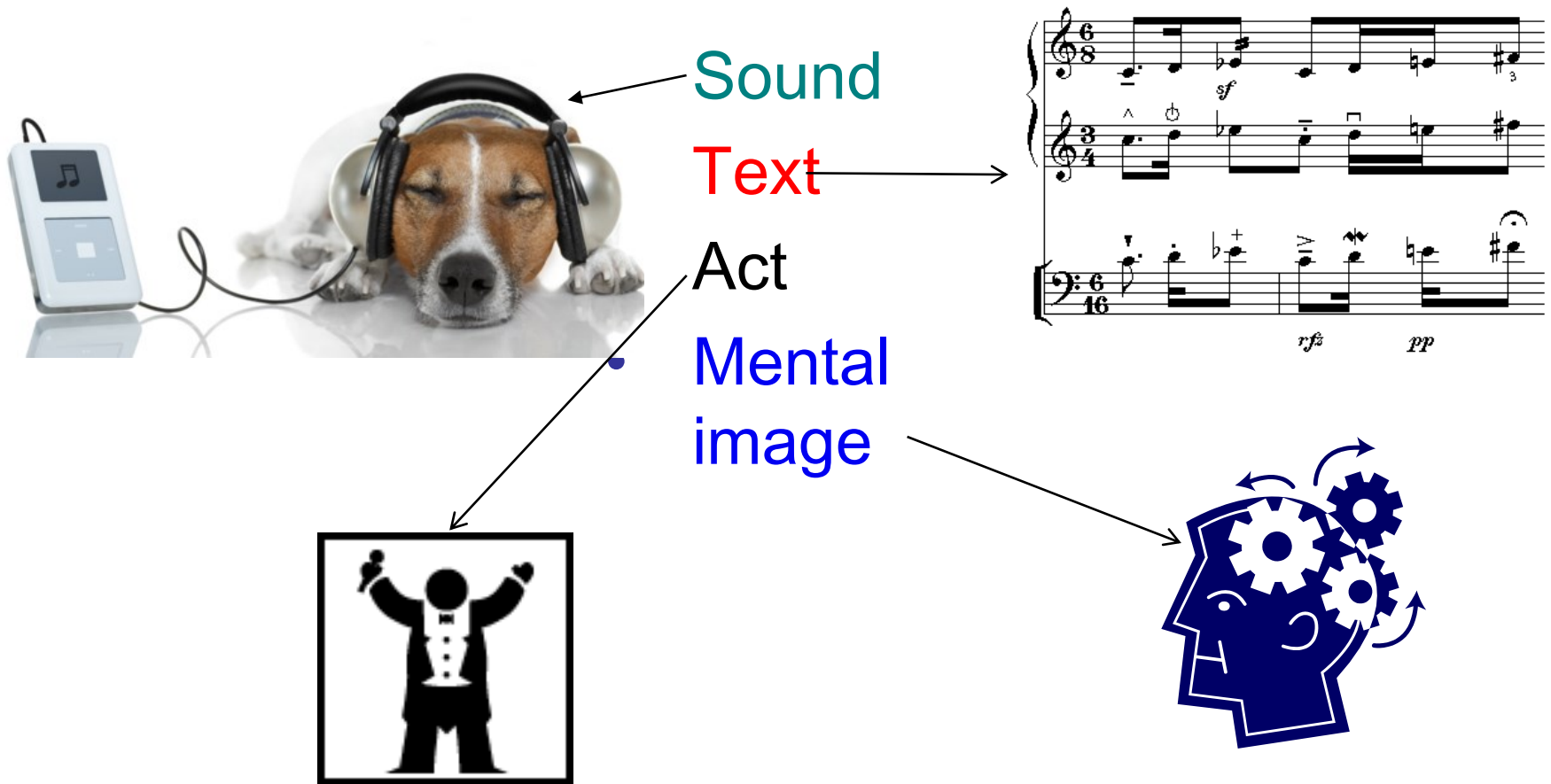


What is musical information?

