

**LilyPond**

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**Unofficial MusicXML test suite**

The music typesetter

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# 1 Introduction

## Why a MusicXML test suite?

This test suite of sample MusicXML (<http://www.musicxml.org/>) files is supposed to fill a severe gap for all developers implementing MusicXML support in their application: There is no complete test suite of MusicXML files available for testing purposes.

## License of the test suite

This collection of MusicXML test files is distributed under the MIT license (<https://www.opensource.org/licenses/mit-license.php>), which means that you can use the files for any purpose, as long as you leave the copyright notice (or the LICENSE file) intact.

## Connection with LilyPond (<https://lilypond.org/>)

At the same time as providing a generic test suite for MusicXML documents, this test suite also serves as proofs for the `musicxml2ly` script provided with LilyPond. The images shown in this document were generated by running `musicxml2ly` and `lilypond` on the MusicXML files. As `musicxml2ly` does not yet perfectly support every single aspect of MusicXML, the output is not supposed to be used as a definitive reference rendering, but rather as an indication how one particular application supports and interprets each of the test files.

If something does not seem right in the output, it might either be that this feature has not been implemented yet, has been wrongly implemented, or a regression has crept in recently...

In the web version of this document, you can click on the file name or figure for each example to see the corresponding `.ly` intermediary file.

## Structure of this test suite

Each test file (typically hand-crafted from the MusicXML specification) checks one particular aspect of MusicXML. A short description of the particular feature for a file is given inside the file in a comment element of the form

```
<identification><miscellaneous>
  <miscellaneous-field name="description"> .... </miscellaneous-field>
</miscellaneous></identification>
```

The files are categorized by their first two digits with the following meaning:

01–03	Basics: pitches, rests, rhythm.
11–14	Staff attributes: time signatures, clefs, key signatures, staff details.
21–24	Notes: chords, note settings, tuplets, grace notes.
31–34	Notations and articulations: dynamics (staff-attached), notations (note-attached), spanners, print-object, color, and font size issues.
41–43	Parts: multiple parts, multi-voice parts, multi-staff parts.
45–46	Repeat and measure issues.
51–52	Page issues: header fields, page layout.
55–59	Exact positioning of items, offsets, etc.
61	Lyrics.
71–75	Instrument-specific: guitar (chord, fretboards), transposing instruments, percussion, figured bass, other instruments.

81–89      MIDI generation (all sound-related issues).

90–99      Various other: compressed MusicXML files, compatibility with broken MusicXML files exported by other applications.

Some of the categories (in particular, the exact item positioning and the MIDI generation) don't have any test cases yet.

## 2 Test cases

### 01 ... Pitches

All pitches from G to c'' in ascending steps. First without accidentals, then with a sharp and then with a flat accidental, then with explicit natural accidentals. Double alterations and cautionary accidentals are tested at the end.

01a-Pitches-Pitches.xml

### Pitches and accidentals

The musical score consists of five staves of music in treble clef, 4/4 time. The first staff (measures 1-6) shows an ascending sequence of eighth notes: G4, A4, B4, C5, D5, E5. The second staff (measures 7-12) shows an ascending sequence of eighth notes with sharps: G#4, A#4, B#4, C#5, D#5, E#5. The third staff (measures 13-17) shows an ascending sequence of eighth notes with flats: Gb4, Ab4, Bb4, Cb5, Db5, Eb5. The fourth staff (measures 18-22) shows an ascending sequence of eighth notes with naturals: G4, A4, B4, C5, D5, E5. The fifth staff (measures 23-28) shows an ascending sequence of eighth notes with various accidentals: Gb4, Ab4, Bb4, Cb5, Db5, Eb5, Fb6, Gb6, Ab6, Bb6, Cb7, Db7, Eb7, Fb8, Gb8, Ab8, Bb8, Cb9, Db9, Eb9, Fb10, Gb10, Ab11, Bb11, Cb12, Db12, Eb12, Fb13, Gb13, Ab14, Bb14, Cb15, Db15, Eb15, Fb16, Gb16, Ab17, Bb17, Cb18, Db18, Eb18, Fb19, Gb19, Ab20, Bb20, Cb21, Db21, Eb21, Fb22, Gb22, Ab23, Bb23, Cb24, Db24, Eb24, Fb25, Gb25, Ab26, Bb26, Cb27, Db27, Eb27, Fb28, Gb28, Ab29, Bb29, Cb30, Db30, Eb30, Fb31, Gb31, Ab32, Bb32, Cb33, Db33, Eb33, Fb34, Gb34, Ab35, Bb35, Cb36, Db36, Eb36, Fb37, Gb37, Ab38, Bb38, Cb39, Db39, Eb39, Fb40, Gb40, Ab41, Bb41, Cb42, Db42, Eb42, Fb43, Gb43, Ab44, Bb44, Cb45, Db45, Eb45, Fb46, Gb46, Ab47, Bb47, Cb48, Db48, Eb48, Fb49, Gb49, Ab50, Bb50, Cb51, Db51, Eb51, Fb52, Gb52, Ab53, Bb53, Cb54, Db54, Eb54, Fb55, Gb55, Ab56, Bb56, Cb57, Db57, Eb57, Fb58, Gb58, Ab59, Bb59, Cb60, Db60, Eb60, Fb61, Gb61, Ab62, Bb62, Cb63, Db63, Eb63, Fb64, Gb64, Ab65, Bb65, Cb66, Db66, Eb66, 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Db804, Eb804, Fb805, Gb805, Ab806, Bb806, Cb807, Db807, Eb807, Fb808, Gb808, Ab809, Bb809, Cb810, Db810, Eb810, Fb811, Gb811, Ab812, Bb812, Cb813, Db813, Eb813, Fb814, Gb814, Ab815, Bb815, Cb816, Db816, Eb816, Fb817, Gb817, Ab818, Bb818, Cb819, Db819, Eb819, Fb820, Gb820, Ab821, Bb821, Cb822, Db822, Eb822, Fb823, Gb823, Ab824, Bb824, Cb825, Db825, Eb825, Fb826, Gb826, Ab827, Bb827, Cb828, Db828, Eb828, Fb829, Gb829, Ab830, Bb830, Cb831, Db831, Eb831, Fb832, Gb832, Ab833, Bb833, Cb834, Db834, Eb834, Fb835, Gb835, Ab836, Bb836, Cb837, Db837, Eb837, Fb838, Gb838, Ab839, Bb839, Cb840, Db840, Eb840, Fb841, Gb841, Ab842, Bb842, Cb843, Db843, Eb843, Fb844, Gb844, Ab845, Bb845, Cb846, Db846, Eb846, Fb847, Gb847, Ab848, Bb848, Cb849, Db849, Eb849, Fb850, Gb850, Ab851, Bb851, Cb852, Db852, Eb852, Fb853, Gb853, Ab854, Bb854, Cb855, Db855, Eb855, Fb856, Gb856, Ab857, Bb857, Cb858, Db858, Eb858, Fb859, Gb859, Ab860, Bb860, Cb861, Db861, Eb861, Fb862, Gb862, Ab863, Bb863, Cb864, Db864, Eb864, Fb865, Gb865, Ab866, Bb866, Cb867, Db867, Eb867, Fb868, Gb868, Ab869, Bb869, Cb870, Db870, Eb870, Fb871, Gb871, Ab872, Bb872, Cb873, Db873, Eb873, Fb874, Gb874, Ab875, Bb875, Cb876, Db876, Eb876, Fb877, Gb877, Ab878, Bb878, Cb879, Db879, Eb879, Fb880, Gb880, Ab881, Bb881, Cb882, Db882, Eb882, Fb883, Gb883, Ab884, Bb884, Cb885, Db885, Eb885, Fb886, Gb886, Ab887, Bb887, Cb888, Db888, Eb888, Fb889, Gb889, Ab890, Bb890, Cb891, Db891, Eb891, Fb892, Gb892, Ab893, Bb893, Cb894, Db894, Eb894, Fb895, Gb895, Ab896, Bb896, Cb897, Db897, Eb897, Fb898, Gb898, Ab899, Bb899, Cb900, Db899, Eb899, Fb900, Gb900, Ab901, Bb901, Cb902, Db902, Eb902, Fb903, Gb903, Ab904, Bb904, Cb905, Db905, Eb905, Fb906, Gb906, Ab907, Bb907, Cb908, Db908, Eb908, Fb909, Gb909, Ab910, Bb910, Cb911, Db911, Eb911, Fb912, Gb912, Ab913, Bb913, Cb914, Db914, Eb914, Fb915, Gb915, Ab916, Bb916, Cb917, Db917, Eb917, Fb918, Gb918, Ab919, Bb919, Cb920, Db920, Eb920, Fb921, Gb921, Ab922, Bb922, Cb923, Db923, Eb923, Fb924, Gb924, Ab925, Bb925, Cb926,

The `<voice>` element of notes is optional in MusicXML (although Dolet always writes it out). Here, there is one note with lyrics, but without a voice assigned. It should still be correctly converted.

