Section 3
Tandem Interpretation Reference

Documentation Style

This section of the Reference Manual describes various pre-defined tandem interpretations that are used in conjunction with some of the representations described in Section 2. Tandem interpretations provide additional contextual information for a given representation. Tandem interpretations are denoted by a single leading asterisk character (beginning in the first column of a line and spine) followed immediately by an interpretation keyword. (By contrast, exclusive interpretations are denoted by two leading asterisks.) Although only one exclusive interpretation can be active at a given moment for a given spine, several tandem interpretations may be active concurrently in a given spine. Tandem interpretations may appear at any point in a file, but they must be preceded by an exclusive interpretation specifying the type of representation encoded.

Each entry in this section of the documentation includes a description of the scope of the tandem representation, a syntax for the interpretation, and examples of use. Descriptions of the corresponding representations may be found in Section 2 of this Reference Manual.

Each reference entry contains information identifying the name and purpose of the tandem interpretation and a summary description of mappings between signifiers and signifieds. The standard order of documentation sections is as follows: (1) representation, (2) description, (3) signifiers, (4) examples, (5) see also, (6) warnings, (7) note, (8) reference, and (9) proposed modifications.
REPRESENTATION

all intervals — all harmonic intervals designator

DESCRIPTION

The all intervals tandem interpretation is used in conjunction with the **hint harmonic interval representation to indicate that the representation includes all possible permuted intervals. For example, a sonority consisting of the pitches C4, E4, G4, and C5 would produce an exhaustive interval content including M3, m3, P4, P4, m6 and P8.

The *all tandem interpretations consist simply of a single asterisk, followed by the keyword all.

EXAMPLES

An example of the use of *all is given below:

```
**pitch  **hint  **hint
*          *      *all
C4          –          –
C4 E4      M3          M3
C4 E4 G4   M3 m3      M3 m3 P5
C4 E4 G4 C5 M3 m3 P4   M3 m3 P4 P5 m6 P8
*–          *–          *–
```

SEE ALSO

**hint (2), hint (4)
**REPRESENTATION**

*clefs* — clef designation

**DESCRIPTION**

The *clef* tandem interpretation permits the encoding of notated clefs for a Humdrum representation.

Three types of clefs can be represented: G-clefs, F-clefs, and C-clefs. Each clef may be placed on any line in a multi-line staff. The common treble staff locates the G-clef on the second line from the bottom, while the common bass staff locates the F-clef on the fourth line from the bottom. In addition, octave and double-octave transpositions can be represented.

Clef tandem interpretations consist of a single asterisk, followed by the keyword *clef*, followed by an upper-case letter indicating the type of clef, followed by one or more octave transposition signifiers (" or ") followed by a number indicating the designated line. Followed by a number indicating the staff-line designated by the clef. Line numbers are counted beginning at the bottom of the staff. The absence of any clef indication may be explicitly represented by the 'X' clef designator — as in *clefx*. Notice that clef tandem interpretations do not assume the number of lines in the staff. Hence a C-clef appearing on the third line (from the bottom) of a four-line staff would be encoded as *clefc3*.

**SIGNIFIERS**

The following table summarizes the mappings of signifiers and signifieds for clefs.

| clef | clef keyword          | C   | C-clef signifier  | F   | F-clef signifier  | G   | G-clef signifier  | X   | no clef signifier | 1-9 | line number designators | ^   | 8va treble          | v   | 8va bassa          | ^   | double octave treble | vv  | double octave bass  |
|------|-----------------------|-----|-------------------|-----|-------------------|-----|-------------------|-----|-------------------|-----|---------------------|-----|---------------------|-----|---------------------|-----|---------------------|

*Summary of clef Signifiers*

**EXAMPLES**

Several examples of clef indications are given below:
clefs (3) * Humdrum Tandem Interpretations *

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>*clefG2</td>
<td>treble clef</td>
</tr>
<tr>
<td>*clefF4</td>
<td>bass clef</td>
</tr>
<tr>
<td>*clefC3</td>
<td>alto clef</td>
</tr>
<tr>
<td>*clefC4</td>
<td>tenor clef</td>
</tr>
<tr>
<td>*clefG1</td>
<td>soprano clef</td>
</tr>
<tr>
<td>*clefX</td>
<td>no clef</td>
</tr>
<tr>
<td>*clefGv2</td>
<td>treble clef, 8va bassa</td>
</tr>
</tbody>
</table>

Examples of clef Interpretations

SEE ALSO

staff (3), staff lining (3)
REPRESENTATION

**ensemble** — designation of the number of instruments/voices

DESCRIPTION

The **ensemble** tandem interpretation permits the encoding of the number of musical instruments of voices performing a given Humdrum spine.

Five types of ensemble interpretations are distinguished. The **solo** interpretation indicates that a given spine is to be performed by a single instrument or voice, and that the part is of a **foreground** character. The **ensemb** interpretation indicates that a given spine is to be performed by several instruments or voices. The **ripien** interpretation indicates that a given spine is performed by an instrument of the **ripieno**. The **concert** interpretation indicates that a given spine is performed by an instrument of the **concertino**. The fifth type of ensemble-related interpretation allows the precise specification of the number of instruments or voices. This tandem interpretation consists of a single asterisk, followed by the lower-case letter 'a', followed by a number. For example, **a2** represents an ensemble indication of two instruments or voices. Similarly, the tandem interpretation **a6** indicates six concurrent instruments performing the specific spine. Approximation can be indicated by appending the tilde character, such as **a12~** — meaning approximately 12 instruments.

EXAMPLES

Several examples of ensemble indications are given below:

| **solo**  | single instrument or voice |
| **ensemb** | multiple instruments or voices |
| **a1**  | single instrument or voice |
| **a2**  | two instruments or voices |
| **a14**  | fourteen instruments or voices |
| **concert**  | instrument of the concertino |
| **ripien**  | instrument of the ripieno |

*Examples of ensemble Interpretations*

SEE ALSO

**instrument** (3)
REPRESENTATION

expansion lists — expansion list designations

DESCRIPTION

An expansion list is a tandem interpretation that indicates how an abbreviated format Humdrum file may be rearranged or expanded to a full-length or through-composed format.

Expansion lists are found only in abbreviated format files. An expansion list contains an ordered list of Humdrum section labels identifying the order (including possible repetitions) of sections when the file is passed to the thru command. Expansion lists are useful for encoding Da Capo, Dal Segnos, and other repetition notational devices. Expansion list are also useful for encoding alternative versions of the organization of a work.