Music 253/CS 275A

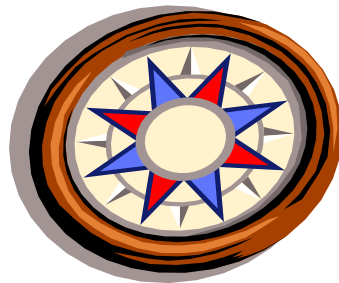
Stanford University

1. What is the basic essence of music?

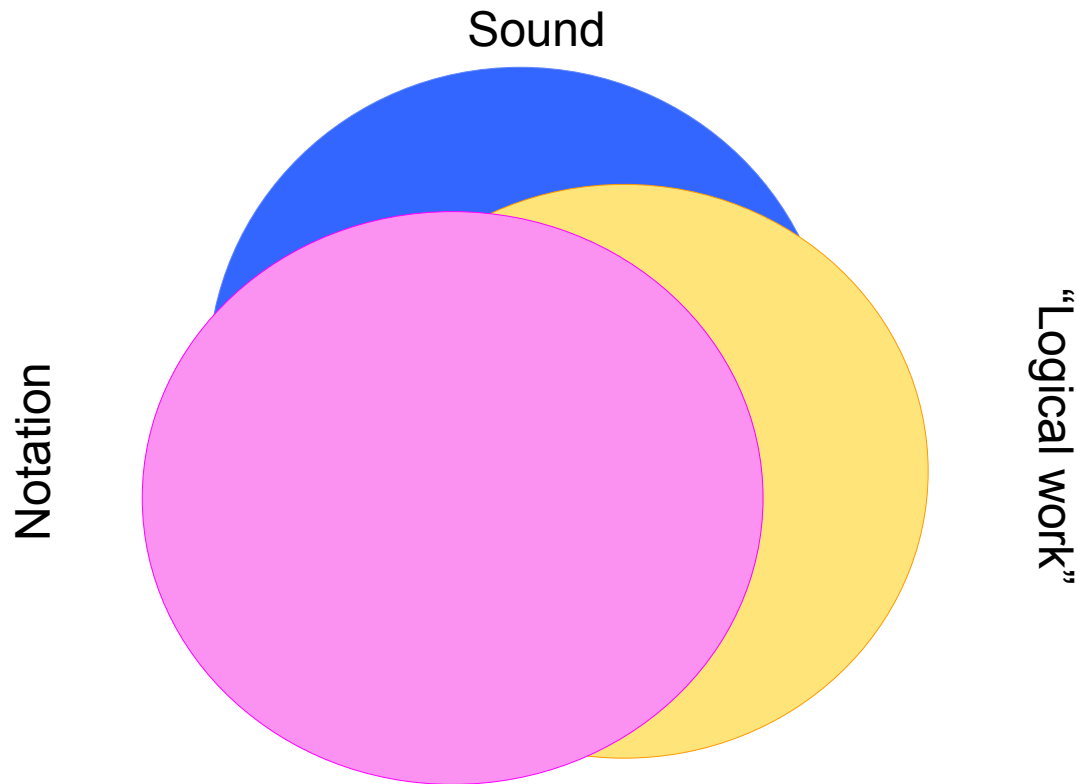


What is music representation?

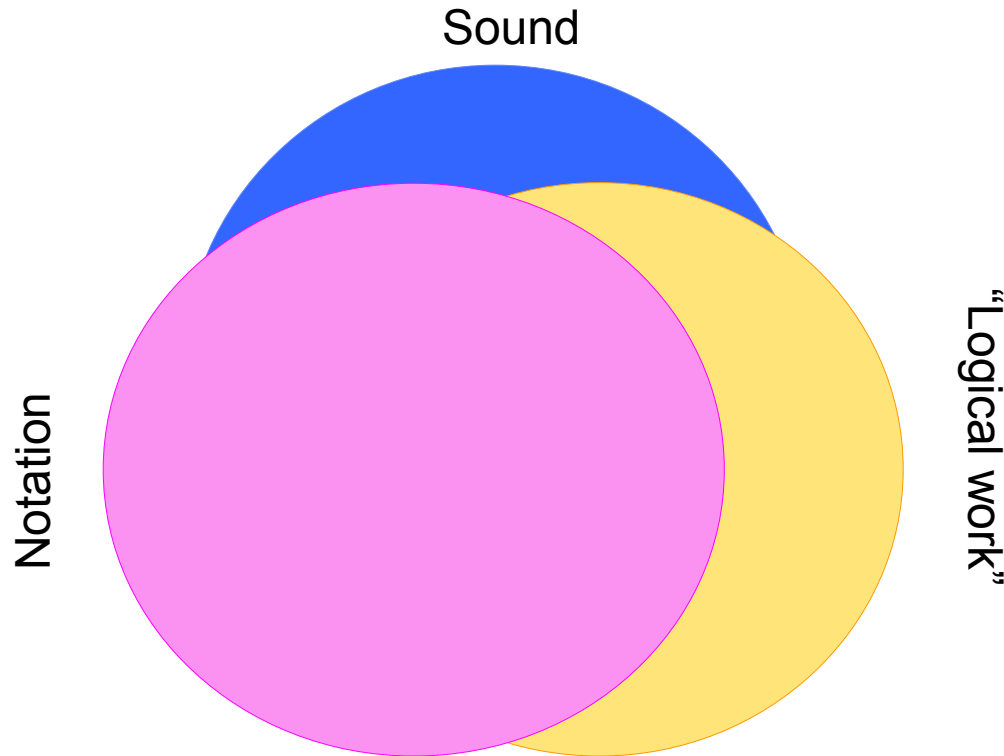
- *Sound*: parameterization of sound qualities
- *Text*: symbolic representation of scores
- *Act*: symbolic representation of gestures
- *Mental image*: rules, principles, perceptions



