1What is musical information?

MUSIC 253/CS 275A

STANFORD UNIVERSITY

What is the basic **essence** of music?
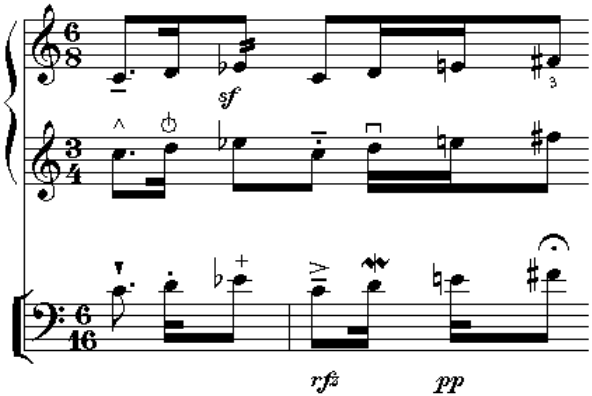
Sound

Text

Act

Mental image

What is music **representation**?
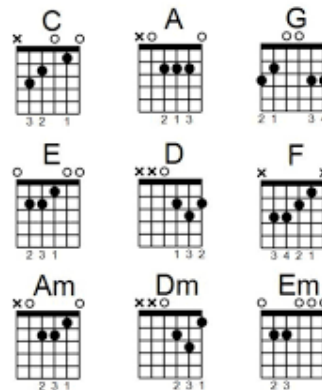
Sound: parameterization of sound qualities

Text: symbolic representation of **scores**
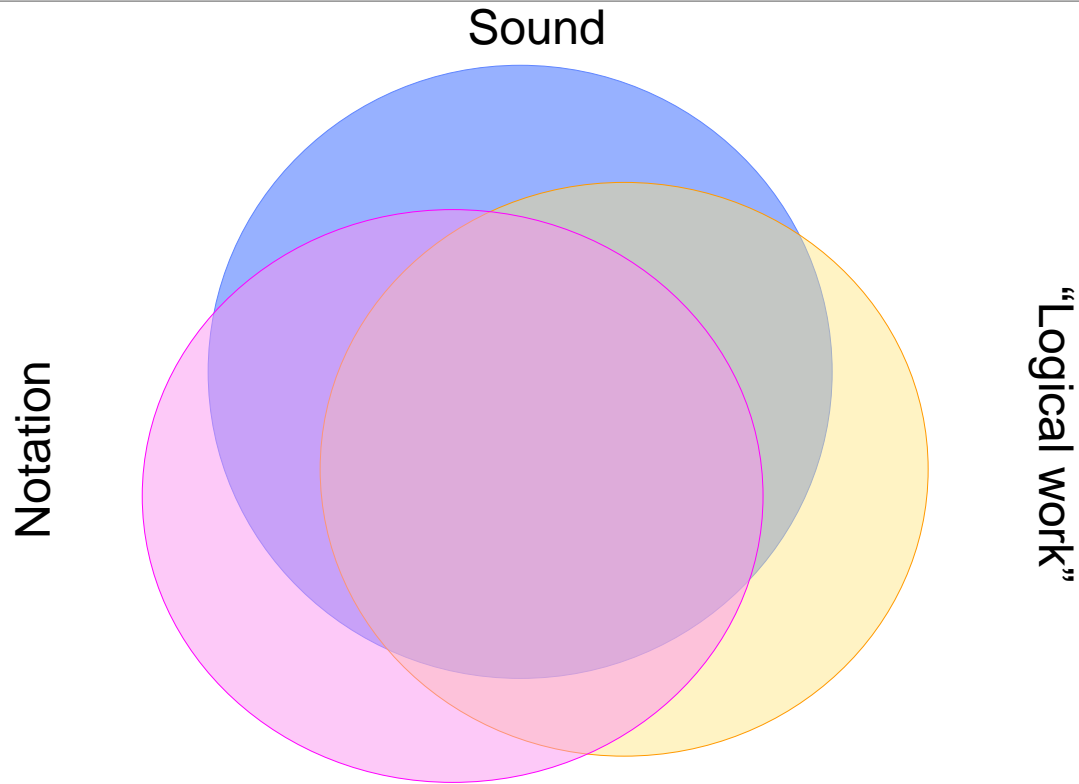
Act: symbolic representation of **gestures**