Expansion lists consist of a single asterisk, followed by the greater-than sign (>), followed by an optional keyword, followed by an open square bracket, followed by a list of section labels (each separated by a comma), followed by a closed square bracket. Consider the following expansion list:

*>[verse1,refrain,verse2,refrain]

This list indicates that the file in which it is embedded is an abbreviated format Humdrum file that contains (at least) three sections, labelled verse1, verse2, and refrain. When the file is expanded using the thru command, the refrain section will be repeated following each verse.

The following example illustrates two expansion lists, each of which is labelled. Expansion-list labels are called versions. In this example, the first and second versions are Gould82 and Landowska respectively.

*>Gould82[A,A,B]
*>Landowska[A,A,B,B]

These expansion lists might encode different interpretations of the repeats in a rounded binary form. (When the thru command is invoked, the user can specify which version is required, and the appropriate through-composed expansion will be output.)

SIGNIFIERS

The version keywords for expansion lists may contain any sequence of zero or more printable ASCII characters with the exception of the tab character and the open square bracket. Immediately following the version keyword is an open square bracket. An expansion list must end with a square bracket. Within the square brackets zero or more section labels may be encoded, separated by commas.

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EXAMPLES

Several examples of expansion list tandem interpretations are given below:

```
*>sonata allegro[intro, exposition, development, recapitulation]
*>[minuet, trio, minuet]
*>Rondo[A, B, A, C, A, D, A, B, A]
*>rehearsal order[mm. 218-252, mm. 184-191, mm. 1-48]
*>concert[Stamitz, Martinu, Alkan, De Falla]
*>subject18[stimulus7, stimulus9, stimulus4, stimulus2]
```

Examples of expansion list Interpretations

SEE ALSO

section labels (3), thru (3), thru (4), yank (4)
REPRESENTATION

fret tuning — fretted instrument tuning information

DESCRIPTION

Three tandem interpretations permit the detailed encoding of tuning information for fretted instruments.

The absolute tuning is specified using the *AT: tandem interpretation. The relative tuning of the open strings is specified using the *RT: tandem interpretation. The tuning of the fret positions is specified using the *FT: tandem interpretation.

The *AT: interpretation uses **pitch-type pitch designations (including cents deviation) to encode the absolute pitch of the lowest string. (See EXAMPLES.)

The *RT: interpretation encodes the relative tuning of each open string by specifying the number of semitones above the lowest string. Successive courses are delineated by colons, and strings within courses are delineated by a comma. In addition to unbounded scordatura tuning, non-integer semitones may be encoded, thus permitting unorthodox temperaments. (See EXAMPLES.)

The *FT: interpretation encodes the relative tuning of successive frets along the fret-board, in semitones. Once again, non-integer semitones are permitted.

For a more detailed description of fretted instrument tuning interpretations, refer to the entry for **fret (Section 2).

SIGNIFIERS

The following table summarizes the mappings of signifiers and signifieds for fret tuning.
**Humdrum Tandem Interpretations**  

**fret tuning** (3)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT</td>
<td>absolute tuning keyword</td>
</tr>
<tr>
<td>RT</td>
<td>relative tuning keyword ~</td>
</tr>
<tr>
<td>FT</td>
<td>fret-board tuning keyword</td>
</tr>
<tr>
<td>:</td>
<td>course delimiter</td>
</tr>
<tr>
<td>,</td>
<td>string delimiter</td>
</tr>
<tr>
<td>A–G</td>
<td>pitch of lowest string (for <em>AT</em>: only)</td>
</tr>
<tr>
<td>#</td>
<td>sharp accidental, for pitch of lowest string (for <em>AT</em>: only)</td>
</tr>
<tr>
<td>b</td>
<td>flat accidental, for pitch of lowest string (for <em>AT</em>: only)</td>
</tr>
<tr>
<td>0–9</td>
<td>semitone numbers; octave number; cents deviation</td>
</tr>
<tr>
<td>.</td>
<td>decimal point</td>
</tr>
<tr>
<td>−</td>
<td>cents deviation (for <em>AT</em>: only)</td>
</tr>
<tr>
<td>+</td>
<td>cents deviation (for <em>AT</em>: only)</td>
</tr>
</tbody>
</table>

*Summary of fret tuning Signifiers*

**EXAMPLES**

A number of examples of fret tuning indications are given in Section 2; refer to the entry for the **fret** representation.

**SEE ALSO**

**fret** (2), **pitch** (2)
harmonic number (3) * Humdrum Tandem Interpretations *

REPRESENTATION

harmonic number — harmonic number designation

DESCRIPTION

The harmonic number tandem interpretation allows the encoding of given harmonic number for a Humdrum representation.

Harmonic number tandem interpretations consist of a single asterisk, followed by the keyword letter H, followed by an upper-case letter indicating the type of clef, followed by a whole number indicating the harmonic number. Harmonic 'zero' is illegal.

SIGNIFIERS

The following table summarizes the mappings of signifiers and signifieds for harmonic number.

<table>
<thead>
<tr>
<th>H</th>
<th>harmonic number keyword</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9</td>
<td>number designators</td>
</tr>
</tbody>
</table>

Summary of harmonic number Signifiers

EXAMPLES

Several examples of harmonic number indications are given below:

| *H2  | second harmonic         |
| *H20 | twentieth harmonic       |
| *H02 | second harmonic          |

Examples of harmonic number Interpretations

SEE ALSO

**freq (2), **spect (2)
REPRESENTATION

instrument — instrument or voice designation

DESCRIPTION

Instrument tandem interpretations are used to identify the instrumentation pertaining to a specified spine. The word “instrument” is used in a broad sense and embraces vocal qualities and types as well as mechanical sound makers.

Instrument tandem interpretations consist of a single asterisk, followed by the single uppercase letter ‘I’, followed by a lower-case instrument keyword.

Separate spines may be encoded for each instrument in a score, but it is common for two or more instruments to perform precisely the same line — such as the contrabass and violoncello parts. Instrument tandem interpretations are normally encoded “cumulatively;” that is, if more than one tandem interpretation appears in a spine, then this instrument is added to any existing instruments performing the spine.

SIGNIFIERS

The following set of tables list currently defined instrument tandem interpretations according to instrument category or type. Where appropriate, instrument names are also given for selected non-English languages.