2. Domains of information



2. Domains of musical information

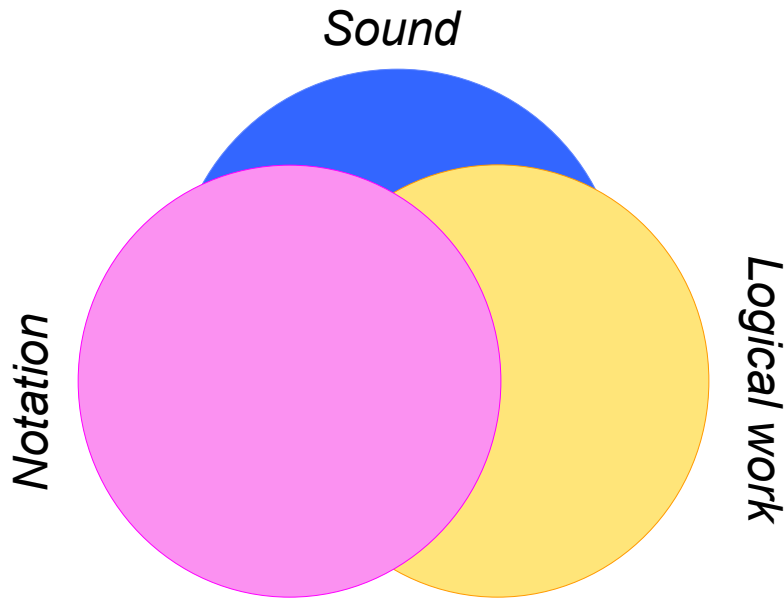


- No ASCII code for music
- Some parametric ideas common to all domains
- Logical = perceptual??

Musical information confounds

Virtual symbolic content:

- Pure graphics
- Pure sound



Sign vs. sound (semiotics)

rsp domain-specific features

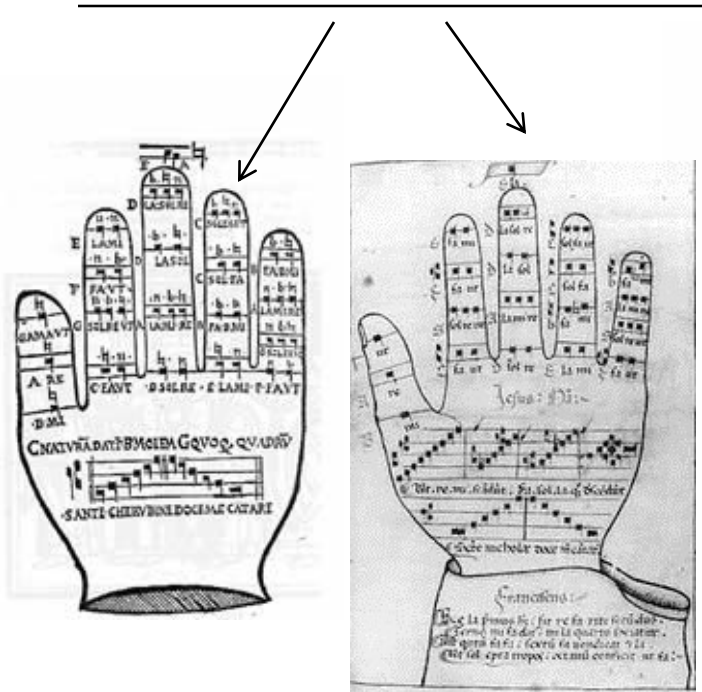
A musical score for piano, showing two systems of music. The first system is marked with a tempo of quarter note = 120. The score includes various musical notations such as notes, rests, and dynamics. Several sections of the score are highlighted with light blue boxes, including a measure in the first system and a large section in the second system.

