MusicXML 2.0 Note DTD Module

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<!--
        MusicXML™ note.mod module

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-->

<!--
        The note DTD module contains the note representations for
        the MusicXML format. It contains the note element, all its
        children elements, and related entities.
-->

<!-- Entities -->

<!-- Structures -->

<!--
        The common note elements between cue/grace notes and
        regular (full) notes: pitch, chord, and rest information,
        but not duration (cue and grace notes do not have
        duration encoded here). Unpitched elements are used for
        unpitched percussion, speaking voice, and other musical
        elements lacking determinate pitch.
-->
<!ENTITY % full-note "(chord?, (pitch | unpitched | rest))">

<!-- Elements -->

<!--
        Notes are the most common type of MusicXML data. The
        MusicXML format keeps the MuseData distinction between
        elements used for sound information and elements used for
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        notation information (e.g., tie is used for sound, tied for
        notation). Thus grace notes do not have a duration element.
        Cue notes have a duration element, as do forward elements,
        but no tie elements. Having these two types of information
        available can make interchange considerably easier, as
        some programs handle one type of information much more
        readily than the other.
-->
<!ELEMENT note
        (((grace, %full-note;, (tie, tie?)?) |
          (cue, %full-note;, duration) |
          (%full-note;, duration, (tie, tie?)?)),
         instrument?, %editorial-voice;, type?, dot*,
         accidental?, time-modification?, stem?, notehead?,
         staff?, beam*, notations*, lyric*)>

<!--
        The position and printout entities for printing suggestions
        are defined in the common.mod file.

        The dynamics and end-dynamics attributes correspond to
        MIDI 1.0's Note On and Note Off velocities, respectively.
        They are expressed in terms of percentages of the default
        forte value (90 for MIDI 1.0). The attack and release
        attributes are used to alter the staring and stopping time
        of the note from when it would otherwise occur based on
        the flow of durations - information that is specific to a
        performance. They are expressed in terms of divisions,
        either positive or negative. A note that starts a tie should
        not have a release attribute, and a note that stops a tie
        should not have an attack attribute. If a note is played
        only one time through a repeat, the time-only attribute
        shows which time to play the note. The pizzicato attribute
        is used when just this note is sounded pizzicato, vs. the
        pizzicato element which changes overall playback between
        pizzicato and arco.
-->
<!ATTLIST note
    %print-style;
    %printout;
    dynamics CDATA #IMPLIED
    end-dynamics CDATA #IMPLIED
    attack CDATA #IMPLIED
    release CDATA #IMPLIED
    time-only CDATA #IMPLIED
    pizzicato %yes-no; #IMPLIED
>

<!--
        Pitch is represented as a combination of the step of the
        diatonic scale, the chromatic alteration, and the octave.
        The step element uses the English letters A through G.
        The alter element represents chromatic alteration in
        number of semitones (e.g., -1 for flat, 1 for sharp).
        Decimal values like 0.5 (quarter tone sharp) may be
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        used for microtones. The octave element is represented
        by the numbers 0 to 9, where 4 indicates the octave
        started by middle C.
-->
<!ELEMENT pitch (step, alter?, octave)>
<!ELEMENT step (#PCDATA)>
<!ELEMENT alter (#PCDATA)>
<!ELEMENT octave (#PCDATA)>

<!--
        The cue and grace elements indicate the presence of
        cue and grace notes. The slash attribute for a grace
        note is yes for slashed eighth notes. The other grace
        note attributes come from MuseData sound suggestions.
        Steal-time-previous indicates the percentage of time
        to steal from the previous note for the grace note.
        Steal-time-following indicates the percentage of time
        to steal from the following note for the grace note.
        Make-time indicates to make time, not steal time; the
        units are in real-time divisions for the grace note.
-->
<!ELEMENT cue EMPTY>
<!ELEMENT grace EMPTY>
<!ATTLIST grace
    steal-time-previous CDATA #IMPLIED
    steal-time-following CDATA #IMPLIED
    make-time CDATA #IMPLIED
    slash %yes-no; #IMPLIED
>