01c-Pitches-NoVoiceElement.xml

A

Some microtones: c flat-and-a-half, d half-flat, e half-sharp, f sharp-and-a half. Once in the lower and once in the upper region of the staff.

01d-Pitches-Microtones.xml

Accidentals have the attributes 'cautionary', 'editorial', 'parenthesized', and 'bracketed'. The first two measures each have a cautionary accidental, an editorial, a cautionary with parentheses off, and an editorial and cautionary accidental. The next two measures each have a normal accidental, a bracketed, a parenthesized, and a bracketed and parenthesized accidental.

01e-Pitches-ParenthesizedAccidentals.xml

Microtone accidentals can be cautionary or editorial. Each measure has a normal accidental, an editorial, a cautionary and an editorial and cautionary accidental.

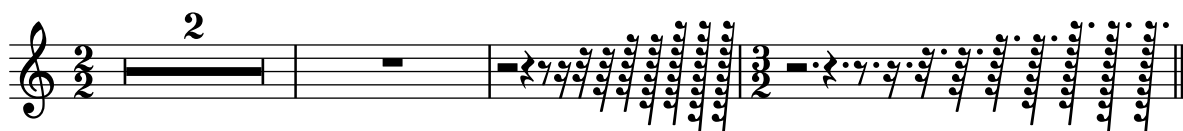
01f-Pitches-ParenthesizedMicrotoneAccidentals.xml

## 02 ... Rests

All different rest lengths: A two-bar multi-measure rest, a whole rest, a half, etc., until a 1024th-rest, then the same with dotted durations.

02a-Rests-Durations.xml

### Rest unit test



Rests can have explicit pitches to position them vertically. The first rest has no explicit pitch and should use the default position, all others are explicitly positioned somewhere else (E4, F5, A3, C6).

02b-Rests-PitchedRests.xml



Five multi-measure rests: 3 measures, 15 measures, 1 measure, 12 measures, and 3 measures with 'use-symbols' set.

02c-Rests-MultiMeasureRests.xml



Multi-measure rests should always be converted into durations that are a multiple of the time signature.

02d-Rests-Multimeasure-TimeSignatures.xml



In some cases, a rest might not have its type attribute set (this happens, for example, with voices in Finale, where you don't manually insert a rest).

02e-Rests-NoType.xml



### 03 ... Rhythm

All note durations, from long, brevis, whole, etc., until 1024th. First with their plain values, then dotted, and finally double-dotted.

03a-Rhythm-Durations.xml

Three musical staves illustrating rhythmic durations. The first staff (labeled 16) shows a sequence of notes with durations from 16 to 1024 in 4/4 time. The second staff (labeled 3) shows a sequence of notes with durations from 3 to 28 in 2/4 time. The third staff (labeled 5) shows a sequence of notes with durations from 5 to 28 in 4/4 time.

Two voices with a <backup> element that does not jump to the beginning of the measure for voice two but somewhere in the middle. Voice two thus won't have any notes or rests for the first beat of the measure.

03b-Rhythm-Backup.xml

A musical staff in common time (C) showing a sequence of notes with durations from 1 to 38, illustrating a backup element.

Although uncommon, the divisions of a quarter note can change somewhere in the middle of a MusicXML file. Here, the first half measure uses a division of 1, which then changes to 8 in the middle of the first measure and to 38 in the middle of the second measure.

03c-Rhythm-DivisionChange.xml

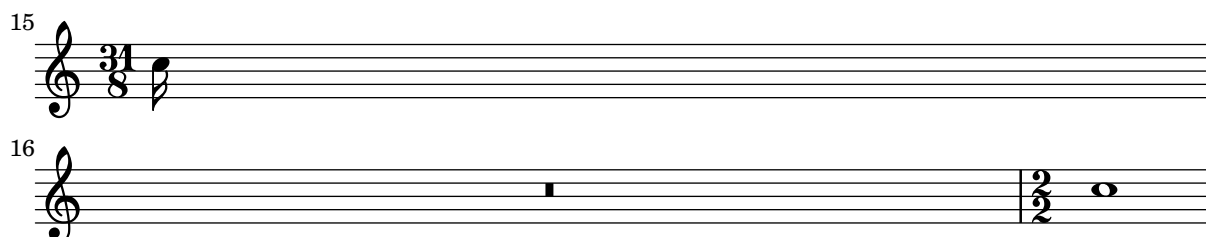
A musical staff in common time (C) showing a sequence of notes with durations from 1 to 38, illustrating a division change.

Several durations can be written with dots. For multi-measure rests it is also possible to have durations that cannot be expressed with dotted notes (like 5/8).

In bar 15 there is only a 16th note and no rest for the remaining part of the bar.

03d-Rhythm-DottedDurations-Factors.xml

Two musical staves illustrating dotted durations and factors. The first staff (labeled 1) shows a sequence of notes with durations from 1 to 16 in 1/8 time. The second staff (labeled 9) shows a sequence of notes with durations from 9 to 31 in 1/16 time.



No <divisions> element.

03e-Rhythm-No-Divisions.xml



## 11 ... Time signatures

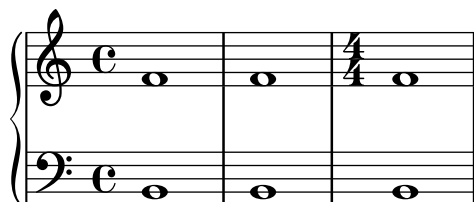
Various time signatures: 2/2 (alla breve), 4/4 (C), 2/2, 3/2, 2/4, 3/4, 4/4, 5/4, 3/8, 6/8, 12/8.

11a-TimeSignatures.xml



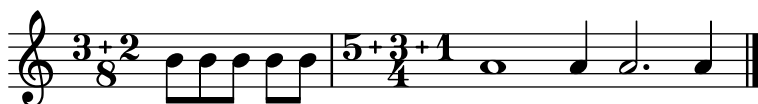
A score without a time signature (but with a key and clefs). The first bar misses a <time> element altogether, the second bar sets a 2/2 time with 'print-object="no"' for both staves, and the third bar sets a 4/4 time with 'print-object="no"' only for the lower staff.

11b-TimeSignatures-NoTime.xml



Compound time signatures with same denominator:  $(3+2)/8$  and  $(5+3+1)/4$ .

11c-TimeSignatures-CompoundSimple.xml



Compound time signatures with separate fractions displayed:  $3/8+2/8+3/4$  and  $5/2+1/8$ .

11d-TimeSignatures-CompoundMultiple.xml



Compound time signatures of mixed type:  $(3+2)/8+3/4$ .

11e-TimeSignatures-CompoundMixed.xml





A time signature of 3/8 with the ‘symbol="cut"’ attribute and two ‘symbol="single-number"’ attributes with compound time signatures. Shall the symbol be ignored in this case?

11f-TimeSignatures-SymbolMeaning.xml



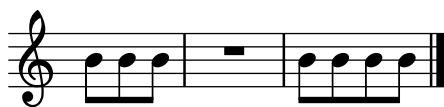
Time signature displayed as a single number.

11g-TimeSignatures-SingleNumber.xml



Senza-misura time signature. The first bar has three eighth notes, the second bar contains a full-measure rest (indicated by setting ‘measure="yes"’ for the <rest> element) with a length of a dotted half note, and the third bar contains four eighth notes.

11h-TimeSignatures-SenzaMisura.xml



## 12 ... Clefs

Various clefs: G, C, F, percussion, TAB, and ‘none’ (in measure 17). Some clefs are also shown with transposition and on other staff lines than their default.