3. Software used in the course

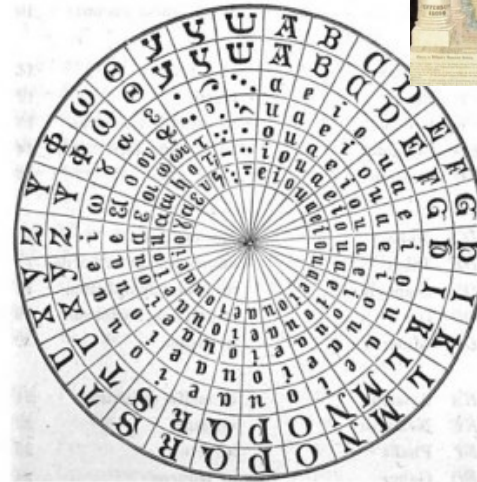
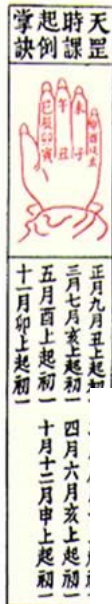
- *Sound-based: MIDI**
- *Text-based: Guido*, Finale, SCORE, Sibelius, abcplus*
- *Logical/analysis-friendly: Humdrum** [spring quarter]
- *Data and data interchange: MuseData, MusicXML*, MEI**

The image shows a screenshot of a music notation software interface. On the left, there is a complex interface with various icons and text labels, likely representing a MIDI piano roll or a detailed notation editor. On the right, there is a musical score for a piano piece. The score is written in treble and bass clefs, with a 6/8 time signature. The music features a variety of notes, rests, and dynamic markings such as *mf* and *pp*. The score is presented in a standard musical notation style, with a grand staff layout.

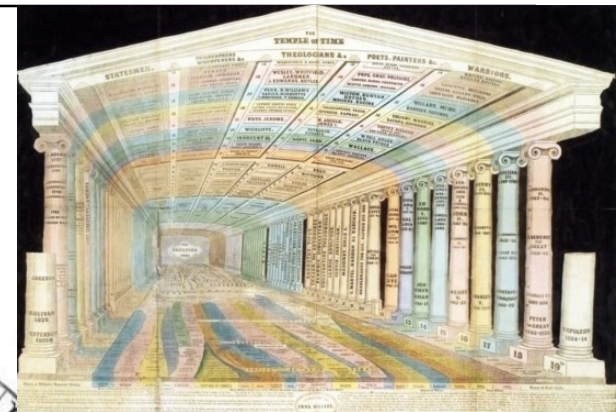
4. Music codes before machine computation: The Guidonian hand (mnemonics)



Mnemonic devices (c. 1000 AD)



Giordano Bruno's **memory wheel** (1582)



Memory Palace

5. Confusing terminology

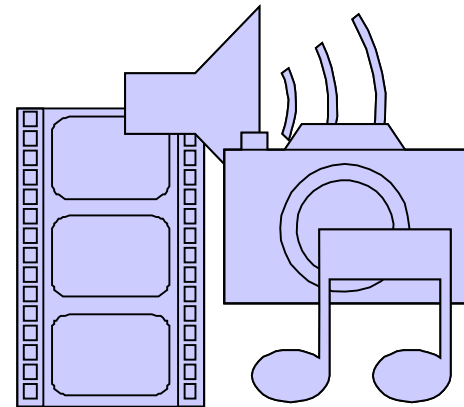
- **Absolute vs. relative**
 - machine-oriented
 - MIDI key nos.
 - user-oriented
 - Intervallic information

- **Tangible vs. cognitive (selective)**
 - Selection by domain
 - Selection by reduction