<!--
        The chord element indicates that this note is an additional
        chord tone with the preceding note. The duration of this
        note can be no longer than the preceding note. In MuseData,
        a missing duration indicates the same length as the previous
        note, but the MusicXML format requires a duration for chord
        notes too.
-->
<!ELEMENT chord EMPTY>

<!--
        The unpitched element indicates musical elements that are
        notated on the staff but lack definite pitch, such as
        unpitched percussion and speaking voice. Like notes, it
        uses step and octave elements to indicate placement on the
        staff, following the current clef. If percussion clef is
        used, the display-step and display-octave elements are
        interpreted as if in treble clef, with a G in octave 4 on
        line 2. If not present, the note is placed on the middle
        line of the staff, generally used for one-line staffs.
-->
<!ELEMENT unpitched ((display-step, display-octave)?)>
<!ELEMENT display-step (#PCDATA)>
<!ELEMENT display-octave (#PCDATA)>
```

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<!--
        The rest element indicates notated rests or silences.
        Rest are usually empty, but placement on the staff can
        be specified using display-step and display-octave
        elements.
-->
<!ELEMENT rest ((display-step, display-octave)?)>

<!--
        Duration is a positive number specified in division units.
        This is the intended duration vs. notated duration (for
        instance, swing eighths vs. even eighths, or differences
        in dotted notes in Baroque-era music). Differences in
        duration specific to an interpretation or performance
        should use the note element's attack and release
        attributes.

        The tie element indicates that a tie begins or ends with
        this note. The tie element indicates sound; the tied
        element indicates notation.
-->
<!ELEMENT duration (#PCDATA)>
<!ELEMENT tie EMPTY>
<!ATTLIST tie
    type %start-stop; #REQUIRED
>

<!--
        If multiple score-instruments are specified on a
        score-part, there should be an instrument element for
        each note in the part. The id attribute is an IDREF back
        to the score-instrument ID.
-->
<!ELEMENT instrument EMPTY>
<!ATTLIST instrument
    id IDREF #REQUIRED
>

<!--
        Type indicates the graphic note type, Valid values (from
        shortest to longest) are 256th, 128th, 64th, 32nd, 16th,
        eighth, quarter, half, whole, breve, and long. The size
        attribute indicates full, cue, or large size, with full
        the default for regular notes and cue the default for
        cue and grace notes.
-->
<!ELEMENT type (#PCDATA)>
<!ATTLIST type
    size %symbol-size; #IMPLIED
>

<!--
        One dot element is used for each dot of prolongation.
        The placement element is used to specify whether the
        dot should appear above or below the staff line. It is
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        ignored for notes that appear on a staff space.
-->
<!ELEMENT dot EMPTY>
<!ATTLIST dot
    %print-style;
    %placement;
>

<!--
        Actual notated accidentals. Valid values include: sharp,
        natural, flat, double-sharp, sharp-sharp, flat-flat,
        natural-sharp, natural-flat, quarter-flat, quarter-sharp,
        three-quarters-flat, and three-quarters-sharp. Editorial
        and cautionary indications are indicated by attributes.
        Values for these attributes are "no" if not present.
        Specific graphic display such as parentheses, brackets,
        and size are controlled by the level-display entity
        defined in the common.mod file.
-->
<!ELEMENT accidental (#PCDATA)>
<!ATTLIST accidental
    cautionary %yes-no; #IMPLIED
    editorial %yes-no; #IMPLIED
    %level-display;
    %print-style;
>

<!--
        Time modification indicates tuplets and other durational
        changes. The child elements are defined in the common.mod
        file.
-->
<!ELEMENT time-modification
        (actual-notes, normal-notes, (normal-type, normal-dot*)?)>

<!--
        Stems can be down, up, none, or double. For down and up
        stems, the position attributes can be used to specify
        stem length. The relative values specify the end of the
        stem relative to the program default. Default values
        specify an absolute end stem position. Negative values of
        relative-y that would flip a stem instead of shortening
        it are ignored.
-->
<!ELEMENT stem (#PCDATA)>
<!ATTLIST stem
    %position;
    %color;
>

<!--
        The notehead element indicates shapes other than the open
        and closed ovals associated with note durations. The element
        value can be slash, triangle, diamond, square, cross, x,
        circle-x, inverted triangle, arrow down, arrow up, slashed,
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        back slashed, normal, cluster, or none. For shape note
        music, the element values do, re, mi, fa, so, la, and ti
        are used, corresponding to Aikin's 7-shape system.

        The arrow shapes differ from triangle and inverted triangle
        by being centered on the stem. Slashed and back slashed
        notes include both the normal notehead and a slash. The
        triangle shape has the tip of the triangle pointing up;
        the inverted triangle shape has the tip of the triangle
        pointing down.

        For the enclosed shapes, the default is to be hollow for
        half notes and longer, and filled otherwise. The filled
        attribute can be set to change this if needed.

        If the parentheses attribute is set to yes, the notehead
        is parenthesized. It is no by default.
-->
<!ELEMENT notehead (#PCDATA)>
<!ATTLIST notehead
    filled %yes-no; #IMPLIED
    parentheses %yes-no; #IMPLIED
    %font;
    %color;
>

<!--
        Beam types include begin, continue, end, forward hook,
        and backward hook. In MuseData, up to six concurrent
        beams are available to cover up to 256th notes. This
        seems sufficient so we use an enumerated type defined
        in the common.mod file. The repeater attribute, used for