Each measure shows a different clef; only measure 18 has the same treble clef as the first measure.

12a-Clefs.xml

A musical staff showing 18 measures with various clefs. Measure 1: Treble clef, common time. Measure 2: Bass clef, common time. Measure 3: Bass clef, common time. Measure 4: Percussion clef, common time. Measure 5: Percussion clef, common time. Measure 6: Treble clef, common time. Measure 7: Bass clef, common time. Measure 8: Bass clef, common time. Measure 9: Bass clef, common time. Measure 10: Bass clef, common time. Measure 11: Bass clef, common time. Measure 12: Percussion clef, common time. Measure 13: Treble clef, common time. Measure 14: Bass clef, common time. Measure 15: Bass clef, common time. Measure 16: Bass clef, common time. Measure 17: Percussion clef, common time. Measure 18: Treble clef, common time.

A score without a <key> or <clef> element (but with <time>). The default (4/4 in treble clef) should be used.

12b-Clefs-NoKeyOrClef.xml



### 13 ... Key signatures

Various key signatures: from 11 flats to 11 sharps. Each signature is shown twice, with one measure in major and the other measure in minor.

13a-KeySignatures.xml

#### Different Key signatures

The image displays 11 staves of musical notation, each representing a different key signature. The first five staves (measures 1-15) show key signatures with 11 flats: C major (no sharps or flats), C minor (one flat), F major (two flats), F minor (three flats), and Bb major (four flats). The next five staves (measures 16-30) show key signatures with 11 sharps: B major (two sharps), B minor (three sharps), F# major (three sharps), F# minor (four sharps), and C# major (four sharps). The final staff (measures 31-45) shows the 'none' mode (C major) with two sharps (F# and C#) and two naturals (F and C), with some notes marked with 'x' to indicate alterations.

All different modes: 'major', 'minor', 'ionian', 'dorian', 'phrygian', 'lydian', 'mixolydian', 'aeolian', 'locrian', and 'none'. All modes are given with two sharps.

13b-KeySignatures-ChurchModes.xml

The image displays 11 staves of musical notation, each representing a different church mode. The first staff (measures 1-5) shows the modes: major (C major), minor (C minor), ionian (C major), and dorian (C major). The second staff (measures 6-10) shows the modes: phrygian (C major), lydian (C major), mixolydian (C major), aeolian (C major), locrian (C major), and none (C major). Each mode is represented by a single note on a staff, with the appropriate sharps and naturals.

Non-traditional key signatures, where each alteration is separately given. The first signature is [f sharp, a flat, b flat]. The second one is [c flatflat, g sharp sharp, d flat, b sharp, f natural], with explicitly selected octaves for each alteration.

13c-KeySignatures-NonTraditional.xml



Non-traditional key signatures with microtone alterations: [g flat-and-a-half, a flat, b half-flat, c natural, d half-sharp, e sharp, f sharp-and-a-half].

13d-KeySignatures-Microtones.xml



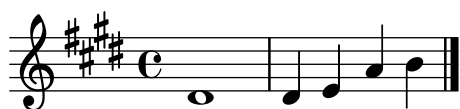
Tests of key signature cancellation: at default location, at right, and before barline, then cancelling a key signature that does not exist.

13e-KeySignatures-Cancel.xml



Test the ‘print-object’ attribute of key signatures. The signature at the beginning of the second bar is a flat major and should be invisible; the following notes d flat, e flat, a flat, and b flat shouldn’t have a flat accidental.

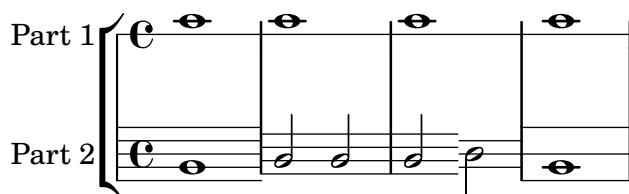
13f-KeySignatures-Visible.xml



## 14 ... Staff attributes

Testing staff line configurations and pitched notes. The number of staff lines can be modified by using the ‘staff-lines’ child of the ‘staff-details’ attribute. This can happen globally (the first staff has one line globally) or during the part at the beginning of a measure and even inside a measure (the second part has 5 lines initially, 4 at the beginning of the second measure, and 3 starting in the middle of the third measure). The fourth measure in the lower staff has five lines again but uses ‘print-object="no"’ in the ‘line-detail’ element to suppress the second and fourth staff line.

14a-StaffDetails-LineChanges.xml



## 21 ... Chorded notes

One simple chord consisting of two notes.

21a-Chord-Basic.xml



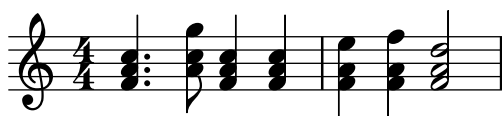
Some subsequent (identical) two-note chords. In the second bar, the chords are tied (top note, bottom note, both notes).

21b-Chords-TwoNotes.xml



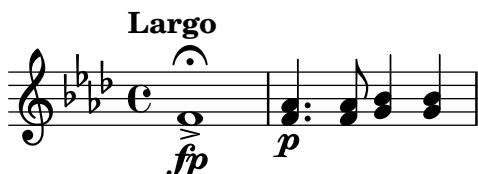
Some three-note chords, with various durations.

21c-Chords-ThreeNotesDuration.xml



Chords in the second measure, after several ornaments in the first measure and a 'p' at the beginning of the second measure.

21d-Chords-SchubertStabatMater.xml



Check for proper chord detection after a pickup measure (i.e., the first beat of the measure is not aligned with a multiple of the time signature)!

21e-Chords-PickupMeasures.xml



Between the individual notes of a chord there can be <direction> elements, which already belong to the next <note> element after the current one. The segno and the piano sign should be attached to the rest after the chord.

21f-Chord-ElementInBetween.xml



Different tremolos on different chord notes. The tremolo on the last chord is of type 'unmeasured'.

21g-Chords-Tremolos.xml

## Tremolos on chords



A chord with normal, cautionary, and editorial accidentals.

21h-Chord-Accidentals.xml



## 22 ... Note settings, heads, etc.

Different note styles, using the <notehead> element. First, each note head style is printed with four quarter notes, two with filled heads, two with unfilled heads, where first the stem is up and then the stem is down. After that, each note head style is printed with a half note (should have an unfilled head by default). Finally, the Aiken note head styles are tested, once with stem up and once with stem down.

22a-Noteheads.xml

slash      triangle      diamond      square      cross

6  
x      circle-x      inverted triangle      arrow down      arrow up

11  
slashed      back slashed      normal      cluster      none

16  
slash      triangle      diamond      square      cross      x      circle-x      inverted triangle

20  
arrow down      arrow up      slashed      back slashed      normal      cluster

23



do re mi fa so


28



la ti do re mi fa so la ti do do re mi fa so la ti do


Staff-connected note styles: slash notation, hidden notes (with and without hidden staff lines).

22b-Staff-Notestyles.xml



normal slashes, no stem slashes, with stem

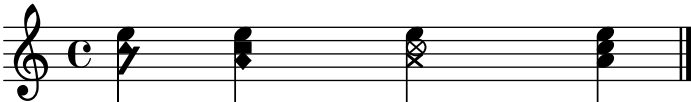
4



hidden notes hidden notes, hidden staff lines normal settings restored

Different note styles for individual notes inside a chord, using the <notehead> element.

22c-Noteheads-Chords.xml



normal cross inverted triangle slashed  
triangle square circle-x arrow up  
slash diamond x arrow down

Parenthesized note heads. A normal parenthesized note, a parenthesized note with an 'x' note head, a three-note chord with the middle note parenthesized, a three-note chord with all notes parenthesized, a normal quarter rest in parentheses, and a pitched quarter rest in parentheses.

22d-Parenthesized-Noteheads.xml



## 23 ... Triplets, Tuplets

Some triplets (3:2, 3:2, 3:2, 4:2, 4:1, 7:3, 6:2) with the default tuplet bracket displaying the number of actual notes played. The second tuplet does not have a number attribute set.