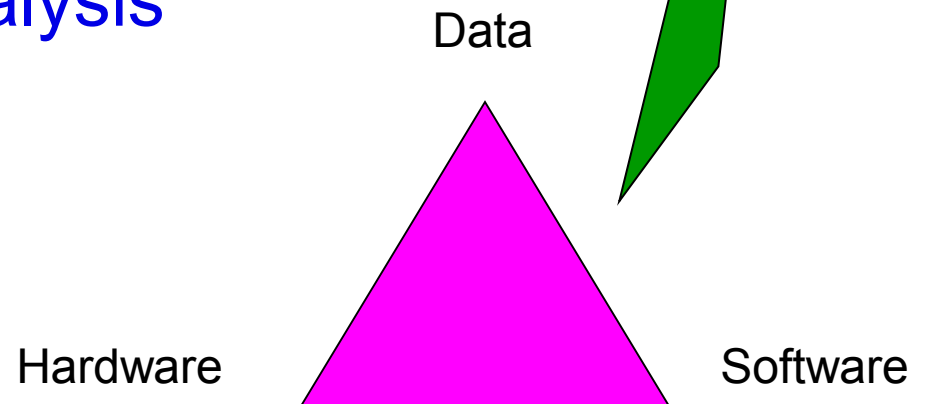
6. Selective understandings

- **Raw vs. interpreted data**
 - *When* interpreted?
 - On input
 - In processing
- **Common vs. application-specific data**
 - **Data** attributes
 - **Application** attributes

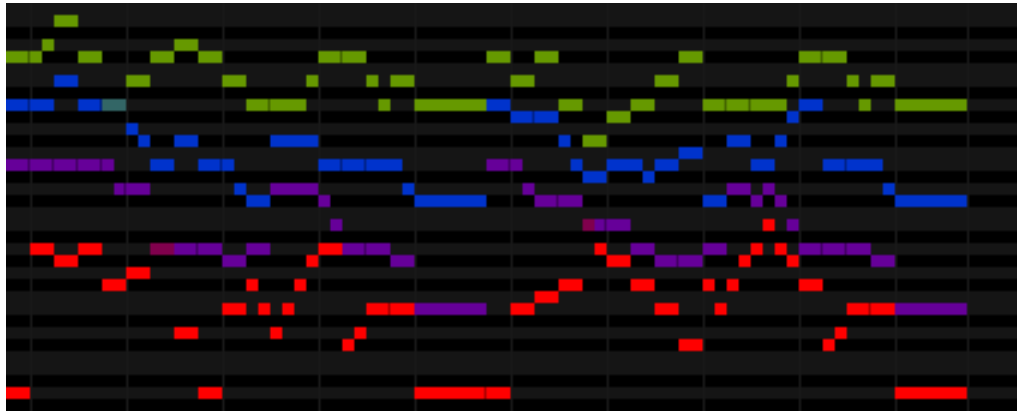


7. Frontiers of musical information

- Data resource development
- Data management and identification
- Data **interchange**
- Data **query and analysis**
- Data **visualization***

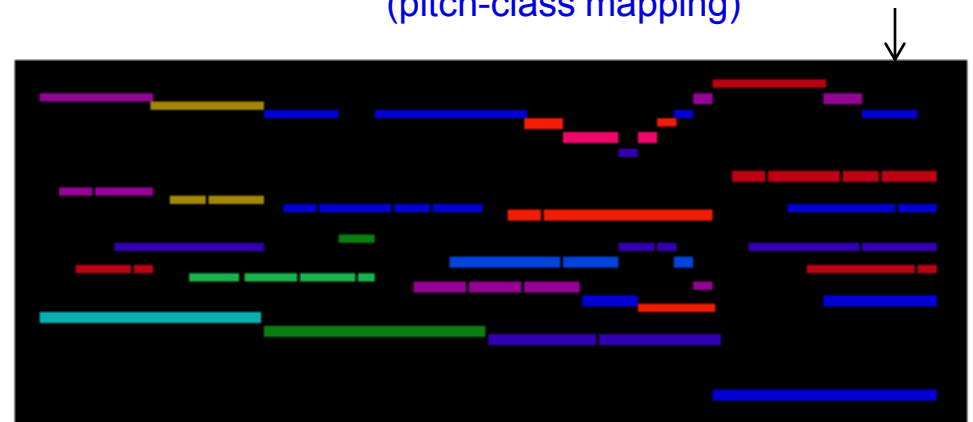


App A. Piano rolls as music representations



↑ Chopin: Prelude
(voice-part mapping)

J. S. Bach: Chorale No. 1
(pitch-class mapping)



App A. *The Music Animation Machine*

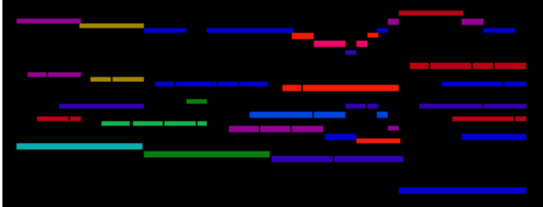


Music Animation Machine: Harmonic Coloring - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites History Address

Links Google Search Web Search Site



Above are four bars (23-26) of Chopin's Nocturne, Opus 27, No. 2 in D-flat major. This excerpt modulates chromatically, ending with a V-to-I cadence (violet-to-blue in the bass line).