        tremolos, needs to be specified with a "yes" value for each
        beam using it. Beams that have a begin value can also have
        a fan attribute to indicate accelerandos and ritardandos
        using fanned beams. The fan attribute may also be used
        with a continue value if the fanning direction changes
        on that note. The value is "none" if not specified.

        Note that the beam number does not distinguish sets of
        beams that overlap, as it does for slur and other elements.
        Beaming groups are distinguished by being in different
        voices and/or the presence or absence of grace and cue
        elements.
-->
<!ELEMENT beam (#PCDATA)>
<!ATTLIST beam
    number %beam-level; "1"
    repeater %yes-no; #IMPLIED
    fan (accel | rit | none) #IMPLIED
    %color;
>

<!--
        Notations are musical notations, not XML notations.
```

```
        Multiple notations are allowed in order to represent
        multiple editorial levels. The set of notations will be
        refined and expanded over time, especially to handle
        more instrument-specific technical notations.
-->
<!ELEMENT notations
        (%editorial;,
         (tied | slur | tuplet | glissando | slide |
          ornaments | technical | articulations | dynamics |
          fermata | arpeggiate | non-arpeggiate |
          accidental-mark | other-notation)*)>

<!ELEMENT tied EMPTY>
<!ATTLIST tied
    type %start-stop; #REQUIRED
    number %number-level; #IMPLIED
    %line-type;
    %position;
    %placement;
    %orientation;
    %bezier;
    %color;
>

<!--
        Slur elements are empty. Most slurs are represented with
        two elements: one with a start type, and one with a stop
        type. Slurs can add more elements using a continue type.
        This is typically used to specify the formatting of cross-
        system slurs, or to specify the shape of very complex slurs.
-->
<!ELEMENT slur EMPTY>
<!ATTLIST slur
    type %start-stop-continue; #REQUIRED
    number %number-level; "1"
    %line-type;
    %position;
    %placement;
    %orientation;
    %bezier;
    %color;
>

<!--
        A tuplet element is present when a tuplet is to be displayed
        graphically, in addition to the sound data provided by the
        time-modification elements. The number attribute is used to
        distinguish nested tuplets. The bracket attribute is used
        to indicate the presence of a bracket. If unspecified, the
        results are implementation-dependent. The line-shape
        attribute is used to specify whether the bracket is straight
        or in the older curved or slurred style. It is straight by
        default.

        Whereas a time-modification element shows how the
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        cumulative, sounding effect of tuplets compare to the
        written note type, the tuplet element describes how this
        is displayed. The tuplet-actual and tuplet-normal elements
        provide optional full control over tuplet specifications.
        Each allows the number and note type (including dots)
        describing a single tuplet. If any of these elements are
        absent, their values are based on the time-modification
        element.

        The show-number attribute is used to display either the
        number of actual notes, the number of both actual and
        normal notes, or neither. It is actual by default. The
        show-type attribute is used to display either the actual
        type, both the actual and normal types, or neither. It is
        none by default.
-->
<!ELEMENT tuplet (tuplet-actual?, tuplet-normal?)>
<!ATTLIST tuplet
    type %start-stop; #REQUIRED
    number %number-level; #IMPLIED
    bracket %yes-no; #IMPLIED
    show-number (actual | both | none) #IMPLIED
    show-type (actual | both | none) #IMPLIED
    %line-shape;
    %position;
    %placement;
>
<!ELEMENT tuplet-actual (tuplet-number?,
        tuplet-type?, tuplet-dot*)>
<!ELEMENT tuplet-normal (tuplet-number?,
        tuplet-type?, tuplet-dot*)>
<!ELEMENT tuplet-number (#PCDATA)>
<!ATTLIST tuplet-number
    %font;
    %color;
>
<!ELEMENT tuplet-type (#PCDATA)>
<!ATTLIST tuplet-type
    %font;
    %color;
>
<!ELEMENT tuplet-dot EMPTY>
<!ATTLIST tuplet-dot
    %font;
    %color;
>

<!--
        Glissando and slide elements both indicate rapidly moving
        from one pitch to the other so that individual notes are not
        discerned. The distinction is similar to that between NIFF's
        glissando and portamento elements. A glissando sounds the
        half notes in between the slide and defaults to a wavy line.
        A slide is continuous between two notes and defaults to a
        solid line. The optional text for a glissando or slide is
```

```
        printed alongside the line.
-->
<!ELEMENT glissando (#PCDATA)>
<!ATTLIST glissando
    type %start-stop; #REQUIRED
    number %number-level; "1"
    %line-type;
    %print-style;
>
<!ELEMENT slide (#PCDATA)>
<!ATTLIST slide
    type %start-stop; #REQUIRED
    number %number-level; "1"
    %line-type;
    %print-style;
    %bend-sound;
>

<!--
        The other-notation element is used to define any notations
        not yet in the MusicXML format. This allows extended
        representation, though without application interoperability.
        It handles notations where more specific extension elements
        such as other-dynamics and other-technical are not
        appropriate.
-->
<!ELEMENT other-notation (#PCDATA)>
<!ATTLIST other-notation
    type %start-stop-single; #REQUIRED
    number %number-level; "1"
    %print-object;
    %print-style;
    %placement;
>

<!--
        Ornaments can be any of several types, followed optionally
        by accidentals. The accidental-mark element's content is
        represented the same as an accidental element, but with a
        different name to reflect the different musical meaning.
-->
<!ELEMENT ornaments
        (((trill-mark | turn | delayed-turn | inverted-turn |
           shake | wavy-line | mordent | inverted-mordent |
           schleifer | tremolo | other-ornament),
           accidental-mark*)*)>
<!ELEMENT trill-mark EMPTY>
<!ATTLIST trill-mark
    %print-style;
    %placement;
    %trill-sound;
>

<!--
