDIRECTION = "up" "down"</pre>

data.STEMMODIFIER

data.STEMMODIFIER Stem modification.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.stemmed.cmn
Declaration	<pre>data.STEMMODIFIER = "1slash" "2slash" "3slash" "4slash" "5slash" "6slash" "sprech" "z"</pre>

data.STEMPOSITION

data.STEMPOSITION Which side of stem?.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.stemmed

Declaration	<pre>data.STEMPOSITION = "left" "right" "center"</pre>
-------------	--

data.STRINGNUMBER

data.STRINGNUMBER In string tablature, the number of the string to be played, i.e., [1-9]+.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> att.note.ges.tablature
Declaration	<pre>data.STRINGNUMBER = xsd:positiveInteger</pre>

data.TEMPERAMENT

data.TEMPERAMENT Temperament or tuning system.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> att.scoreDef.ges
Declaration	<pre>data.TEMPERAMENT = "equal" "just" "mean" "pythagorean"</pre>

data.TEMPOVALUE

data.TEMPOVALUE Beats (meter signature denominator) per minute, e.g. 120.	
Module	MEI
Used by	Attribute Classes:

	<ul style="list-style-type: none">• att.mmtempo
Declaration	<div>data.TEMPOVALUE = xsd:positiveInteger</div>

data.TEMPUS

data.TEMPUS Breve-semibreve relationship values.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.mensur.log
Declaration	<div>data.TEMPUS = xsd:positiveInteger { minInclusive = "2" maxInclusive = "3" }</div>

data.TEXTRENDITION

data.TEXTRENDITION Text rendition values.	
Module	MEI
Used by	Element: <ul style="list-style-type: none">• rend/@rend
Declaration	<div>data.TEXTRENDITION = "box" "circle" "dblunderline" "none" "quote" "bslash" "fslash" "smcaps" "strike" "sub"</div>

```
| "sup"
| "underline"
```

data.TIE

data.TIE Tie attribute values: initial, medial, terminal.	
Module	MEI
Used by	data.TIES
Declaration	<pre>data.TIE = token { pattern = "[i m t]" }</pre>

data.TIEDIRECTION

data.TIEDIRECTION Tie direction.	
Module	MEI
Used by	NONE
Declaration	<pre>data.TIEDIRECTION = "up" "down"</pre>

data.TIES

data.TIES One or more from the list given in the definition of data.TIE.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.tiepresent

Declaration	<pre>data.TIES = list { data.TIE+ }</pre>
-------------	---

data.TSTAMPOFFSET

data.TSTAMPOFFSET A positive or negative offset from the value given in the <code>tstamp</code> attribute in terms of musical time, i.e., beats[fractional beat part].	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.visualoffset.to• att.visualoffset2.to
Declaration	<pre>data.TSTAMPOFFSET = xsd:decimal</pre>

data.TUPLET

data.TUPLET Tuplet attribute values: initial, medial, terminal.	
Module	MEI
Used by	data.TUPLETS
Declaration	<pre>data.TUPLET = token { pattern = "[i m t][1-6]" }</pre>

data.TUPLETS

data.TUPLETS One or more from the list given in the definition of <code>data.TUPLET</code> .	
Module	MEI
Used by	Attribute Classes:

	<ul style="list-style-type: none"> • att.tupletpresent
Declaration	<pre>data.TUPLETS = list { data.TUPLET+ }</pre>

data.UNEUMEFORM

data.UNEUMEFORM Basic, i.e., single, uninterrupted, neume forms.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.uneume.log
Declaration	<pre>data.UNEUMEFORM = "liquescent1" "liquescent2" "liquescent3" "quilismatic" "rectangular" "rhombic" "tied"</pre>

data.UNEUMENAME

data.UNEUMENAME Basic, i.e., single, uninterrupted, neume names.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none"> • att.uneume.log
Declaration	<pre>data.UNEUMENAME = "punctum" "virga" "pes"</pre>

	<div><div>"clivis" "torculus" "torculusresupinus" "porrectus" "porrectusflexus" "apostropha" "oriscus" "pressusmaior" "pressusminor" "virgastrata"</div></div>
--	--

data.URI

data.URI a Uniform Resource Identifier, see [RFC2396].	
Module	MEI
Used by	<div>Data Type:<ul style="list-style-type: none">data.URIS</div> <div>Element:<ul style="list-style-type: none">handShift/@newhandShift/@oldsymbol/@refterm/@classcodetermList/@classcodetimeline/@avreftimeline/@originwhen/@since</div> <div>Attribute Classes:<ul style="list-style-type: none">att.alignmentatt.altsymatt.authorizedatt.commonatt.common.anlatt.custos.logatt.datapointingatt.declaringatt.facsimileatt.handident</div>

	<ul style="list-style-type: none">• att.harm.log• att.instrumentident• att.joined• att.layer.log• att.name• att.pointing• att.responsibility• att.source• att.staff.log• att.startendid• att.startid
Declaration	<pre>data.URI = xsd:anyURI</pre>

data.URIS

data.URIS One or more URIs.	
Module	MEI
Used by	Attribute Classes: <ul style="list-style-type: none">• att.plist• att.pointing
Declaration	<pre>data.URIS = list { data.URI+ }</pre>

Schema mei: Macros

macro.XSLT

macro.XSLT permits any element from the XSLT namespace. Allowing XSLT in <incipit> makes it possible to generate the incipit from the notational content of the MEI file. Does this violate the principal of explicit markup?.

Module	MEI.shared
Declaration	<pre>macro.XSLT = element d33e21530a3528:* { attribute * { text }*, (text macro.XSLT)* }</pre>

macro.availabilityPart

macro.availabilityPart groups elements that may appear as part of a description of the availability of and access to a bibliographic item.

Module	MEI.header
Used by	availability
Declaration	<pre>macro.availabilityPart = (acqSource, (accessRestrict, price?)*)*, useRestrict?, sysReq?</pre>

macro.bibldescPart

macro.bibldescPart groups manifestation-specific elements that may appear as part of a bibliographic description.

Module	MEI.header
Used by	relatedItem source
Declaration	<pre>macro.bibldescPart = editionStmt?, pubStmt?, physDesc?, seriesStmt?</pre>

macro.metaLike.page

macro.metaLike.page groups elements that contain meta-data about a single page.	
Module	MEI.shared
Used by	pb
Declaration	<pre>macro.metaLike.page = fw*, pgDesc?</pre>

macro.musicPart

macro.musicPart groups elements that may appear as part of a music element.	
Module	MEI.shared
Used by	music
Declaration	<pre>macro.musicPart = model.frontLike?, (body group)?, model.backLike?</pre>

macro.neumeModifierLike

macro.neumeModifierLike groups elements that modify neume-like features.	
Module	MEI.neumes
Used by	ineume uneume
Declaration	<pre>macro.neumeModifierLike = empty</pre>

macro.workPart

macro.workPart groups elements that may appear as part of the work element.	
Module	MEI.header

Used by	relatedItem source work
Declaration	<div>macro.workPart = history?, langUsage?, key?, tempo?, meter?, mensuration?, perfMedium?</div>