23a-Tuplets.xml



Different tuplet styles: default, none, x:y, x:y-note, and x-note:y-note; each with bracket, slur, and without bracket. Finally, non-standard 4:3 and 17:2 tuplets are given.

23b-Tuplets-Styles.xml

The image shows four staves of musical notation in 5/4 time. The first staff contains five groups of notes, each with a bracket underneath and a ratio below it: a triplet of eighth notes (3), a triplet of eighth notes (3), a 3:2 ratio of eighth notes (3:2), a 3:2 ratio of eighth notes (3:2), and a 3:2 ratio of eighth notes (3:2). The second staff contains five groups of notes, each with a slur underneath and a ratio below it: a triplet of eighth notes (3), a triplet of eighth notes (3), a 3:2 ratio of eighth notes (3:2), a 3:2 ratio of eighth notes (3:2), and a 3:2 ratio of eighth notes (3:2). The third staff contains five groups of notes, each with a ratio below it: a triplet of eighth notes (3), a 3:2 ratio of eighth notes (3:2), a 3:2 ratio of eighth notes (3:2), and a 3:2 ratio of eighth notes (3:2). The fourth staff contains two groups of notes: a 4:3 ratio of eighth notes (4:3) and a 17:2 ratio of eighth notes (17).

Displaying tuplet note types that might not coincide with the displayed note. The first two tuplets take the type from the note, the second two from the <time-modification> element, the remaining pair of tuplets from the <tuplet> notation element.

The tuplets in measure 3 specify both a number of notes and a type inside the <tuplet-actual> and <tuplet-normal> elements, the ones in measure 4 specify only a note type (but no number), and the ones in measure 5 specify only a number of tuplet notes (but no type, which is deduced from the note's type).

The first tuplet of measures 3 to 5 uses 'display-type="actual"', the second one 'display-type="both"'.  
 FIXME: The tuplet-normal should coincide with the real notes!

23c-Tuplet-Display-NonStandard.xml

The image shows two staves of musical notation in common time. The first staff contains six groups of notes, each with a bracket underneath and a ratio below it: a 3:2 ratio of eighth notes (3:2), a 3:2 ratio of eighth notes (3:2), a 3:2 ratio of eighth notes (3:2), a 3:2 ratio of eighth notes (3:2), a 7:5 ratio of eighth notes (7:5), and a 7:5 ratio of eighth notes (7:5). The second staff contains four groups of notes, each with a bracket underneath and a ratio below it: a 3:2 ratio of eighth notes (3:2), a 3:2 ratio of eighth notes (3:2), a 7:5 ratio of eighth notes (7:5), and a 7:5 ratio of eighth notes (7:5).

Tuplets can be nested. The first bar contains a 5:2 tuplet (with 16th notes) in the middle of a 3:2 tuple (with eighth notes). The second bar has a 5:2 tuplet at the beginning and at the end (with the tuplet number forced below) of a 3:2 tuple (with the bracket forced above).

23d-Tuplets-Nested.xml

The image shows a single staff of musical notation in 2/4 time. The first bar contains a 3:2 ratio of eighth notes (3:2) with a bracket above it, and a 5:2 ratio of eighth notes (5:2) with a bracket below it. The second bar contains a 3:2 ratio of eighth notes (3:2) with a bracket above it, and a 5:2 ratio of eighth notes (5:2) with a bracket below it. The third bar contains a 3:2 ratio of eighth notes (3:2) with a bracket above it, and a 5:2 ratio of eighth notes (5:2) with a bracket below it.

Tremolo tuplets. The first bar contains normal eighth triplets with staccato points, the second bar holds three tremolo tuplets, the third bar holds a sextuple followed by a triplet, the third bar contains a sextuple (starting on the second beat) with a ‘fp’ sign, and the fifth bar is identical to the third bar.

23e-Tuplets-Tremolo.xml



Tuplets without brackets, using only <time-modification>. The upper staff contains two quarters followed by a quarter triplet. The lower staff holds two eighths, an eighths triplet, four 16th notes, and a 16th sextuplet.

23f-Tuplets-DurationButNoBracket.xml



## 24 ... Grace notes

Different kinds of grace notes. First bar: single 1/16 grace note, beamed 1/16 grace notes, 1/16 appoggiatura, 1/8 appoggiatura. Second bar: slashed single 1/16 grace note, beamed 1/16 grace notes (with both notes marked as slashed), 1/16 acciaccatura, 1/16 grace note (without slash) right before the measure bar. Third bar: no grace note before chord, 1/4 grace note with sharp, two 1/4 grace notes with flats, 1/16 slashed grace note before rest.

24a-GraceNotes.xml



Chords as grace notes. The last (unslashed and beamed) grace group consists of two chords with one tie between the two grace chords and another tie between the last grace chord and the main chord.

24b-ChordAsGraceNote.xml



A grace note that appears at the measure end (without any steal-from-\* attribute set). Some applications need to convert this into an after-grace.

24c-GraceNote-MeasureEnd.xml





Some grace notes and after-graces indicated by 'steal-time-previous' (for the first grace note) and 'steal-time-following' (for the second one). The remaining grace notes have no such attribute.

24d-AfterGrace.xml



A grace note on a different staff than the actual note.

24e-GraceNote-StaffChange.xml



A grace note with a slur to the actual note. The <grace> element has no 'slash' attribute; since MusicXML does not provide a default value it is up to the application to interpret the grace note as an acciaccatura or an appoggiatura.

24f-GraceNote-Slur.xml



### 31 ... Dynamics and other single symbols

All <direction> elements defined in MusicXML. The lyrics for each note describes the direction element assigned to that note. Not marked with lyrics is a <scordatura> element at the very beginning.

31a-Directions.xml

### MusicXML directions (attached to staff)

B      Test      Crc      %      ⊕      \ "words"  
 reh. A↓   reh. B↑   reh. Test   reh. Crc   segno   coda   words↑ symbol  
 (def=square)(none)   (rect.)   (circle)   (oval) ("cClef")  
 A  
 3      pppppp      ffffff  
 p   pp   ppp   pppp   ppppp   f   ff   fff   ffff   fffff  
 p   pp   ppp   pppp   ppppp ↓ pppppp ↑ f   ff   fff   ffff   fffff ↓ ffffff ↑

6  
*mp* *mf* *sf* *sfp* *sfp* *fp* *rf* *rfz* *sfz* *sffz* *fz* *ffz*  
 mp mf sf sfp sfpp fp rf rfz sfz sffz fz other dyn. ('ffz')

9  
 hair - pin dash - es↓ bra - cket↓ oct. - shift  
 (cre - scendo) (8 up)

11  $\text{♩} = 60$   
 pedal - change - mark metro- harp damp damp  
 nome pedal pedal all

13   
 accordion string string eye- perc. staff- principal - voice  
 register mute on mute off glasses (timpani) divide (Haupt-stimme)

15  
 image

Tempo Markings: 'quarter.=100', 'quarter..=half.', '(quarter.=half..)', '(quarter.=77)'.  
 31c-MetronomeMarks.xml

This tests various combinations of <direction> children. The lyrics for each note describe the compound elements assigned to that note.

31d-Directions-Compounds.xml

### MusicXML compound directions

Adagio  $\text{♩} = 100$  *molto f*

*molto f* *p subito* *molto f* *ppp* *fff*  
 Adagio molto↓ p↓ molto f↑ ppp↓ - to  
 long=100 f subito (rectangle) cresc. - fff↓

4 *cresc. - meno f* 12bis § ∅∅

***bolditalic***

cresc. ↑ - to reh. 12+bis bold+ segno coda  
 dashes - meno f ↑ (square) italic italic ×2

### 32 ... Notations and Articulations

All <notation> elements defined in MusicXML. The lyrics show the notation assigned to each note.