        The turn and delayed-turn elements are the normal turn
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        shape which goes up then down. The delayed-turn element
        indicates a turn that is delayed until the end of the
        current note. The inverted-turn element has the shape
        which goes down and then up.
-->
<!ELEMENT turn EMPTY>
<!ATTLIST turn
    %print-style;
    %placement;
    %trill-sound;
>
<!ELEMENT delayed-turn EMPTY>
<!ATTLIST delayed-turn
    %print-style;
    %placement;
    %trill-sound;
>
<!ELEMENT inverted-turn EMPTY>
<!ATTLIST inverted-turn
    %print-style;
    %placement;
    %trill-sound;
>

<!ELEMENT shake EMPTY>
<!ATTLIST shake
    %print-style;
    %placement;
    %trill-sound;
>

<!--
        The wavy-line element is defined in the common.mod file,
        as it applies to more than just note elements.
-->

<!--
        The long attribute for the mordent and inverted-mordent
        elements is "no" by default. The mordent element represents
        the sign with the vertical line; the inverted-mordent
        element represents the sign without the vertical line.
-->
<!ELEMENT mordent EMPTY>
<!ATTLIST mordent
    long %yes-no; #IMPLIED
    %print-style;
    %placement;
    %trill-sound;
>
<!ELEMENT inverted-mordent EMPTY>
<!ATTLIST inverted-mordent
    long %yes-no; #IMPLIED
    %print-style;
    %placement;
    %trill-sound;
```

```
>

<!--
        The name for this ornament is based on the German,
        to avoid confusion with the more common slide element
        defined earlier.

-->
<!ELEMENT schleifer EMPTY>
<!ATTLIST schleifer
    %print-style;
    %placement;
>

<!--
        While using repeater beams is the preferred method for
        indicating tremolos, often playback and display are not
        well-enough integrated in an application to make that
        feasible. The tremolo ornament can be used to indicate
        either single-note or double-note tremolos. Single-note
        tremolos use the single type, while double-note tremolos
        use the start and stop types. The default is "single" for
        compatibility with Version 1.1. The text of the element
        indicates the number of tremolo marks and is an integer
        from 0 to 6. Note that the number of attached beams is
        not included in this value, but is represented separately
        using the beam element.
-->
<!ELEMENT tremolo (#PCDATA)>
<!ATTLIST tremolo
    type %start-stop-single; "single"
    %print-style;
    %placement;
>

<!--
        The other-ornament element is used to define any ornaments
        not yet in the MusicXML format. This allows extended
        representation, though without application interoperability.
-->
<!ELEMENT other-ornament (#PCDATA)>
<!ATTLIST other-ornament
    %print-style;
    %placement;
>

<!--
        An accidental-mark can be used as a separate notation or
        as part of an ornament. When used in an ornament, position
        and placement are relative to the ornament, not relative to
        the note.
-->
<!ELEMENT accidental-mark (#PCDATA)>
<!ATTLIST accidental-mark
    %print-style;
```

```
    %placement;
>

<!--
        Technical indications give performance information for
        individual instruments.
-->
<!ELEMENT technical
        ((up-bow | down-bow | harmonic | open-string |
          thumb-position | fingering | pluck | double-tongue |
          triple-tongue | stopped | snap-pizzicato | fret |
          string | hammer-on | pull-off | bend | tap | heel |
          toe | fingernails | other-technical)*)>

<!--
        The up-bow and down-bow elements represent the symbol
        that is used both for bowing indications on bowed
        instruments, and up-stroke / down-stoke indications
        on plucked instruments.
-->
<!ELEMENT up-bow EMPTY>
<!ATTLIST up-bow
    %print-style;
    %placement;
>
<!ELEMENT down-bow EMPTY>
<!ATTLIST down-bow
    %print-style;
    %placement;
>

<!--
        The harmonic element indicates natural and artificial
        harmonics. Natural harmonics usually notate the base
        pitch rather than the sounding pitch. Allowing the type
        of pitch to be specified, combined with controls for
        appearance/playback differences, allows both the notation
        and the sound to be represented. Artificial harmonics can
        add a notated touching-pitch; the pitch or fret at which
        the string is touched lightly to produce the harmonic.
        Artificial pinch harmonics will usually not notate a
        touching pitch. The attributes for the harmonic element
        refer to the use of the circular harmonic symbol, typically
        but not always used with natural harmonics.
-->
<!ELEMENT harmonic
        ((natural | artificial)?,
         (base-pitch | touching-pitch | sounding-pitch)?)>
<!ATTLIST harmonic
    %print-object;
    %print-style;
    %placement;
>
<!ELEMENT natural EMPTY>
<!ELEMENT artificial EMPTY>
```

```
<!ELEMENT base-pitch EMPTY>
<!ELEMENT touching-pitch EMPTY>
<!ELEMENT sounding-pitch EMPTY>

<!ELEMENT open-string EMPTY>
<!ATTLIST open-string
    %print-style;
    %placement;
>
<!ELEMENT thumb-position EMPTY>
<!ATTLIST thumb-position
    %print-style;
    %placement;
>

<!--
        The pluck element is used to specify the plucking fingering
        on a fretted instrument, where the fingering element refers
        to the fretting fingering. Typical values are p, i, m, a for
        pulgar/thumb, indicio/index, medio/middle, and anular/ring
        fingers.
-->
<!ELEMENT pluck (#PCDATA)>
<!ATTLIST pluck
    %print-style;
    %placement;
>

<!ELEMENT double-tongue EMPTY>
<!ATTLIST double-tongue
    %print-style;
    %placement;
>
<!ELEMENT triple-tongue EMPTY>
<!ATTLIST triple-tongue
    %print-style;
    %placement;
>
<!ELEMENT stopped EMPTY>
<!ATTLIST stopped
    %print-style;
    %placement;
>
<!ELEMENT snap-pizzicato EMPTY>
<!ATTLIST snap-pizzicato
    %print-style;
    %placement;
>

<!--
        The hammer-on and pull-off elements are used in guitar
        and fretted instrument notation. Since a single slur
        can be marked over many notes, the hammer-on and pull-off
        elements are separate so the individual pair of notes can
        be specified. The element content can be used to specify
```