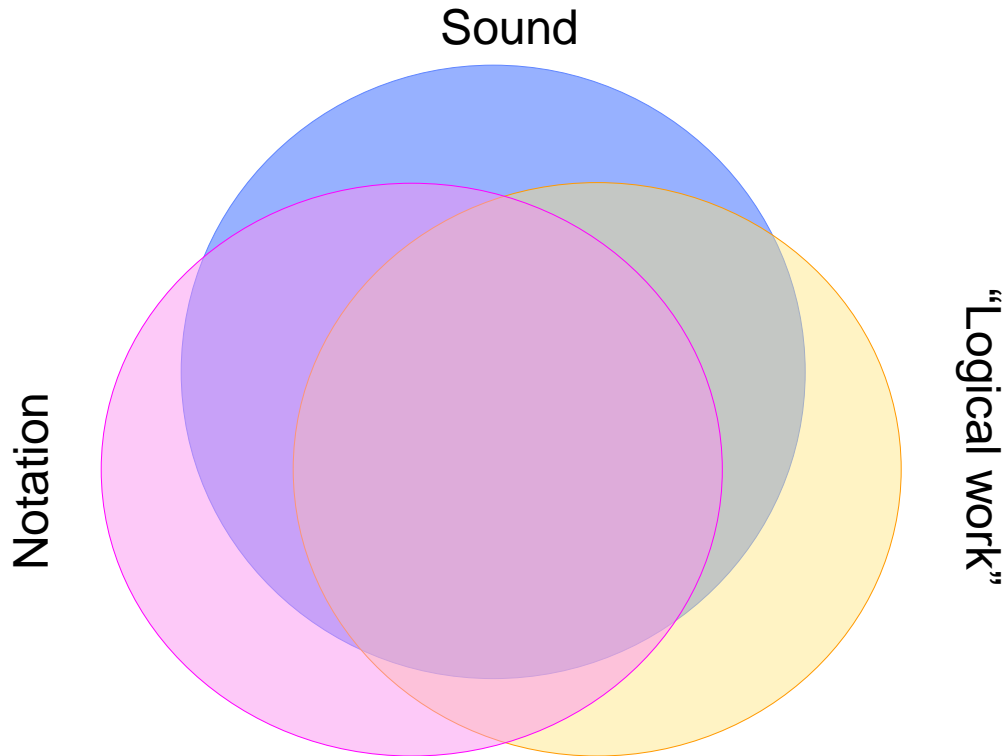*Mental image*: rules, principles, perceptions

Basic Guitar Chords Chart

C A G

E D F

Am Dm Em

BBC NEWS

Domains of information

Sound

Notation

"Logical work"

Domains of musical information
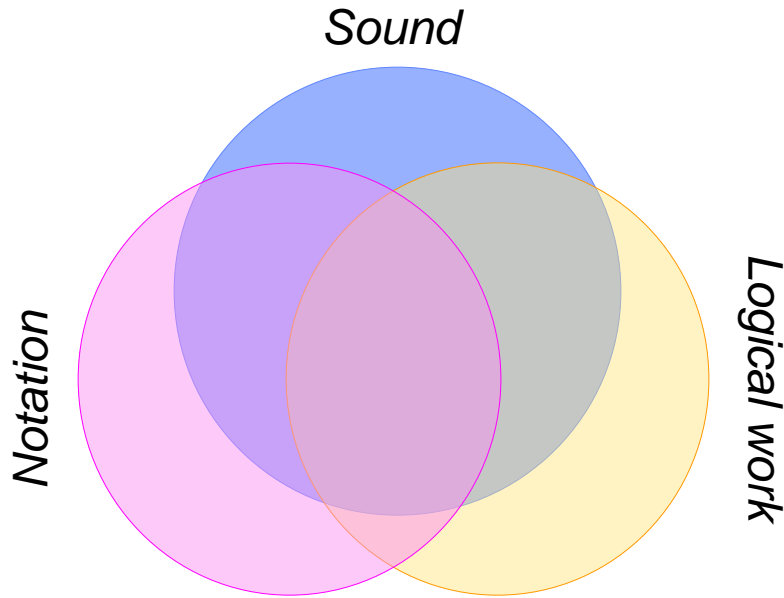

Sound

Notation

"Logical work"