32a-Notations.xml

#### MusicXML notations (attached to note)

fermata normal angled square inverted arpeggio non- accidental  
 fermata fermata fermata fermata arpeggio mark

3 accent strong staccato tenuto detached stacca- spiccato scoop  
 accent legato tissimo

5 plop doit falloff breath caesura stress un- trill turn delayed inverted  
 mark stress mark turn turn

8 shake wa - vy - line mordent inverted schleifer tremolo  
 mordent

10 turn + acc. turn + acc. turn + acc. trill + acc. up- down- harmonic natural  
 mark ↑ marks ↑ ↓ marks ↑ [↑] mark ↑ bow bow harmonic

12 artificial natural natural natural  
 harmonic harmonic harmonic harmonic  
 (base+touch) (touch) (touch+sound)

13 nat. harm. artificial art. harm. open thumb-fingering fingering fingering  
 (base+touch harmonic (base+touch string position 1 2,3,4,5 0,1,2↑  
 +sound) (base+touch) +sound) 3,4,5↓

15 fingering fingering pluck pluck double triple stopped snap-  
 2, subst. 3 2, alt. 3 a a,m,i↓ tongue tongue pizz.

17 fret string hammeron pull-off bend 4 bend 3 bend -0.5 bend 3.5 tap tap  
 0 5 with bar pre-bend release T

20 heel toe finger- f ppp sfp sffz strong ↑ acc. ↓  
 nails dynamics stacc. ↑ ten. ↓  
 stacc. ↑

Text markup with different font sizes, weights, colors, horizontal positions, and vertical positions.

32b-Articulations-Texts.xml

Normal, Large  
 Normal, Medium Normal, Small  
**Bold, Medium, Below**  
**Bold, Large, Below**  
**Bold, Small, Below**  
 Normal, Small, Colored, Below

It should not make any difference whether two articulations are given inside two different notation elements, inside two different articulations children of the same notation element or inside the same articulations element. Thus, all three notes should have a staccato and an accent.

32c-MultipleNotationChildren.xml

Different arpeggio kinds and directions.

32d-Arpeggio.xml

normal up normal down normal arpeggio normal partial partial  
bracket arpeggio arpeggio bracket

### 33 ... Spanners

Several spanners defined in MusicXML: tuplet, slur (solid, dashed), wedge (cresc, dim), trill with accidental mark and wavy-line (with another accidental mark on the second beat), single-note trill spanner, octave-shift (8va,15mb), bracket (solid down/down, dashed down/down, solid none/down, dashed none/up, solid none/none), dashes, glissando (wavy), slide (solid), grouping, two-note tremolo, hammer-on, pull-off, pedal line (down, change, up), pedal text (down, up).

33a-Spanners.xml

Two simple tied whole notes

33b-Spanners-Tie.xml

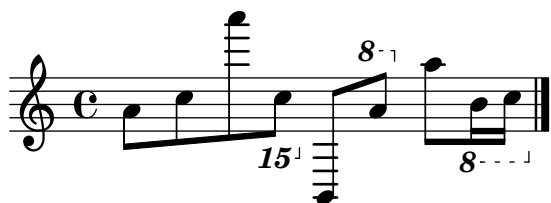
A note can be the end of one slur and the start of a new slur. Also, in MusicXML, nested slurs are possible like in the second measure where one slur goes over all four notes, and another slur goes from the second to the third note.

33c-Spanners-Slurs.xml

All types of octave shifts (15ma on the third eighth note, 15mb on the fourth and fifth, 8va on the sixth and seventh, and 8vb on the last two 16th notes). This test file positions `<octave-shift type="stop"/>` before the associated note, as expected in MusicXML import of Finale and Sibelius, for example. Consequently, it contains 'Sibelius' as the `<software>` tag.

Note that the end of the last octave shift is anchored at the following bar line.

33da-Spanners-OctaveShifts-before.xml



All types of octave shifts (15ma on the third eighth note, 15mb on the fourth and fifth, 8va on the sixth and seventh, and 8vb on the last two 16th notes). This test file positions `<octave-shift type="stop"/>` after the associated note, as expected in MusicXML import of MuseScore, for example. Consequently, it contains 'MuseScore' as the `<software>` tag.

Note that the end of the last octave shift is anchored at the following bar line.

33db-Spanners-OctaveShifts-after.xml



Invalid octave-shifts: 27 down, 11 up.

33e-Spanners-OctaveShifts-InvalidSize.xml



A trill spanner that spans a grace note and ends on an after-grace note at the end of the measure.

33f-Trill-EndingOnGraceNote.xml



Slurs on chorded notes: Only the first note of the chord should get the slur notation. Some applications print out the slur for all notes – these should be ignored.

33g-Slur-ChordedNotes.xml

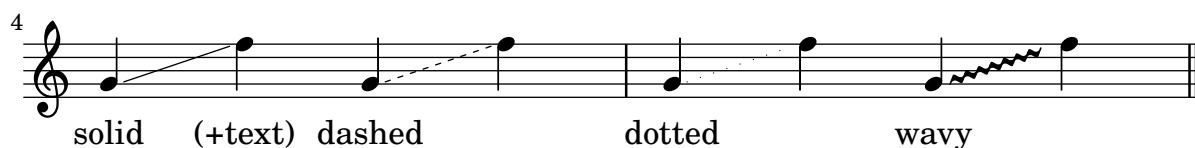


All different types of glissando defined in MusicXML

33h-Spanners-Glissando.xml

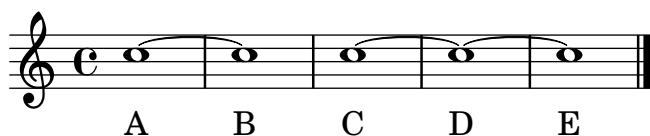


normal glissando solid (+text) dashed dotted wavy normal slide



Several ties that have their end tag missing.

33i-Ties-NotEnded.xml



Tests for double-note tremolo beams. The first bar shows a half-note tremolo (one beam, two strokes) followed by a dotted quarter-note tremolo with chords (three strokes). The second bar shows a half-note triplet with three tremolos (no beams, three strokes) followed by three beamed eighth-note chords with a tremolo (two strokes) between the second and third chord.

33j-Beams-Tremolos.xml



### 34 ... Attribute issues

Test various spanner elements (mostly from <notations>) starting from a <note> object with 'print-object' set to 'no', then test spanners ending with such a note object: beam, tuplet, slur, trill + wavy-line, glissando (wavy), slide (solid), two-note tremolo, hammer-on, pull-off. Spanners starting from an invisible object should be suppressed.

34a-Print-Object-Spanners.xml



Colors. The elements in the first bar have the 'color' attribute set to red for <note>, <note-head>, <stem>, <dot>, and <accidental>, respectively.

The elements in the second bar have the 'color' attribute set to red for <down-bow>, <tremolo>, <accent>, and <note> again (for the rest), respectively, followed by a red unpitched note.

The third and fourth bar consists of a red two-bar rest.

The fifth bar has a red rehearsal mark on its starting bar line. The first note has three fingerings, with the middle one in red; also attached is a red 'ff' sign. The second note has three plucks, with the first one in red. A red 'Adagio' tempo indication is on top of the third beat, which consists of a quadruplet with a red number. The fourth beat holds a red arpeggio, and the fifth beat demonstrates lyrics in red.

The sixth bar holds a red beamlet, a red beam, a red slur, a red pedal marker that gets continued with a blue one, and a red octave shift.

Measure seven contains a red trill with a black wavy line, a black trill with a red wavy line, a red bracket, a red glissando, and a red wedge.

Bar eight starts with a red and black tie connecting two chords, followed by 'cresc.' and dashes in red, followed by 'dim.' in black with red dashes.

The ninth measure demonstrates a red 6/8 time signature, followed by a red two-stem tremolo, a red breath mark.

Bar ten begins with a red, non-traditional key change, followed by a red, traditional one.

The eleventh bar starts with a red bass clef (actually, still in bar seven), followed by a blue percussion clef on a red two-line staff (where the middle line is omitted).

Measures 12 to 14 holds a repeat structure with two endings, with red bar lines at the beginning of measures 12 and 14, a blue bar line at the beginning of measure 13, and a red prima-volta bracket and number.

34b-Colors.xml

The image displays a musical score for '34b-Colors.xml' consisting of four staves. The first staff (measures 1-6) features a treble clef, a 15/8 time signature, and various notes with red and black stems and beams. The second staff (measures 5-6) includes a rehearsal mark 'A', a 012 fingering, an 'ami' marking, a quadruplet of four notes with an 'Adagio' tempo marking, a 'ff' dynamic, and a red 'lyrics' bracket. The third staff (measures 7-8) shows a trill with a wavy line, a 'cresc.' marking with red dashes, and a 'dim.' marking with black dashes. The fourth staff (measures 9-14) features a 6/8 time signature, a two-stem tremolo, a red breath mark, a red key change to D major, a blue percussion clef on a two-line staff, and a repeat structure with two endings (1. and 2.) marked by red and blue bar lines.

