

Humdrum

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What is Humdrum?

- General-purpose software system to assist music research
- Allows researchers to encode, manipulate, and output a wide variety of musically-pertinent representations.
- The emphasis is on posing and answering questions about music

What Humdrum is NOT?

- MIDI Sequencer
- Music printing package
- Computer sound synthesis language

Some Examples might help to understand

Allows users to pose and answer question like the following:

- In Urdu folk songs, how common is the so-called "melodic arch" ?
- Which of the Brandenburg Concertos contains the B-A-C-H motif?
- What are the most common fret-board patterns in guitar riffs by Jimi Hendrix?
- Did George Gershwin tend to use more syncopation in his later works?
- etc

Humdrum Consists of 2 parts

■ **Humdrum Syntax**

- A grammar for representing sequential symbolic information using ASCII (text) data
- An endless number of representation schemes can be defined.
Such as:
 - Square notation
 - Schenkerian graphs
 - Piano fingerings
 - Changes of emotional states
 - MIDI data, acoustic spectra
 - North Indian tabla bols
 - Ballet steps
 - Concurrent television schedules
 - Industrial chemical processes

Humdrum Consists of 2 parts Continued...

■ **Humdrum Toolkit**

- A set of more than 70 inter-related software tools
- Manipulate ASCII (text) data that conforms to the Humdrum Syntax

Humdrum Toolkit

All tools could be approximately grouped into following 16 operations:

- Visual display
- Aural display
- Searching
- Counting
- Editing
- Editorializing
- Transforming or translating between representations
- Arithmetic transformations of representations
- Extracting or selecting information
- Linking or joining information
- Generating inventories
- Classifying
- Labelling
- Comparison
- Capturing Data
- Trouble-shooting

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Visual display. E.g., display a score beginning at measure 128; output the libretto from Act II, Scene 5; print the string parts for the Coda -- including the Roman numeral harmonic analysis.

Aural display. E.g., play the bass trombone part slowly beginning at measure 70; play just the opening two measures from all of the works in a given repertory.

Searching. E.g., search for instances of a motive; locate any deceptive cadences; find all of the works that are composed for a given combination of traditional Japanese instruments.

Counting. E.g., how often do augmented intervals occur in Hungarian folk songs? What proportion of phrases do not begin with a pick-up or anacrusis?

Editing. E.g., change all up-stems to down-stems in measure 88 of the second horn part.

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Editorializing. E.g., add an editorial footnote to a specified note; indicate that a passage differs from the composer's autograph.

Transforming or translating between representations. E.g., transpose from one key to another; calculate the harmonic intervals between two parts; represent a score according to scale-degrees; reconstitute chords so they are represented in set *normal form*.

Arithmetic transformations of representations. E.g., calculate the semitone spacings between successive notes, or determine points where parts cross in pitch.

Extracting or selecting information. E.g., extract the second verse; exclude the development section; isolate the third phrase; grab the second chord in each measure; select the brass parts; take the second endings when repeating the trio; choose the Dresden manuscript version.

Linking or joining information. E.g., assemble instrumental parts into a full score; tag notes with their harmonic function; coordinate heart-rate data from a listener with the musical score.

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Generating inventories. E.g., list all the types of embellishment (non-chordal) tones from the most common to the least common; what chord functions are absent from a work?

Classifying. E.g., classify all chords as "open" or "closed" position; identify all secondary dominants; classify all intervals as either unisons, steps or leaps; classify various piano fingerings as either easy, moderate, difficult, or impossible.

Labelling. E.g., mark musical sections; label themes; identify French, Italian and German sixth chords; mark appropriate words in a vocal text as either "passionate," "apathetic," or "neutral." Mark sonorities as falling on either strong or weak metric positions.

Comparison. E.g., determine whether the Amsterdam and Manchester manuscripts for a work have identical pitches in the third movement; determine whether motets by John Dunstable are more similar to motets by Thomas Morley or by Lionel Power.

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Capturing Data. E.g., import live or recorded MIDI data; import data from a notation program.

Trouble-shooting. E.g., identify any transgressions of notational conventions; check whether a score has been tampered with; get help when you're stuck

Representing Music in Humdrum

****Kern is one of the many ways:**

-We will focus on ****kern**

-Can be used to represent basic or core information for period-of-common-practice Western music

- Allows the encoding of pitch and duration, as well as accidentals, articulation, ornamentation, ties, slurs, phrasing, glissandi, barlines, stem-direction and beaming.

- Intended to represent the underlying *functional* information conveyed by a musical score rather than the visual or *orthographic*

Examples of a **Kern

Moderato (♩)

M6/8 B♭ F/♭5 E♭/♭5 F/♭5 B♭ F/♭5 B♭ B♭au4

Where in the world have you been hid-ing? Real-ly, you were per-fect _____

**kern	**kern	**kern	**kern	**kern
*staff3	*staff2	*staff2	*staff2	*staff1
*clefF4	*clefG2	*clefG2	*clefG2	*clefG2
*k[b-e-]	*k[b-e-]	*k[b-e-]	*k[b-e-]	*k[b-e-]
*M6/8	*M6/8	*M6/8	*M6/8	*M6/8
4.BB-/	1rr	4f\	(8.dd/	8.dd\
.	.	.	16cc/	16cc\
.	.	.	8b-y)	8b-\
4.BB-/	.	4.f\	(4cc/	4cc\
.	.	.	8a/)	8a/
=1	=1	=1	=1	=1
4.BB-/	1rr	4.e-\	(4g/	4g/
.	.	.	8cc/)	8cc\
4.BB-/	.	4.c\	(8a/	8a/
.	.	.	4f/)	4f/
=2	=2	=2	=2	=2

Criticism

-????
 -????
 -????