

REPRESENTATION

****URrhythm** — represent Johnson-Laird beat prototypes for a passage

DESCRIPTION

The ****URrhythm** representation encodes beat “prototypes” (Ur-rhythms) evident in a musical passage. The representation is based on Johnson-Laird’s theory of rhythmic prototypes (see REFERENCES below).

The ****URrhythm** representation characterizes each beat in a passage as belonging to one of three “beat types”: *Note* (N), *Syncopation* (S), or *Other* (O). Only principle beats are characterized in this way. Hence, in 3/4 or 9/8 meters, three beats are characterized for each complete measure. Similarly, in 4/2 and 12/16, four beats are characterized for each complete measure. Johnson-Laird’s rhythmic-prototype theory can be applied only to musical passages conforming to regular meters (simple and compound, duple, triple and quadruple).

A “Note” (signified in the output by the letter ‘N’) is defined as a beat that coincides with a note onset.

A metric “Syncopation” (signified by the letter ‘S’) is defined as arising when no note-onset happens on a beat whose metric position is more important than that of the most recent note onset. By way of example, imagine a measure in 4/4 meter containing a quarter-note, followed by a half-note, followed by a quarter-note. The third beat position does not coincide with a note onset. The most recent note onset prior to the third beat occurs on beat two. Since beat three is a more important metric position than beat two, beat three is deemed to be syncopated.

Metrically syncopated beats can happen only after the first note onset; subsequent syncopated moments require another note onset (i.e. two syncopated moments can’t occur in a row without some note onset intervening).

An “Other” (signified by the letter ‘O’) is any beat that is not a Note (N) or a syncopation (S).

Barlines are represented using the “common system” for barlines — see **barlines (2)**.

FILE TYPE

It is recommended that files containing predominantly ****URrhythm** data should be given names with the distinguishing ‘.urr’ extension.

SIGNIFIERS

The following table summarizes the ****URrhythm** mappings of signifiers and signifieds.

N	“note” beat prototype
O	“other” beat prototype
S	“syncopation” beat prototype
.	null token
=	barline; == double barline
0-9	measure numbers

*Summary of ****URrhythm** Signifiers*

EXAMPLES

A sample document is given below:

**URrhythm
*M4/4
*tb8
N
.
N
.
S
.
=1
N
.
O
.
S
.
O
.
=2
S
.
S
.
O
.
N
.
*_

PERTINENT COMMANDS

The following Humdrum command produces ****URrhythm** data as output:

urrhythm characterize the rhythmic prototypes in a passage

TANDEM INTERPRETATIONS

The following tandem interpretations can be used in conjunction with ****URrhythm**:

meter signatures	*M6/8
tempo	*MM96.3
timebase	*tb32

*Tandem interpretations for ****URrhythm***

SEE ALSO

barlines (2), ****metpos** (2), **metpos** (4), **urrhythm** (4), ****synco** (2), **synco** (4), ****timebase** (2)

REFERENCES

Philip Johnson-Laird, "Rhythm and meter: A theory at the computational level," *Psychomusicology*, Vol. 10 (1991) pp. 88-106.

Jasba Simpson & David Huron, "The perception of rhythmic similarity: A test of a modified version of Johnson-Laird's theory," *Canadian Acoustics*, Vol. 21, No. 3 (1993) pp. 89-90.