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        how the hammer-on or pull-off should be notated. An empty
        element leaves this choice up to the application.
-->
<!ELEMENT hammer-on (#PCDATA)>
<!ATTLIST hammer-on
    type %start-stop; #REQUIRED
    number %number-level; "1"
    %print-style;
    %placement;
>
<!ELEMENT pull-off (#PCDATA)>
<!ATTLIST pull-off
    type %start-stop; #REQUIRED
    number %number-level; "1"
    %print-style;
    %placement;
>

<!--
        The bend element is used in guitar and tablature. The
        bend-alter element indicates the number of steps in the
        bend, similar to the alter element. As with the alter
        element, numbers like 0.5 can be used to indicate
        microtones. Negative numbers indicate pre-bends or
        releases; the pre-bend and release elements are used
        to distinguish what is intended. A with-bar element
        indicates that the bend is to be done at the bridge
        with a whammy or vibrato bar. The content of the
        element indicates how this should be notated.
-->
<!ELEMENT bend
        (bend-alter, (pre-bend | release)?, with-bar?)>
<!ATTLIST bend
    %print-style;
    %bend-sound;
>
<!ELEMENT bend-alter (#PCDATA)>
<!ELEMENT pre-bend EMPTY>
<!ELEMENT release EMPTY>
<!ELEMENT with-bar (#PCDATA)>
<!ATTLIST with-bar
    %print-style;
    %placement;
>