Voice Range

*Isoprn  soprano
*Imezzo  mezzo soprano
*Icalto  contralto
*Itenor  tenor
*Ibarit  baritone
*Ibass  bass

Voice Quality

*Ivox  generic (undesignated) voice
*Ifeme  female voice
*Imale  male voice
*Infant  child’s voice
*Irecit  recitativo

*Ilyrsp  lyric soprano
*Idrmsp  dramatic soprano
*Icolosp  coloratura soprano
*Ialto  alto
*Ictenor  counter-tenor
*Iheltn  Heldentenor, tenore robusto
*Ilyrtn  lyric tenor
*Ibspro  basso profondo
*Ibscan  basso cantante
*Ifalse  falsetto
*Icastr  castrato

**String Instruments**

*Iarchl  archlute; archiluth (Fr.); liuto attiorbato/arcileuto/arciliuto (It.)
*Tarpa  harp; arpa (It.), arpa (Span.)
*Ibanjo  banjo
*Ibiwa  biwa
*Ibguit  electric bass guitar
*Icbass  contrabass
*Icello  violoncello
*Icemb  harpsichord; clavecin (Fr.); Cembalo (Ger.); cembalo (It.)
*Icetra  cittern; cistre/sistre (Fr.); Cither/Zitter (Ger.); cetra/cetera (It.)
*Iclav  clavichord; clavicordium (Lat.); clavicorde (Fr.)
*Iduc  dulcimer
*Ieguit  electric guitar
*Iforte  fortepiano
*Iguitr  guitar; guitarra (Span.); guitare (Fr.); Gitarre (Ger.); chitarra (It.)
*Ihurdy  hurdy-gurdy; variously named in other languages
*Iliuto  lute; lauto, liuto leuto (It.); luth (Fr.); Laute (Ger.)
*Ikit  kit; variously named in other languages
*Ikokyu  kokyū (Japanese spike fiddle)
*Ikomun  kōmun’go (Korean long zither)
*Ikoto  koto (Japanese long zither)
*Imando  mandolin; mandolino (It.); mandoline (Fr.); Mandoline (Ger.)
*Ipiano  pianoforte
*Ipipa  Chinese lute
*Ipsalt  psaltery (box zither)
*Iqin  qin, ch’in (Chinese zither)
*Iquitr  gittern (short-necked lute); guitarre (Fr.); Quinterne (Ger.)
*Irebec  rebec; rebeca (Lat.); rebec (Fr.); Rebec (Ger.)
*Isarod  sarod
* Isham* shamisen (Japanese fretless lute)
* Isitar* sitar
* Itambu* tambūrā
* Itanbr* tanbur
* Itiorb* theorbo; tiòrba (It.); tèorbe (Fr.); Theorb (Ger.)
* Iud* ūd
* Iukule* ukulele
* Ivina* vinā
* Iviola* viola; alto (Fr.); Bratsche (Ger.)
* Iviolb* bass viola da gamba; viole (Fr.); Gambè (Ger.)
* Iviold* viola d’amore; viole d’amour (Fr.); Liebesgeige (Ger.)
* Ivioln* violin; violon (Fr.); Violine (Ger.); violino (It.)
* Iviols* treble viola da gamba; viole (Fr.); Gambe (Ger.)
* Iviolt* tenor viola da gamba; viole (Fr.); Gambe (Ger.)
* Izithr* zither; Zither (Ger.); ciithare (Fr.); ceta da tavola (It.)

**Wind Instruments**

* Iaccor* accordion; accordéon (Fr.); Akkordeon (Ger.)
* Iarmon* harmonica; armonica (It.)
* IbagpS* bagpipe (Scottish)
* IbagpI* bagpipe (Irish)
* Icalam* chalumeau; calamus (Lat.); kalamos (Gk.)
* Icalpe* calliope
* Icongl* english horn; cor anglais (Fr.)
* Ichlms* soprano shawm, chalmeye, shalme, etc.; chalemie (Fr.); ciaramella (It.)
* Ichlma* alto shawm, chalmeye, shalme, etc.
* Ichlmt* tenor shawm, chalmeye, shalme, etc.
* Iclar* soprano clarinet (in either B-flat or A); clarinetto (It.)
* Iclarp* piccolo clarinet
* Iclara* alto clarinet
* Iclarb* bass clarinet (in B-flat)
* Icor* horn; cor (Fr.); corno (It.); Horn (Ger.)
* Icornm* cornemuse; French bagpipe
* Icorno* cornett (woodwind instr.); cornetto (It.); cornaboux (Fr.); Zink (Ger.)
* Icornm* cornet (brass instr.); cornetta (It.); cornet à pistons (Fr.); Cornett (Ger.)
* Ictina* concertina; concertina (Fr.); Konzertina (Ger.)
* Ifagot* bassoon; fagotto (It.)
* Ifag_c* contrabassoon; contrafagotto (It.)
* Ifife* fife
* Ifllt* flute; flauto (It.); Flöte (Ger.); flûte (Fr.)
* Ifllt_a* alto flute
* Ifllt_b* bass flute
* Ifltds* soprano recorder; flûte à bec, flûte douce (Fr.); Blockflöte (Ger.); flauto dolce (It.)
*Ifltdn  soprano recorder
*Ifltda  alto recorder
*Ifltdd  tenor recorder
*Ifltdb  bass recorder
*Iflugh  flugelhorn
*Ihichi  hichiriki (Japanese double reed used in gagaku)
*Ikrums  soprano crumhorn; Krummhorn/Krumhorn (Ger.); tournebou (Fr.)
*Ikruma  alto crumhorn
*Ikrumt  tenor crumhorn
*Ikrumb  bass crumhorn
*Inokan  nōkan (Japanese flute for the nō theatre)
*Itooe  oboe; hautbois (Fr.); Hoboe, Oboe (Ger.); oboe (It.)
*ItooeD  oboe d’amore
*Iocari  ocarina
*Iorgan  pipe organ; organum (Lat.); organo (It.); orgue (Fr.); Orgel (Ger.)
*Ipanpi  panpipe
*Ipicco  piccolo
*Iporta  portative organ
*Iracket  racket; Rackett (Ger.); cervelas (Fr.)
*Ireedo  reed organ
*Isarus  sarrusophone
*IsaxN  soprano saxophone (in E-flat)
*IsaxS  soprano saxophone (in B-flat)
*IsaxA  alto saxophone (in E-flat)
*IsaxT  tenor saxophone (in B-flat)
*IsaxR  baritone saxophone (in E-flat)
*IsaxB  bass saxophone (in B-flat)
*IsaxC  contrabass saxophone (in E-flat)
*Ishaku  shakuhachi
*Isheng  mouth organ (Chinese)
*Isho  mouth organ (Japanese)
*Isxhr  soprano saxhorn (in B-flat)
*Isxha  alto saxhorn (in E-flat)
*Isxht  tenor saxhorn (in B-flat)
*Isxhr  baritone saxhorn (in E-flat)
*Isxhb  bass saxhorn (in B-flat)
*Isxhc  contrabass saxhorn (in E-flat)
*Itromt  tenor trombone; trombone (It.); trombone (Fr.); Posaune (Ger.)
*Itromb  bass trombone
*Itromp  trumpet; tromba (It.); trompette (Fr.); Trompete (Ger.)
*Ituba  tuba
*Izurna  zurnā