Font sizes. The elements in the first bar have the 'font-size' attribute set to a larger value for <note>, <notehead>, <trill-mark>, <dot>, and <accidental>, respectively.

The elements in the second bar have the 'font-size' attribute set to a larger value for <down-bow>, <accidental-mark>, <accent>, and <note> again (for the rest), respectively, followed by a larger percussion clef and a larger unpitched note.

The third and fourth bar consists of an oversized two-bar rest.

The fifth bar has an oversized rehearsal mark on its starting bar line. The first note has three fingerings, with the middle one oversized; also attached is an oversized 'ff' sign. The second note has three plucks, with the first one oversized. An oversized 'Adagio' tempo indication is on top of the third and fourth beats, which consist of a quadruplet with an oversized number. The fifth beat demonstrates oversized lyrics.

The sixth bar holds an oversized pedal marker with an oversized octave shift, an oversized trill with a wavy line, and an oversized 'cresc.' with dashes.

The seventh measure demonstrates an oversized, non-traditional key change, followed by an oversized 6/8 time signature, an oversized breath mark, an oversized bass clef, and an oversized, traditional key change.



34c-Font-Size.xml

A single staff of music in 15/8 time. It features several ornaments, some marked with an 'x' and others with a 'tr' symbol. The notes are mostly quarter and eighth notes. There are also some dynamic markings like 'ff' and 'cresc.'.

A single staff of music. It starts with a large 'A' in a box, followed by 'Adagio'. The staff contains a few notes, including a half note and a quarter note. There are dynamic markings 'ff' and 'a<sub>mi</sub>'. The word 'lyrics' is written below the staff. The time signature is 4:2.

A single staff of music. It starts with '8 tr~' and 'cresc.'. The staff contains a sequence of notes, including a half note and a quarter note. There is a 'Ped.' marking below the staff. The time signature is 6/8.

#### 41 ... Multiple parts (staves)

A piece with four parts (P0, P1, P2, P3; different from what Finale creates!). Are they converted in the correct order?

41a-MultiParts-Partorder.xml

Four staves of music, labeled Part 1, Part 2, Part 3, and Part 4. Each staff is in 4/4 time and contains a few notes, including a quarter note and a half note. The parts are arranged vertically.

A piece with 20 parts to check whether an application supports that many parts and whether they are correctly sorted.

41b-MultiParts-MoreThan10.xml

P0  
P1  
P2  
P3  
P4  
P5  
P6  
P7  
P8  
P9  
P10  
P11  
P12  
P13  
P14  
P15  
P16  
P17  
P18  
P19

A huge orchestra score with 28 parts and different kinds of nested bracketed groups. Each part/group is assigned a name and an abbreviation to be shown before the staff. Also, most of the groups show unbroken barlines, while the barlines are broken between the groups.

The image shows a musical score for a full orchestra. The instruments are listed on the left, and their corresponding staves are on the right. The score is divided into two nested groups by brackets:

- A curly bracket groups the staves for Oboe, English Horn, and Clarinet in Eb (staves 2, 3, and 4).
- A square bracket groups the staves for Oboe, English Horn, Clarinet in Eb, Clarinet in Bb 1, Clarinet in Bb 2, Bass Clarinet, Bassoon 1, Bassoon 2, Contrabassoon, Horn in F 1, Horn in F 2, Trumpet in C 1, Trumpet in C 2, Trombone 1, Trombone 2, Tuba, Timpani, Percussion, Harp, Piano, Violin I, Violin II, Viola, Cello, and Contrabass (staves 2 through 23).

The musical notation includes a key signature of one sharp (F#) and a common time signature (C). The notes are primarily quarter notes and eighth notes, with some rests.

Two properly nested part groups: One group (with a square bracket) goes from staff 2 to 4) and another group (with a curly bracket) goes from staff 3 to 4.

Part names and abbreviations can contain line breaks.

41e-StaffGroups-InstrumentNames-Linebroken.xml

Long  
Staff  
Name

<sup>6</sup>  
St.  
Nm.

<sup>15</sup>  
St.  
Nm.

MusicXML allows for overlapping part-groups, while many applications do not allow overlapping groups, but require them to be properly nested. In this case, one group (within parenthesis) goes from staff 1 to 4 and another group (also within parenthesis) goes from staff 3 to 5.

41f-StaffGroups-Overlapping.xml

This piece has more part elements than the part-list section gives. One can either convert all the parts present, but not listed in the part-list, or simply not import / ignore them.

`41h-TooManyParts.xml`

MusicXML allows `part-name` and `part-name-display` in the `score-part` element. If `part-name-display` is given, it overrides the `part-name` for display.

The first staff uses only `part-name`, while the second one (same `part-name`) overrides it with a custom text. Similar for the `part-abbreviation` used in subsequent staves.

`41i-PartNameDisplay-Override.xml`

This score has multiple `display-text` elements in its `part-name-display` block. This is handled without crashing.

`41j-PartNameDisplay-Multiple-DisplayText-Children.xml`

## 42 ... Multiple voices per staff

Two voices share one staff. Each voice is assigned some lyrics.

42a-MultiVoice-TwoVoicesOnStaff-Lyrics.xml

This is the lyrics of Voice1  
This is the lyrics of Voice2

A multi-voice / multi-staff part with a clef change in the middle of a measure and a <backward> for voice 2 jumping back beyond that clef change.

42b-MultiVoice-MidMeasureClefChange.xml

## 43 ... One part on multiple staves

A simple piano staff

43a-PianoStaff.xml

A piano staff with different keys and clefs for each of its staves. The keys and clefs for both staves are given at the very beginning of the measure.

43b-MultiStaff-DifferentKeys.xml

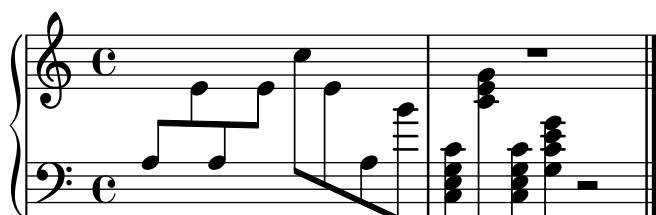
A piano staff with different keys and clefs for each of its staves. The key and clef for the second staff is given only after a backward, just before the first note of the second staff is given, but after the whole measure for staff 1 has been given.

43c-MultiStaff-DifferentKeysAfterBackup.xml



Staff changes in a piano staff. The voice from the second staff has some notes/chords on the first staff. The final two chords have some notes on the first, some on the second staff.

43d-MultiStaff-StaffChange.xml



A piano staff with dynamics and clef changes, where each element (ffff, wedge and clef changes) applies only to one voice or one staff, respectively.

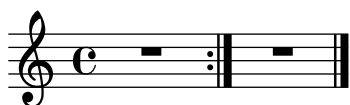
43e-Multistaff-ClefDynamics.xml



## 45 ... Repeats

A simple, repeated measure (repeated 5 times)

45a-SimpleRepeat.xml



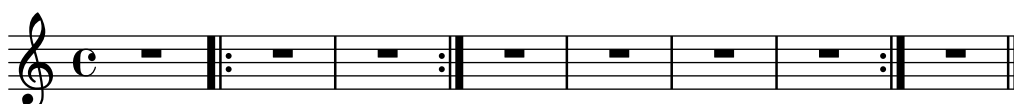
A simple repeat with two alternative endings (volta brackets).

45b-RepeatWithAlternatives.xml



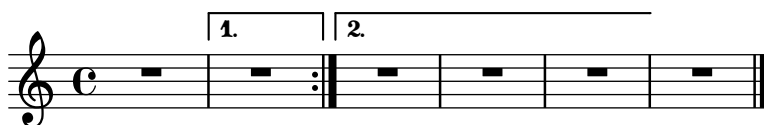
Repeats can also be nested.