<!--
        The tap element indicates a tap on the fretboard. The
        element content allows specification of the notation;
        + and T are common choices. If empty, the display is
        application-specific.
-->
<!ELEMENT tap (#PCDATA)>
<!ATTLIST tap
    %print-style;
    %placement;
```

```
>

<!--
        The heel and toe element are used with organ pedals. The
        substitution value is "no" if the attribute is not present.
-->
<!ELEMENT heel EMPTY>
<!ATTLIST heel
    substitution %yes-no; #IMPLIED
    %print-style;
    %placement;
>
<!ELEMENT toe EMPTY>
<!ATTLIST toe
    substitution %yes-no; #IMPLIED
    %print-style;
    %placement;
>

<!--
        The fingernails element is used in harp notation.
-->
<!ELEMENT fingernails EMPTY>
<!ATTLIST fingernails
    %print-style;
    %placement;
>

<!--
        The other-technical element is used to define any technical
        indications not yet in the MusicXML format. This allows
        extended representation, though without application
        interoperability.
-->
<!ELEMENT other-technical (#PCDATA)>
<!ATTLIST other-technical
    %print-style;
    %placement;
>

<!--
        Articulations and accents are grouped together here.
-->
<!ELEMENT articulations
        ((accent | strong-accent | staccato | tenuto |
          detached-legato | staccatissimo | spiccato |
          scoop | plop | doit | falloff | breath-mark |
          caesura | stress | unstress | other-articulation)*)>