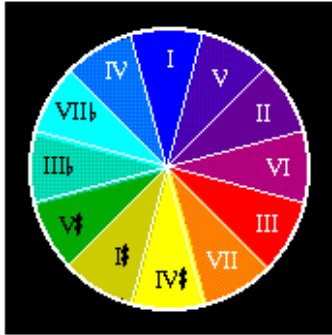
Done Internet

Music Animation Machine: Harmonic Colo...

File Edit View Favorites Tools Help

Back Forward Stop Home Address

Links Google

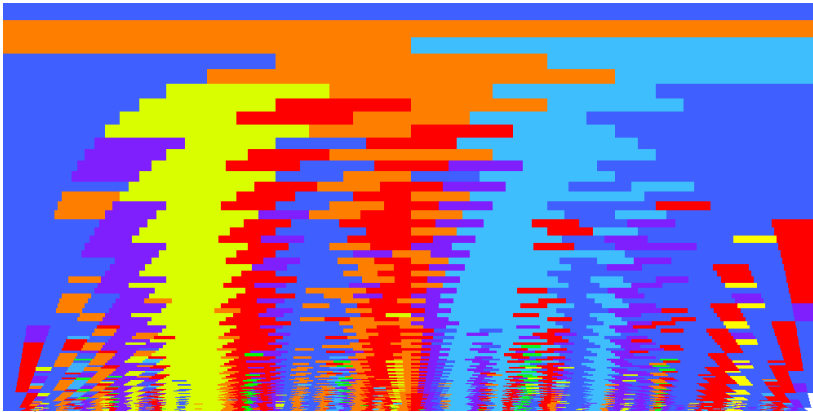


Harmonic coloring assigns twelve colors from the artist's color wheel to the twelve pitches of the musician's circle of fifths.

In the chart above and the examples that follow, blue is assigned to the tonic pitch (I).

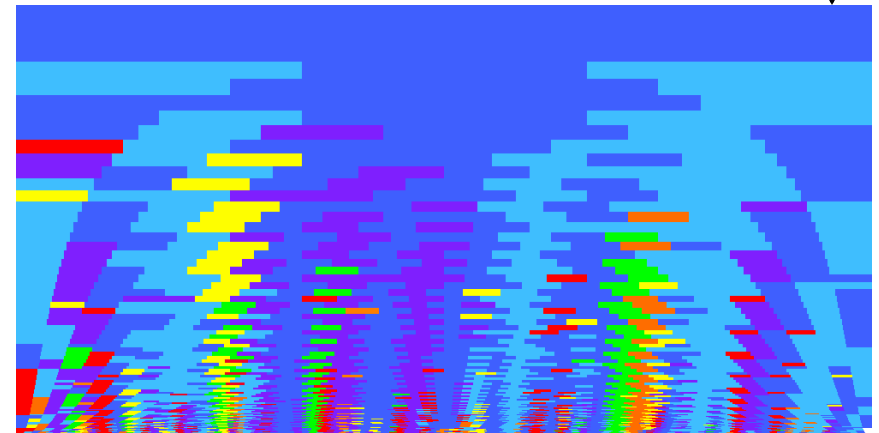
Done Internet

App B. Harmonic representation schemes



J. S. Bach: **Prelude** in D Major

J. S. Bach: **Fugue** in D Minor



Keyscapes (old-style) by Craig Sapp

Apps: *Music Animation Machine*

Software

- MIDI player (Windows)
<http://www.musanim.com/player/>
- Harmonizer for iPad:
<http://www.musanim.com/harmonizer/>
- Blender 2.xx
(<http://www.blender.org>)

Streaming video

Stephen Malinowski: smalin

- http://www.youtube.com/watch?v=ipzR9bhei_o&feature=channel

Andy Fillebrown: andy fillebrown

- <https://www.youtube.com/watch?v=I3EiEa1UNCw>

Files:

- http://www.piano-midi.de/midi_files.htm