1s
11. Percussion Instruments

*Ibdrum  bass drum (kit)
*Icampn  bell; campana (It.); cloche (Fr.); campana (Span.)
*Icaril   carillon
*Icasts  castanets; castañetas (Span.); castagnette (It.)
*Ichime  chimes
*Iclest  celesta; céleste (Fr.)
*Icrshc  crash cymbal (kit)
*Ifingc  finger cymbal
*Iglock  glockenspiel
*Igong   gong
*Imarac  maracas
*Imarim  marimba
*Ipiatt  cymbals; piatti (It.); cymbales (Fr.); Becken (Ger.); kymbos (Gk.)
*Iridec  ride cymbal (kit)
*Isdrum  snare drum (kit)
*Ispshc  splash cymbal (kit)
*Isteel  steel-drum, timpanny
*Itabla  tablā
*Itamb  tambourine, timbrel; tamburino (It.); Tamburin (Ger.)
*Itimpa  timpani; timpani (It.); timbales (Fr.); Pauken (Ger.)
*Itom   tom-tom drum
*Itrngl  triangle; triangle (Fr.); Triangel (Ger.); triangolo (It.)
*Ivibra  vibraphone
*Ixylo   xylophone; xylophone (Fr.); silofono (It.)

1s

11. Keyboard Instruments

*Iaccor  accordion; accordéon (Fr.); Akkordeon (Ger.)
*Icaril  carillon
*Icemb  harpsichord; clavecin (Fr.); Cembalo (Ger.); cembalo (It.)
*Iclavi  clavichord; clavicordium (Lat.); clavicorde (Fr.)
*Iclest  celesta; céleste (Fr.)
*Iforte  fortépiano
*Ihammd  Hammond electronic organ
*Iorgan  pipe organ; orgue (Fr.); Orgel (Ger.); organo (It.); organo (Span.); organum (Lat.)
*Ipiano  pianoforte
*Iporta  portative organ
*Ireedo  reed organ
*Irhode  Fender-Rhodes electric piano
instrument  (3)   *  Humdrum Tandem Interpretations  *

*Isynth    keyboard synthesizer

SEE ALSO

   instrument class (3)
REPRESENTATION

instrument class — instrument class designation

DESCRIPTION

Instruments (or voices) may be represented according to the type or class of instrument or voice. There exist a wide variety of ways of classifying instrumental resources — each of which has advantages and disadvantages. The instrument class tandem interpretation echoes the most common distinctions made by practising musicians: voices, stringed instruments, woodwind instruments, brass instruments, keyboard instruments, and percussion instruments. The ‘keyboard’ class may be deemed redundant, since keyboard instruments may be variously classified as percussion instruments (e.g. piano), wind instruments (e.g. organ), or stringed instruments (e.g. harpsichord). Despite this overlap, the separate keyboard class has been retained since it is a natural way for musicians to refer to a group of instruments. The instrument class tandem interpretation can be used to identify explicitly the class of instrument employed.

SIGNIFIERS

The following table identifies six pre-defined instrument classes.

| *ICstr   | string instrument |
| *IConn   | woodwind instrument |
| *ICbras  | brass instrument |
| *ICklav  | keyboard instrument |
| *ICidio  | percussion instrument (idiophone) |
| *ICvox   | voice |

Summary of instrument class Signifiers

SEE ALSO

instrument (3)
REPRESENTATION

key — major/minor key designation

DESCRIPTION

For many tasks it is helpful to identify explicitly the prevailing key of a passage or work. The key tandem interpretation permits an explicit analytic judgement of key to be encoded in a Humdrum representation.

Key tandem interpretations consist of a single asterisk, followed by a single upper- or lower-case letter (A-G), followed by one or more sharps (#) or flats (‐), followed by a colon character. Upper-case letters are designate major keys whereas lower-case letters designate minor keys. (No other modes can be encoded using this tandem interpretation for key indications.) By way of example, the following tandem interpretation specifies the key of F-sharp minor:

*F#:

Successive key interpretations supercede one other. That is, if a key of C major is indicated, followed some measures later by a key of G major tandem interpretation, then the preceding C major designation is considered to be entirely superceded.

The key tandem interpretation also permits the explicit encoding of undefined or unknown keys (*?:) and key-less or atonal passages (*X:).

SIGNIFIERS

The following table summarizes the mappings of signifiers and signifieds for keys.

<table>
<thead>
<tr>
<th>A-G</th>
<th>major diatonic key signifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>a-g</td>
<td>minor diatonic key signifiers</td>
</tr>
<tr>
<td>#</td>
<td>sharp key signifier</td>
</tr>
<tr>
<td>–</td>
<td>flat key signifier</td>
</tr>
<tr>
<td>X</td>
<td>atonal key signifier</td>
</tr>
<tr>
<td>?</td>
<td>unknown key signifier</td>
</tr>
<tr>
<td>:</td>
<td>end of key interpretation delimiter</td>
</tr>
</tbody>
</table>

Summary of key Signifiers

EXAMPLES

Several examples of key indications are given below:
SEE ALSO

key signature (3)
key signature (3) * Humdrum Tandem Interpretations *

REPRESENTATION
key signature — key signature designation

DESCRIPTION
Key signatures indicate the prevailing arrangement of global accidentals throughout a musical passage. Two forms of key signature interpretations can be distinguished: *pitch-class* signatures in which the accidentals modify all pitches of a given pitch class, and *pitch-height* signatures in which the accidentals modify only certain pitches of a specific pitch height.

Key signature interpretations consist of a single asterisk, followed by either a single upper- or lower-case letter ‘K’, followed by an open square bracket, followed by a list of pitches, followed by a closed square bracket. Pitches listed within the square brackets indicate the modified pitches or pitch-classes. The lower-case *k* designates a (common) pitch-class key signature; The upper-case *K* designates a (rare) pitch-height key signature;

In a pitch-class key signature, the pitch list specifies the recipe of sharps, flats, and/or naturals given in the key signature. Diatonic pitch are identified by lower-case pitch letter names. Each pitch is followed by one or more sharps, or flats, or a natural. For example, the key signature for three sharps (F,C,G) would be: *k[f#c#g#]. The order of the accidentals within the accidental list corresponds to the order in which they would be printed in a visual rendering of the score. Double- and triple- sharps and flats are represented by repetition of the octothrope (#) or minus sign (-). It is possible to mix sharps and flats within a single signature, to encode unconventional orderings, and to encode precautionary key signatures (such as those consisting only of naturals). It is not permitted to mix sharps/flats/naturals for a single pitch.