<!ELEMENT accent EMPTY>
<!ATTLIST accent
    %print-style;
    %placement;
>
<!ELEMENT strong-accent EMPTY>
```

```
<!ATTLIST strong-accent
    %print-style;
    %placement;
    type %up-down; "up"
>

<!--
        The staccato element is used for a dot articulation, as
        opposed to a stroke or a wedge.
-->
<!ELEMENT staccato EMPTY>
<!ATTLIST staccato
    %print-style;
    %placement;
>
<!ELEMENT tenuto EMPTY>
<!ATTLIST tenuto
    %print-style;
    %placement;
>
<!ELEMENT detached-legato EMPTY>
<!ATTLIST detached-legato
    %print-style;
    %placement;
>

<!--
        The staccatissimo element is used for a wedge articulation,
        as opposed to a dot or a stroke.
-->
<!ELEMENT staccatissimo EMPTY>
<!ATTLIST staccatissimo
    %print-style;
    %placement;
>

<!--
        The spiccato element is used for a stroke articulation, as
        opposed to a dot or a wedge.
-->
<!ELEMENT spiccato EMPTY>
<!ATTLIST spiccato
    %print-style;
    %placement;
>

<!--
        The scoop, plop, doit, and falloff elements are
        indeterminate slides attached to a single note.
        Scoops and plops come before the main note, coming
        from below and above the pitch, respectively. Doits
        and falloffs come after the main note, going above
        and below the pitch, respectively.
-->
<!ELEMENT scoop EMPTY>
```

```
<!ATTLIST scoop
    %line-shape;
    %line-type;
    %print-style;
    %placement;
>
<!ELEMENT plop EMPTY>
<!ATTLIST plop
    %line-shape;
    %line-type;
    %print-style;
    %placement;
>
<!ELEMENT doit EMPTY>
<!ATTLIST doit
    %line-shape;
    %line-type;
    %print-style;
    %placement;
>
<!ELEMENT falloff EMPTY>
<!ATTLIST falloff
    %line-shape;
    %line-type;
    %print-style;
    %placement;
>

<!ELEMENT breath-mark EMPTY>
<!ATTLIST breath-mark
    %print-style;
    %placement;
>
<!ELEMENT caesura EMPTY>
<!ATTLIST caesura
    %print-style;
    %placement;
>
<!ELEMENT stress EMPTY>
<!ATTLIST stress
    %print-style;
    %placement;
>
<!ELEMENT unstress EMPTY>
<!ATTLIST unstress
    %print-style;
    %placement;
>

<!--
        The other-articulation element is used to define any
        articulations not yet in the MusicXML format. This allows
        extended representation, though without application
        interoperability.
-->
```

```
<!ELEMENT other-articulation (#PCDATA)>
<!ATTLIST other-articulation
    %print-style;
    %placement;
>

<!--
        The dynamics and fermata elements are defined in the
        common.mod file as they apply to more than just note
        elements.
-->

<!--
        The arpeggiate element indicates that this note is part of
        an arpeggiated chord. The number attribute can be used to
        distinguish between two simultaneous chords arpeggiated
        separately (different numbers) or together (same number).
        The up-down attribute is used if there is an arrow on the
        arpeggio sign. By default, arpeggios go from the lowest to
        highest note.
-->
<!ELEMENT arpeggiate EMPTY>
<!ATTLIST arpeggiate
    number %number-level; #IMPLIED
    direction %up-down; #IMPLIED
    %position;
    %placement;
    %color;
>

<!--
        The non-arpeggiate element indicates that this note is at
        the top or bottom of a bracket indicating to not arpeggiate
        these notes. Since this does not involve playback, it is
        only used on the top or bottom notes, not on each note
        as for the arpeggiate element.
-->
<!ELEMENT non-arpeggiate EMPTY>
<!ATTLIST non-arpeggiate
    type %top-bottom; #REQUIRED
    number %number-level; #IMPLIED
    %position;
    %placement;
    %color;
>