45c-RepeatMultipleTimes.xml



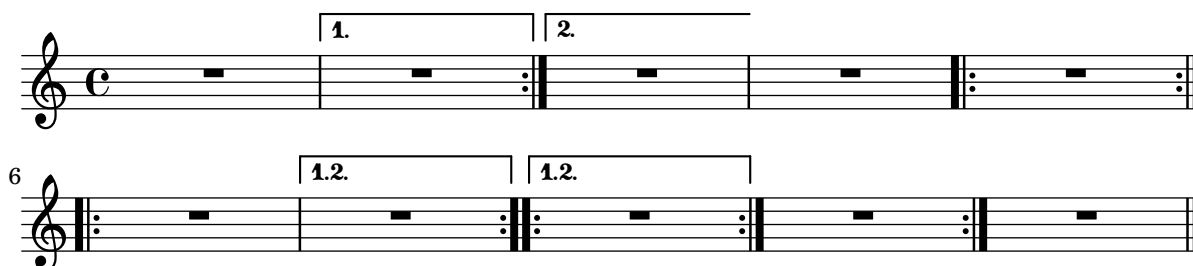
Nested repeats, each with alternative endings.

45d-Repeats-Nested-Alternatives.xml



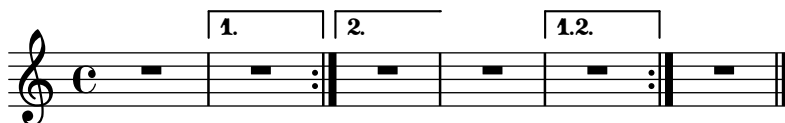
Some more nested repeats with alternatives. The barline between measure 7 and 8 will probably be messed up! (Should be a repeat on both sides!)

45e-Repeats-Nested-Alternatives.xml



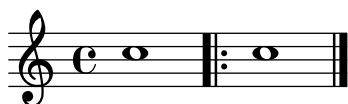
Some more nested repeats with alternatives, where the MusicXML file does not make sense in the first place. How well are applications able to cope with improper repeats and alternatives?

45f-Repeats-InvalidEndings.xml



A forward-repeating bar line without an ending repeat bar.

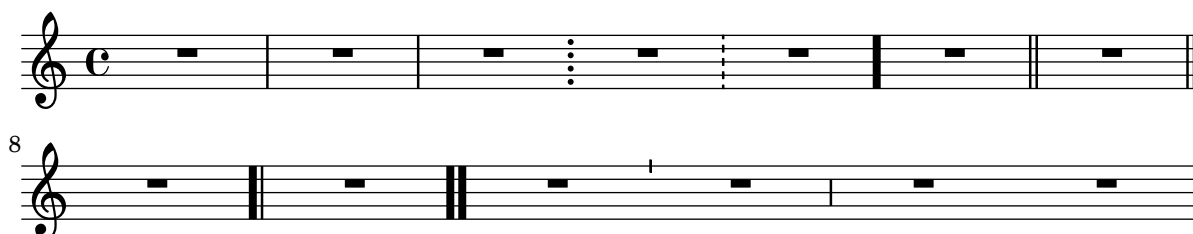
45g-Repeats-NotEnded.xml



## 46 ... Barlines, Measures

Different types of (non-repeat) barlines: default (no setting), regular, dotted, dashed, heavy, light-light, light-heavy, heavy-light, heavy-heavy, tick, short, none.

46a-Barlines.xml



Barlines can appear at mid-measure positions, without using an implicit measure!

46b-MidmeasureBarline.xml





A clef change in the middle of a measure, using either an implicit measure or simply placing the attributes in the middle of the measure.

46c-Midmeasure-Clef.xml



A 3/8 pickup measure, a measure that is split into one (incomplete, only 2/4) measure and an implicit measure, and an incomplete measure (containing 3/4).

46d-PickupMeasure-ImplicitMeasures.xml



Voice 2 should start at 2nd beat of first full measure.

46e-PickupMeasure-SecondVoiceStartsLater.xml



Measures can contain less notes than the time signature says. Here, the first and third measures contain only two quarters instead of four.

46f-IncompleteMeasures.xml



Pickup measure with chord names and figured bass.

46g-PickupMeasure-Chordnames-FiguredBass.xml



## 51 ... Header information

Several header fields and part names can contain quotes ("). This test checks whether they are converted/imported without problems (i.e. whether they are correctly escaped when converting).

51b-Header-Quotes.xml

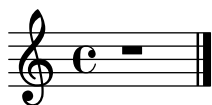
## "Quotes" in header fields

Some "Tester" Name



There can be multiple <rights> tags in the identification element of the score. The conversion shall still work, ideally using both of them.

51c-MultipleRights.xml



A piece with an empty (but existing) work-title, but a non-empty movement-title. In this case the movement-title should be chosen, even though the work-title exists.

51d-EmptyTitle.xml

## Empty work-title, non-empty movement-title

### Empty work-title, non-empty movement-title

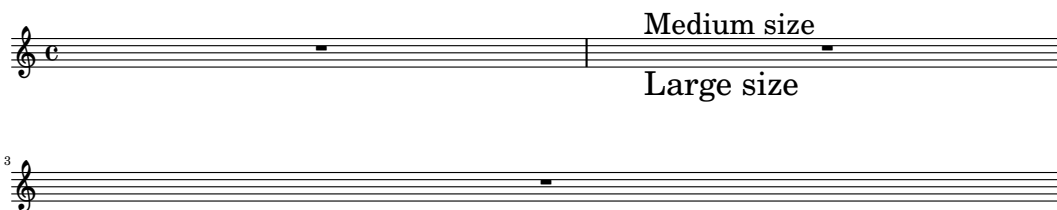


## 52 ... Page layout

Several page layout settings: paper size, margins, system margins and distances, different fonts, etc.

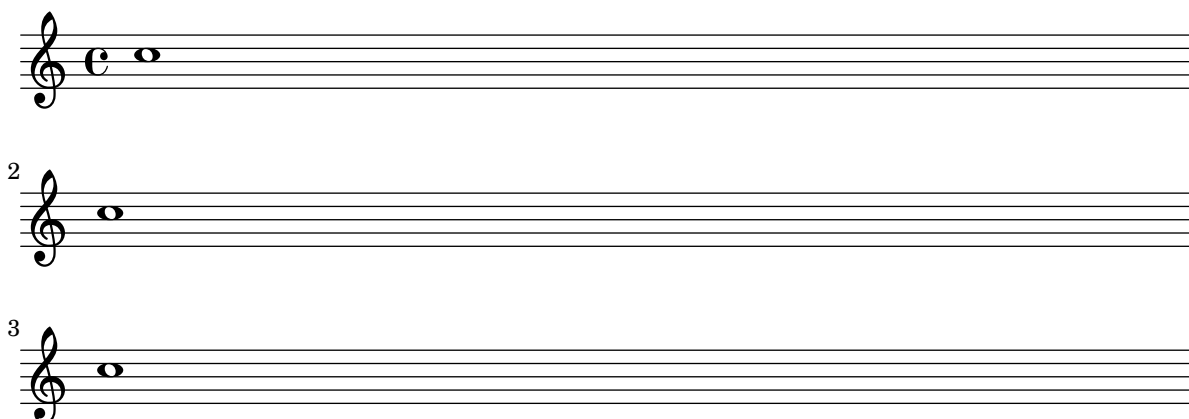
52a-PageLayout.xml

### Layout options



System and page breaks, given in a <print> element

52b-Breaks.xml







A lyrics syllable can have both a number and a name attribute. The question is: What should be used to put syllables of the same voice together. This example uses different number/name combinations to check how different applications handle this unspecified case (The advice on the MusicXML mailing list was "there is no correct way, each application can do what it thinks is best").

61g-Lyrics-NameNumber.xml



Beaming or slurs can indicate melismata for lyrics. Also make sure that notes without an explicit syllable are treated as if they were part of a melisma.

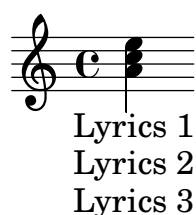
In the second bar, 'start', 'continue', and 'stop' types are used for <extend>, together with a red color for the extender line.

61h-Lyrics-BeamsMelismata.xml



Each note of a chord can have some lyrics attached. In this case, each note of the chord has lyrics of the form "Lyrics [123]" attached, where each lyrics has a different number attribute to distinguish them. These syllables should be imported into three different stanzas and the timing should be correct.