In very rare cases, key signatures modify only those pitches at a specific pitch height. For example, it may be that a composer wishes only some B’s to be flat. These “pitch height” key signatures are designated by the upper-case key-letter ‘K’. The corresponding pitch list uses **pitch-like representations to identify the modified pitches. For example, the following key signature:

*K[B3-C4#F4#B4nE5-]*

specifies that B3 and E5 are lowered, and that C4 and F4 are raised. In addition, this key signature includes an explicit natural on B4 to remind readers that this pitch remains unaltered.
SIGNIFIERS

The following table summarizes the mappings of signifiers and signifieds for key signatures.

<table>
<thead>
<tr>
<th>Signifier</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>k</td>
<td>pitch-class signifier</td>
</tr>
<tr>
<td>K</td>
<td>pitch-height signifier</td>
</tr>
<tr>
<td>a-g</td>
<td>pitch signifiers (pitch-class key signatures only)</td>
</tr>
<tr>
<td>A-G</td>
<td>pitch signifiers (pitch-height key signatures only)</td>
</tr>
<tr>
<td>0-9</td>
<td>octave indicators (pitch-height key signatures only)</td>
</tr>
<tr>
<td>#</td>
<td>sharp signifier</td>
</tr>
<tr>
<td>##</td>
<td>double sharp</td>
</tr>
<tr>
<td>-</td>
<td>flat signifier</td>
</tr>
<tr>
<td>n</td>
<td>natural signifier</td>
</tr>
</tbody>
</table>

Summary of key signature Signifiers

EXAMPLES

Several examples of key signatures are given below:

*\[k[f#c#] \]  \ regular key signature containing F-sharp and C-sharp
*\[k[b-e-a-] \]  \ regular key signature containing three flats
*\[k[bnenan] \]  \ precaution key signature using naturals only
*\[k[] \]  \ key signature containing no sharps or flats
*\[k[b-e-f#] \]  \ mixed key signature containing both sharps and flats
*\[k[ff] \]  \ key signature containing a single double sharp
*\[k[c#f#] \]  \ key signature encoding an unorthodox ordering of sharps
*\[K[C#4B-4] \]  \ pitch-height key signature identify C4 and B4 as modified
*\[K[C#5B-5] \]  \ pitch-height key signature identify C5 and B5 as modified

Examples of key signature Interpretations

SEE ALSO

key (3)
**language** (3) * Humdrum Tandem Interpretations *

**REPRESENTATION**

**language** — language designation

**DESCRIPTION**

The **language** tandem interpretation permits the identification of the language for a given textual or phonetic Humdrum representation.

Language tandem interpretations consist of a single asterisk, followed by the upper-case letter L, followed by a language keyword designator. Several pre-defined language tandem interpretations are illustrated in below.

**SIGNIFIERS**

The following table summarizes the mappings of signifiers and signifieds for language designations.

<table>
<thead>
<tr>
<th>A-Z</th>
<th>upper-case Roman letters</th>
</tr>
</thead>
<tbody>
<tr>
<td>a-z</td>
<td>lower-case Roman letters</td>
</tr>
</tbody>
</table>

**Summary of language Signifiers**

**EXAMPLES**

Examples of pre-defined language designations are given below:

- Bengali: *LBengali
- Croatian: *LHrvatski
- Czech: *LCecha
- Danish: *LDansk
- Dutch: *LNederlands
- English: *LEnglish
- Finnish: *LSuomi
- French: *LFrancais
- German: *LDeutsch
- Hindi: *LHindi
- Italian: *LItaliano
- Japanese: *LNihongo
- Latin: *LLatin
- Mandarin: *LPinyin
- Norwegian: *LNorsk
SEE ALSO

**IPA (2), **text (2)
**meter signatures** (3) * Humdrum Tandem Interpretations *

---

**REPRESENTATION**

meter signatures — meter signature designation

**DESCRIPTION**

The **meter signature** tandem interpretation permits the encoding of meter signatures for a Humdrum representation.

Meter signature tandem interpretations consist of a single asterisk, followed by the upper-case letter M, followed by a meter indication. Meter indications consist of a top ("numerator") portion and a bottom ("denominator") portion. These portions are separated by a slash character (/). The numerator portion of the meter signature must be an integer value (greater than zero) — with no fractional part. The numerator may be split into two or more integers separated by the plus sign (+) in order to specify the grouping of beats within the measure. The denominator portion must be conform to **recip** duration designations (8=eighth, 2=dotted half, 0=breve, 6=eighth note triplet, etc.). Sample meter signatures are shown in the following table:

<table>
<thead>
<tr>
<th>Meter Signature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>*M2/4</td>
<td>simple duple (quarter duration)</td>
</tr>
<tr>
<td>*M3/2</td>
<td>simple triple (half duration)</td>
</tr>
<tr>
<td>*M4/0</td>
<td>simple quadruple (breve duration)</td>
</tr>
<tr>
<td>*M6/8</td>
<td>compound duple (six-eight meter)</td>
</tr>
<tr>
<td>*M2/4</td>
<td>compound duple (dotted quarter beat)</td>
</tr>
<tr>
<td>*M9/16</td>
<td>compound triple (nine-sixteen)</td>
</tr>
<tr>
<td>*M12/4</td>
<td>compound quadruple (twelve-four)</td>
</tr>
<tr>
<td>*M4/2</td>
<td>compound quadruple (dotted half beat)</td>
</tr>
<tr>
<td>*M5/4</td>
<td>irregular quintuple (quarter duration)</td>
</tr>
<tr>
<td>*M3+2/4</td>
<td>irregular quintuple (three plus two beats)</td>
</tr>
<tr>
<td>*M2+2+3/8</td>
<td>irregular septuple (two plus two plus three beats)</td>
</tr>
<tr>
<td>*M3+3+2/8</td>
<td>irregular octuple (three plus three plus two)</td>
</tr>
<tr>
<td>*M19/6</td>
<td>nineteen eighth-duration triplets per measure</td>
</tr>
<tr>
<td>*M21/8 ..</td>
<td>twenty-one doubly-dotted eighths per measure</td>
</tr>
<tr>
<td>*M?</td>
<td>meter unknown</td>
</tr>
<tr>
<td>*MX</td>
<td>ametric passage (no meter)</td>
</tr>
</tbody>
</table>

*Examples of meter signature interpretations.*

Note that it is possible to represent *ametric* passages (*MX) and passages with *unknown* meters (*M?*). These representations are useful, for example, when encoding Gregorian chant or African and other non-western rhythms.