<!--
        Text underlays for lyrics, based on Humdrum with support
        for other formats. The lyric number indicates multiple
        lines, though a name can be used as well (as in Finale's
        verse/chorus/section specification). Word extensions are
        represented using the extend element. Hyphenation is
        indicated by the syllabic element, which can be single,
        begin, end, or middle. These represent single-syllable
        words, word-beginning syllables, word-ending syllables,
```

```
        and mid-word syllables. Multiple syllables on a single
        note are separated by elision elements. A hyphen in the
        text element should only be used for an actual hyphenated
        word. Two text elements that are not separated by an
        elision element are part of the same syllable, but may have
        different text formatting.

        Humming and laughing representations are taken from
        Humdrum. The end-line and end-paragraph elements come
        from RP-017 for Standard MIDI File Lyric meta-events;
        they help facilitate lyric display for Karaoke and
        similar applications. Language names for text elements
        come from ISO 639, with optional country subcodes from
        ISO 3166. Justification is center by default; placement is
        below by default.
-->
<!ELEMENT lyric
        ((((syllabic?, text),
           (elision?, syllabic?, text)*, extend?) |
           extend | laughing | humming),
          end-line?, end-paragraph?, %editorial;)>
<!ATTLIST lyric
    number NMTOKEN #IMPLIED
    name CDATA #IMPLIED
    %justify;
    %position;
    %placement;
    %color;
>

<!ELEMENT text (#PCDATA)>
<!ATTLIST text
    %font;
    %color;
    %text-decoration;
    %text-rotation;
    %letter-spacing;
    xml:lang NMTOKEN #IMPLIED
    %text-direction;
>
<!ELEMENT syllabic (#PCDATA)>

<!--
        In Version 2.0, the elision element text is used to specify
        the symbol used to display the elision. Common values
        are a no-break space (Unicode 00A0), an underscore
        (Unicode 005F), or an undertie (Unicode 203F).
-->
<!ELEMENT elision (#PCDATA)>
<!ATTLIST elision
    %font;
    %color;
>
<!ELEMENT extend EMPTY>
<!ATTLIST extend
```

```
    %font;
    %color;
>
<!ELEMENT laughing EMPTY>
<!ELEMENT humming EMPTY>
<!ELEMENT end-line EMPTY>
<!ELEMENT end-paragraph EMPTY>

<!--
        Figured bass elements take their position from the first
        regular note that follows. Figures are ordered from top to
        bottom. A figure-number is a number. Values for prefix and
        suffix include the accidental values sharp, flat, natural,
        double-sharp, flat-flat, and sharp-sharp. Suffixes include
        both symbols that come after the figure number and those
        that overstrike the figure number. The suffix value slash
        is used for slashed numbers indicating chromatic alteration.
        The orientation and display of the slash usually depends on
        the figure number. The prefix and suffix elements may
        contain additional values for symbols specific to particular
        figured bass styles. The value of parentheses is "no" if not
        present.
-->
<!ELEMENT figured-bass (figure+, duration?, %editorial;)>
<!ATTLIST figured-bass
    %print-style;
    %printout;
    parentheses %yes-no; #IMPLIED
>
<!ELEMENT figure (prefix?, figure-number?, suffix?, extend?)>
<!ELEMENT prefix (#PCDATA)>
<!ATTLIST prefix
    %print-style;
>
<!ELEMENT figure-number (#PCDATA)>
<!ATTLIST figure-number
    %print-style;
>
<!ELEMENT suffix (#PCDATA)>
<!ATTLIST suffix
    %print-style;
>

<!--
        The backup and forward elements are required to coordinate
        multiple voices in one part, including music on multiple
        staves. The forward element is generally used within voices
        and staves, while the backup element is generally used to
        move between voices and staves. Thus the backup element
        does not include voice or staff elements. Duration values
        should always be positive, and should not cross measure
        boundaries.
-->
<!ELEMENT backup (duration, %editorial;)>
<!ELEMENT forward
```

```
        (duration, %editorial-voice;, staff?)>
```

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