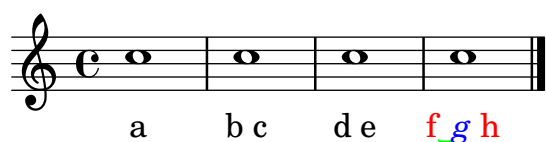
61i-Lyrics-Chords.xml



Multiple lyrics syllables assigned to a single note are implemented either using a space in the lyrics' <text> element or by using <elision>.

The first note has a single syllable, the second note has two syllables separated by a space, the third has two syllables with <elision> set to an undertie, and the fourth has three syllables (the first and third one in red, and the second one being in italic and overriding the color with blue), with a green undertie between the first and second syllable and an empty <elision> element between the second and third syllable, causing an application-specific elision glyph.

61j-Lyrics-Elisions.xml



Lyrics spanners: continued syllables and extenders, possibly spanning multiple notes. The intermediate notes do not have any <lyric> element.

61k-Lyrics-SpannersExtenders.xml

A musical staff in treble clef with a common time signature (C). The melody consists of quarter notes: A, b, C, C, e. The notes are aligned with the lyrics 'A b - CC e' below the staff. The 'b' and 'C' notes have a long horizontal line underneath them, indicating a spanner. The 'C' notes have a shorter horizontal line underneath them, indicating an extender.

## 71 ... Guitar notation

A normal staff with several (complex) chord names displayed.

71a-Chordnames.xml

A musical staff in treble clef with a common time signature (C). The melody consists of quarter notes: C, C, B, E, G, D, A, A. Above the staff, complex chord names are written: C, C<sup>lyd</sup>, B<sup>7 #5 #9</sup>, E<sup>b sus2</sup>, G<sup>m</sup>, D<sup># Δ</sup>, A<sup>o7</sup>, A<sup>+</sup>.

A staff with chord names and some fretboards shown. The fretboards can have an arbitrary number of frets/strings, can start at an arbitrary fret and can even contain fingering information.

71c-ChordsFrets.xml

A musical staff in treble clef with a common time signature (C). The melody consists of quarter notes: C, C, B, E, G, D, A, C. Above the staff, chord names are written: C, C<sup>lyd</sup>, B<sup>7 #5 #9</sup>, E<sup>b sus2</sup>, G<sup>m</sup>, D<sup># Δ</sup>, A<sup>o7</sup>, C. Below the staff, fretboard diagrams are shown for each chord, indicating the number of frets (2fr, 1fr, 3fr, 4fr) and the string/fret positions.

Chords and fretboards assigned to the voices in a multi-voice, multi-staff part. There should be fret diagrams above each of the two staves.

71d-ChordsFrets-Multistaff.xml

A multi-staff musical score with two staves (treble and bass clef) and a grand staff bracket. The time signature is common time (C). The melody in the treble clef consists of quarter notes: C, D, E, C. Above the treble staff, chord names are written: E<sup>b m9</sup>, C, D<sup>7</sup>, C<sup>m7 11</sup>. Fretboard diagrams are shown above both staves, indicating the number of frets (4fr) and the string/fret positions.

Some tablature staves, with explicit fingering information and different string tunings given in the MusicXML file.

71e-TabStaves.xml

All chord types defined in MusicXML. The staff will only contain one c' note (NO chord) for all of them, but the chord names should be properly printed.

71f-AllChordTypes.xml

### All MusicXML chord names/types with <root>

4  $Cm^6$   $C^9$   $C^{\Delta 9}$   $Cm^9$   
 minor-sixth dominant-ninth major-ninth minor-ninth

5  $C^{11}$   $C^{\Delta 11}$   $Cm^{11}$   $C^{13}$   
 dominant-11th major-11th minor-11th dominant-13th

6  $C^{\Delta 13}$   $Cm^{13}$   $C^{sus2}$   $C^{sus4}$   
 major-13th minor-13th suspended-second suspended-fourth

7  $C^5$   $C$   
 Neapolitan Italians French German pedal power Tristan other

9  $F\#$   $Fb/C$   $G\#/D\#$   $C$   $C^{b5}$   $E^{b4}$   $susb4$   $b3$   
 Inversion  $Fb/C$   $G\#/D\#$   $C-3+5b$   $C-1+6b$

There can be multiple subsequent harmony elements, indicating a harmony change during a note

71g-MultipleChordnames.xml

$C$   $F\#m^6$   $Dm^7$   $G^7$

## 72 ... Transposing instruments

Transposing instruments: Trumpet in Bb, Horn in Eb, Piano; All of them show the C major scale (the trumpet with 2 sharp, the horn with 3 sharp).

72a-TransposingInstruments.xml

Trumpet in Bb

Horn in Eb

Piano

Various transposition. Each part plays a c', just displayed in different display pitches. The second-to-last staff uses a transposition where the displayed c' is an actual f''' concert pitch. The final staff is an untransposed instrument.

72b-TransposingInstruments-Full.xml

The image shows a musical score with ten staves, each representing a different instrument. Each staff contains a single note (c') in a different display pitch, corresponding to the instrument's key signature. The instruments and their key signatures are: Clarinet in Eb (three sharps), Clarinet in Bb (two sharps), Clarinet in A (one flat), Horn in F (two sharps), Horn in Eb (three sharps), Piccolo Trumpet in A (one flat), Trumpet in Bb (two sharps), Trumpet in C (one sharp), Trumpet in D (one flat), and a staff labeled 'displayed c'=fis''' (eight sharps) with an octave sign (8) below the staff. The final staff is an untransposed instrument (one sharp).

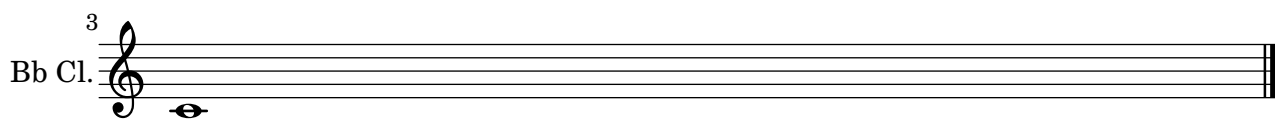
An instrument change from one transposition (Clarinet in Eb) to another transposing instrument (Clarinet in Bb). The displayed instrument name should also be updated.

The whole piece is in Bb major (sounding), so first the key signature should be one flat, after the change it should have no accidentals.

72c-TransposingInstruments-Change.xml

The image shows a musical score for a Clarinet in Eb. The first staff has a key signature of one sharp (F#) and a single note (c'). The second staff has a key signature of one flat (Bb) and a single note (c').





### 73 ... Percussion

Three types of percussion staves: A five-line staff with bass clef for Timpani, a five-line staff with percussion clef, and a one-line percussion staff with only unpitched notes.

73a-Percussion.xml

### 74 ... Figured bass

Some figured bass containing altered figures, bracketed figures and slashed figures.

Note that this file does not contain any extenders!

74a-FiguredBass.xml

### 75 ... Other instrumental notation

All possible accordion registrations.

75a-AccordionRegistrations.xml

### 90 ... Compressed MusicXML files

A compressed MusicXML file, containing a simple MusicXML score and the corresponding .pdf output for reference.

90a-Compressed-MusicXML.mxl

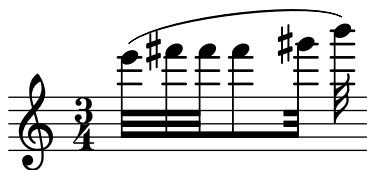
## Compressed MusicXML file



### 99 ... Compatibility with broken MusicXML

Dolet 3 for Sibelius (5.1) did not print out any closing beam tags, only starting and continuing beam tags. For such files, one either needs to ignore all beaming information or close all beams

99a-Sibelius5-IgnoreBeaming.xml



If we properly ignore all beaming information from the Dolet 3 for Sibelius export file, make sure that the lyrics syllables are still assigned to the correct notes.

99b-Lyrics-BeamsMelismata-IgnoreBeams.xml

Me - lisma\_\_ Me - lisma\_\_ Me - lisma\_\_ Me - lisma\_\_