Occasionally, musical scores will contain an alternating pair of meters (such as 3/4, 6/8, 3/4, 6/8, etc.). Such alternating meters are often represented in printed scores by a single meter signature — such as 3/4 (6/8). The meter signature tandem interpretation does
not cater to such shorthands since the representation is intended to be local in its effect. This means that each change of meter must be labelled individually.

**SIGNIFIERS**

The following table summarizes the mappings of signifiers and signifieds for meter signatures.

<table>
<thead>
<tr>
<th>Signifier</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–9</td>
<td>number signifiers</td>
</tr>
<tr>
<td>.</td>
<td>augmentation dot</td>
</tr>
<tr>
<td>/</td>
<td>numerator-denominator delimiter</td>
</tr>
<tr>
<td>M</td>
<td>meter signature keyword letter</td>
</tr>
<tr>
<td>X</td>
<td>ametric indicator</td>
</tr>
<tr>
<td>?</td>
<td>unknown meter indicator</td>
</tr>
<tr>
<td>+</td>
<td>grouping indicator (numerator only)</td>
</tr>
</tbody>
</table>

*Summary of meter signature Signifiers*

**SEE ALSO**

$key signature (3)$, $metpos (3)$, $metpos (4)$, $timebase (3)$, $timebase (4)$
MIDI channel (3)  * Humdrum Tandem Interpretations  *

REPRESENTATION

MIDI channel — MIDI channel designation

DESCRIPTION

The **MIDI channel** tandem interpretation permits the encoding of notated MIDI channel for a Humdrum representation.

MIDI channel tandem interpretations consist of a single asterisk, followed by the keyword `Ch`, followed by an integer indicating the channel number.

SIGNIFIERS

The following table summarizes the mappings of signifiers and signifieds for MIDI channel indicators.

<table>
<thead>
<tr>
<th>0-9</th>
<th>integer numbers representing the channel</th>
</tr>
</thead>
</table>

*Summary of MIDI channel Signifiers*

EXAMPLES

Several examples of MIDI channel indications are given below:

<table>
<thead>
<tr>
<th>*Ch4</th>
<th>MIDI channel 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Ch1</td>
<td>MIDI channel 1</td>
</tr>
</tbody>
</table>

*Examples of MIDI channel Interpretations*

SEE ALSO

**MIDI (2), midi (4), perform (4), smf (4)**
**HUMDRUM TANDEM INTERPRETATIONS**

**OVERLAY/UNDERLAY**

**REPRESENTATION**

**overlay/underlay** — overlay/underlay designation

**DESCRIPTION**

The **overlay/underlay** tandem interpretations are used to indicate whether the information encoded in a given spine is printed above (overlay) or below (underlay) a given staff.

Overlay and underlay tandem interpretations consist of a single asterisk, followed by either the keyword **ueber** or **unter** respectively. Following one of these keywords is a staff number — where staff number 1 corresponds to the first staff at the top of the system. There may follow optional positioning information; this information consists of a number preceded by a colon, and followed by a unit indication. The letter 'c' indicates centimeters, the letter 'p' indicates points, the letter 'i' indicates inches, and the percent sign indicates spacing as a percentage of the staff width.

**EXAMPLES**

Several examples of overlay and underlay indications are given below:

<table>
<thead>
<tr>
<th>Example</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>*ueber3:1i</td>
<td>overlay positioned 1 inch above the center of the third staff in the system</td>
</tr>
<tr>
<td>*ueber8:3.4c</td>
<td>overlay positioned 3.4 cm above the center of the eighths staff in the system</td>
</tr>
<tr>
<td>*unter1:82p</td>
<td>overlay positioned 82 points above the center of the first staff in the system</td>
</tr>
<tr>
<td>*unter2:50%</td>
<td>overlay positioned 50 percent of the staff width above the center of the first staff in the system</td>
</tr>
</tbody>
</table>

*Examples of **overlay/underlay** TANDEM Interpretations*

**SEE ALSO**

staff (3), staff lining (3), **text** (2)
REPRESENTATION

section labels — section label designations

DESCRIPTION

Section labels are tandem interpretation that are used to identify segments or sections of some Humdrum representation. Section labels are useful for identifying logical divisions or passages, such as expositions, codas, second endings, rehearsal segments, etc. Section labels provide useful markers for extracting passages using the Humdrum yank command. Section labels are also used in conjunction with Humdrum expansion lists to permit the encoding of "abbreviated format" files. (See the thru (4) command.)

Section labels consist of a single asterisk, followed by the greater-than sign (>), followed by a keyword (or label) that names the section. Note that labels may contain spaces, hence *\textgreater{}1st end\textgreater{}ing is a legitimate section label. In abbreviated format files, each section must be designated by a unique name.

Humdrum sections formally begin with a section label. Sections end when either another section label is encountered, or when all spines are assigned new exclusive interpretations, or when all spines terminate. Sections cannot be nested. Whenever a section label is encoded, the identical label must be repeated across all concurrent spines. That is, all tokens in any given data record must belong to the same section — without regard for the spines.

SIGNIFIERS

Section labels may contain any sequence of the following ASCII characters: the upper- or lower-case letters \texttt{a-z}, the numbers 0 to 9, the underscore (_), dash (–), period (.), plus sign (+), octothorpe (#), tilde (⁻), at-sign (@), or space. All other characters are forbidden.

EXAMPLES

Several examples of section labels indications are given below:

```
*\textgreater{}CODA  
*\textgreater{}refrain  
*\textgreater{}Dal Segno  
*\textgreater{}Verse #3  
*\textgreater{}Rehearsal Marking J  
*\textgreater{}E
```

Examples of section label Interpretations
SEE ALSO

expansion lists (3), thru (3), thru (4), yank (4)
**spine paths** (3)  * Humdrum Tandem Interpretations  *

---

**REPRESENTATION**

*spine paths* — spine path indicators

**DESCRIPTION**

*Spine path indicators* are special types of tandem interpretations that permit the encoding of potentially complex spine-path changes in a Humdrum representation.

Humdrum spines may be terminated, added, split, joined, or exchanged. Spine-path indicators consist of a single asterisk, followed by one of five key-letters: the plus sign, the minus sign, the carret, the lower-case letter ‘v’, or the lower-case letter ‘x’.

Note that spine-path indicators cannot appear on the same line with non-spine-path interpretations — such as key signatures or clefs. That is, spine-path indicators cannot be mixed with other tandem or exclusive interpretations on the same records. Several spine-path indicators may share the same record, however.

**SIGNIFIERS**

The following table identifies all five spine path indicators.

```

<table>
<thead>
<tr>
<th>Sign</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>*+</td>
<td>add a new spine</td>
</tr>
<tr>
<td>*-</td>
<td>terminate a current spine</td>
</tr>
<tr>
<td>*^</td>
<td>split a spine (into two)</td>
</tr>
<tr>
<td>*v</td>
<td>join (two or more) spines into one</td>
</tr>
<tr>
<td>*x</td>
<td>exchange the position of two spines</td>
</tr>
</tbody>
</table>

Summary of spine paths Signifiers
```

**EXAMPLES**

A number of examples of the use of spine path indicators are given in the discussion entitled “Spine Paths” in Section 1 of this manual.

**SEE ALSO**

humdrum (4)
REPRESENTATION

staff — staff designation

DESCRIPTION

The staff tandem interpretation can be used to assign a given spine to a particular staff within a system.

Staff tandem interpretations consist of a single asterisk, followed by the keyword staff, followed by an integer identifying a staff, where staff1 corresponds to the first staff at the top of the system. See EXAMPLES below.

SIGNIFIERS

The following table summarizes the mappings of signifiers and signifieds for staff.

<table>
<thead>
<tr>
<th>staff</th>
<th>staff lining keyword</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9</td>
<td>numbers</td>
</tr>
</tbody>
</table>

Summary of staff Signifiers

EXAMPLES

Several examples of staff indications are given below:

*staff1  top-most staff in the system
*staff12  twelfth staff from the top of the system
*staff0   no meaning

Examples of staff Interpretations

SEE ALSO

staff lining (3)
REPRESENTATION

staff lining — staff lining designation

DESCRIPTION

The staff lining tandem interpretation permits the detailed encoding of the number of lines in a staff, and also whether individual lines are dotted, colored, or invisible.

Staff lining tandem interpretations consist of a single asterisk, followed by a keyword consisting of the vertical bar followed by a period (i.e. ‘* | .’), followed by one or more signifiers characterizing successive lines beginning at the bottom of the staff. See EXAMPLES below.

SIGNIFIERS

The following table summarizes the mappings of signifiers and signifieds for staff lining.

| . | staff lining keyword   
| | black line indicator   
| : | dotted line indicator  
| R | ruber, red line        
| V | viridis, green line    
| C | caeruleus, blue line   
| X | invisible line         
| 0 | (zero) no staff lines indicator |

Summary of staff lining Signifiers

EXAMPLES

Several examples of staff lining indications are given below:

*1.11111 five-line staff
*1.111 four-line staff
*1.1 single-line staff
*1.0 no staff lines
*1.1X three-line staff with middle line invisible
*1.1|R four-line staff with the third line colored red

Examples of staff lining Interpretations

SEE ALSO

clef (3), staff (3)
REPRESNTATION

strope — strophic passage designators

DESCRIPTION

The strophe tandem interpretations are used to encode alternative parallel paths of sequential information. Strophic representations are useful for such tasks as representing texts for different verses of a song, or for indicating alternative interpretations of a sequence of notes — such as ossia passages.

Strophic passages begin from a single spine that splits into several "alternative" spines — which later rejoin to form a single spine again. Four different tandem interpretations are involved in the encoding of strophic passages. These include the strophic passage initiator, the strophic passage terminator, the strophe labels, and the strophe end indicators.

Each strophic passage begins with a strophic passage initiator. This consists simply of a single asterisk followed by the keyword "strophe" (i.e. *strope). This tandem interpretation marks a single spine that is about to be split into alternative parallel paths. When the alternative spines are ultimately rejoined, a strophic passage terminator marks the end of the strophic passage. This terminator consists simply of a single asterisk followed by the upper-case letter 'S', followed by a minus sign (i.e. *S-).

Following a strophic passage initiator, the spine is split into the required number of alternative spines using the Humdrum split interpretation (see spine paths). Each spine is then identified using a strophe label. Strophe labels are tandem interpretations that begin with a single asterisk, followed by the upper-case letter 'S', followed by a slash (/), followed by a unique name consisting of numbers and/or alphabetic letters. For example, where a composer has notated an alternative way of performing a passage ("ossia"), two strophe labels may be defined:

*S/sic *S/ossia

If the strophic data imply some sort of order (such as verses in a song), simple numerical labels should be used:

*S/1 *S/2 *S/3 *S/4

The use of numbers is important when the file is expanded using the thru and strophe commands.

Following the strophic data records, each strophic spine is ended using the strophe end indicator. This tandem interpretation consists of an asterisk, followed by the upper-case letter 'S', followed by a slash, followed by the keyword 'fin' (i.e. *S/fin).
strophe (3) * Humdrum Tandem Interpretations *

SIGNIFIERS

The following table summarizes the four types of tandem interpretations used for strophic passages.

<table>
<thead>
<tr>
<th>Signifier</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>*strophe</td>
<td>strophic passage initiator</td>
</tr>
<tr>
<td>*S/n.n</td>
<td>numerical strophe label</td>
</tr>
<tr>
<td>*S/name</td>
<td>named strophe label</td>
</tr>
<tr>
<td>*S/fin</td>
<td>strophe end indicator</td>
</tr>
<tr>
<td>*S-</td>
<td>strophic passage terminator</td>
</tr>
</tbody>
</table>

Summary of strophe Tandem Interpretations

EXAMPLES

For examples of strophic passages, see the strophe command description in Section 4 of this manual.

SEE ALSO

expansion lists (3), strophe (4)
REPRESENTATION

\textbf{tempo} — tempo designation

DESCRIPTION

The \textbf{tempo} tandem interpretation permits the encoding of gross overall tempo for a Humdrum representation.

Tempo tandem interpretations consist of a single asterisk, followed by the keyword \texttt{MM}, followed by one of four possible types of tempo indications. Tempo indications may consist of a single real or integer value specifying the number of quarter-durations per minute, such as \texttt{*MM96}. Alternatively, tempo \textit{ranges} may be encoded by interposing a hyphen between two numerical values, such as \texttt{*MM55.5-56.3}. Once again, the numerical values pertain to the number of quarter-durations per minute. Instead of numerical specifications, conventional Italian tempo terms may be encoded in square brackets, such as \texttt{*MM[ Presto]}. Finally, an "unknown tempo" can be explicitly represented by the presence of a question mark, i.e. \texttt{*MM?}. (See EXAMPLES below.)

SIGNIFIERS

The following table summarizes the mappings of signifiers and signifieds for tempo.

<table>
<thead>
<tr>
<th>\texttt{MM}</th>
<th>tempo keyword</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9</td>
<td>numbers</td>
</tr>
<tr>
<td>.</td>
<td>decimal point</td>
</tr>
<tr>
<td>-</td>
<td>range signifier</td>
</tr>
<tr>
<td>[ ]</td>
<td>tempo-term delineators</td>
</tr>
<tr>
<td>\texttt{a-Z}</td>
<td>tempo-term characters</td>
</tr>
<tr>
<td>\texttt{a-z}</td>
<td>tempo-term characters</td>
</tr>
<tr>
<td>\texttt{&lt;space&gt;}</td>
<td>tempo-term space</td>
</tr>
</tbody>
</table>

Summary of \textbf{tempo} Signifiers

EXAMPLES

Several examples of tempo indications are given below:
**tempo** (3) *Humdrum Tandem Interpretations*

<table>
<thead>
<tr>
<th>Example</th>
<th>Tempo Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>*MM60</td>
<td>tempo of 60 quarter-durations per minute</td>
</tr>
<tr>
<td>*MM60.</td>
<td>tempo of 60 quarter-durations per minute</td>
</tr>
<tr>
<td>*MM60.0</td>
<td>tempo of 60 quarter-durations per minute</td>
</tr>
<tr>
<td>*MM96.3</td>
<td>tempo of 96.3 quarter-durations per minute</td>
</tr>
<tr>
<td>*MM72-78</td>
<td>tempo range between 72 and 78 quarter-durations per minute</td>
</tr>
<tr>
<td>*MM51.2-51.4</td>
<td>tempo range between 51.2 and 51.4 quarter-durations per minute</td>
</tr>
<tr>
<td>*MM[Largo]</td>
<td>tempo Largo</td>
</tr>
<tr>
<td>*MM[Allegro molto]</td>
<td>Allegro molto tempo</td>
</tr>
<tr>
<td>*MM?</td>
<td>unknown tempo</td>
</tr>
</tbody>
</table>

*Examples of tempo Interpretations*

**SEE ALSO**

- midi (4), perform (4)
REPRESENTATION

thru — through-composed format designation

DESCRIPTION

The thru tandem interpretation identifies a given Humdrum representation as being in a through-composed format.

Musical scores are often notated to take advantage of repetitions in the music. Notational devices such as repeat marks and Da Capos can be encoded using Humdrum section labels and expansion lists; the resulting succinct representations are called abbreviated format files.

Abbreviated formats are implicitly indicated by the presence of an expansion list encoded prior to any data records. When an abbreviated format file is expanded using the thru command, any expansion lists present in the input are discarded. The presence of a *thru tandem interpretation in a file (prior to any data) explicitly identifies the file as being in a through-composed format rather than abbreviated format.

SIGNIFIERS

The *thru tandem interpretations consist simply of a single asterisk, followed by the keyword thru.

SEE ALSO

expansion lists (3), section labels (3), thru (4)
**timebase** (3)  *  Hymn Tandem Interpretations  *

---

**REPRESENTATION**

**timebase** — timebase designation

**DESCRIPTION**

The **timebase** tandem interpretation permits the encoding of notated timebase for a Hymn Tandum representation.

Timebase tandem interpretations consist of a single asterisk, followed by the keyword **tb**, followed by a **recip-like** encoded duration. Durations consist of a single integer followed by zero or more periods (representing augmentation dots).

**SIGNIFIERS**

The following table summarizes the mappings of signifiers and signifieds for timebase.

<table>
<thead>
<tr>
<th>Signifier</th>
<th>Signified</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>tb</strong></td>
<td>timebase keyword</td>
</tr>
<tr>
<td>0-9</td>
<td><strong>recip-like</strong> durations</td>
</tr>
<tr>
<td>.</td>
<td>augmentation dot</td>
</tr>
</tbody>
</table>

*Summary of timebase Signifiers*

**EXAMPLES**

Several examples of timebase indications are given below:

* **tb32**  thirty-second note timebase
  * **tb8**  dotted eighth note timebase

*Examples of timebase Interpretations*

**SEE ALSO**

assemble (4)
REPRESENTATION

**transposition** — transposition designation

DESCRIPTION

The **transposition** tandem interpretation permits the encoding of transposition information for a given pitch-related spine.

Transpositions can be characterized by the diatonic letter name shift, and the chromatic semitone shift. For example, transposing a pitch from C to D may be regarded as a diatonic letter name shift of up 1, as well as a chromatic semitone shift up 2. By contrast, a transposition from C to C double-sharp may be characterized as a diatonic letter name shift of 0, as well as a chromatic semitone shift up 2.

Transposition tandem interpretations consist of a single asterisk, followed by either the keyword **Tr** or **ITr**, followed by the lower-case letter ‘d’, followed by a signed integer, followed by the lower-case letter ‘c’, followed by another signed integer. The first integer indicates the diatonic letter name shift, while the second integer indicates the chromatic semitone shift. The keyword **Tr** indicates a transposition; the keyword **ITr** indicates a transposing instrument.

EXAMPLES

Several examples of transposition interpretations are given below:

<table>
<thead>
<tr>
<th>Interpretation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Trd1c2</td>
<td>encoded data is transposed up 1 diatonic letter name; up 2 semitones</td>
</tr>
<tr>
<td>*Trd-1c-2</td>
<td>encoded data is transposed down 1 diatonic letter name; down 2 semitones</td>
</tr>
<tr>
<td>*Trd0c1</td>
<td>encoded data is transposed up 1 semitones; same diatonic letter names</td>
</tr>
<tr>
<td>*Trd0c-1</td>
<td>encoded data is transposed down 1 semitones; same diatonic letter names</td>
</tr>
<tr>
<td>*ITrd-1c-2</td>
<td>transposing instrument; encoded data is at concert pitch; original score was <strong>notated</strong> up 1 diatonic letter name; up 2 semitones</td>
</tr>
</tbody>
</table>

*Examples of transposition Interpretations*

SEE ALSO

**kern** (2), **key** (3), **key signature** (3), **trans** (4),