- 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**

Software used in the course

Sound-based: MIDI*

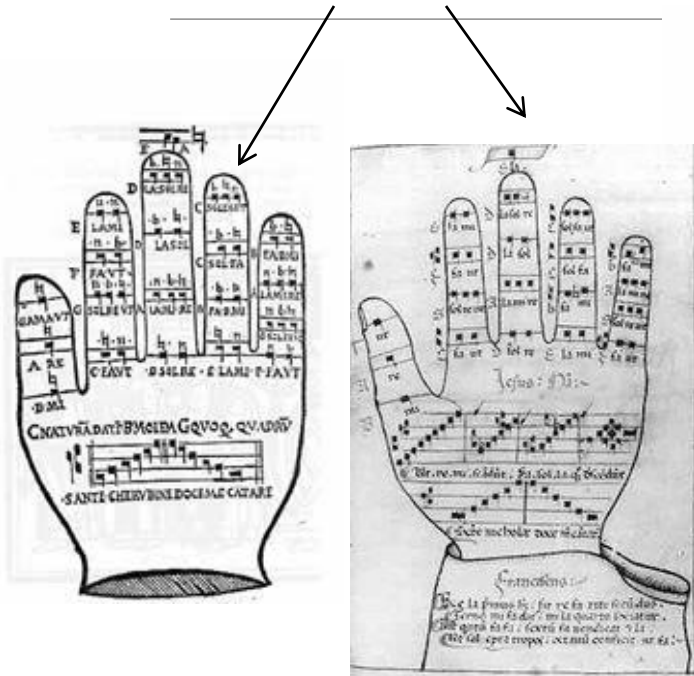**Text-based**: *Guido*, *Finale*, *SCORE*, *Sibelius*, *abcplus*

Logical/analysis-friendly: *Humdrum** [spring quarter]

Data and data interchange: *MuseData*, MusicXML*, MEI*, *Verovio Humdrum Viewer*
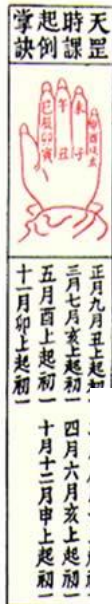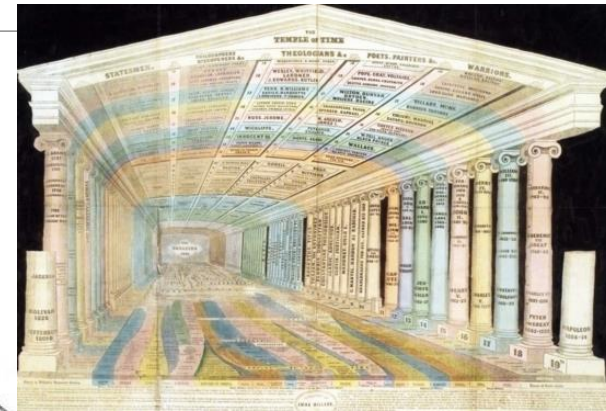
Music codes before machine computation: The Guidonian hand (mnemonics)

Identified by
Shi Yi Liang, 2022

Memory Palace

Mnemonic devices (c. 1000 AD)

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

Confusing terminology

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

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

Selective understandings . . . .

Raw vs. interpreted data

- ◦ **When** interpreted?
  - ◦ On input
  - ◦ In processing

Common vs. application-specific data

- ◦ Data attributes
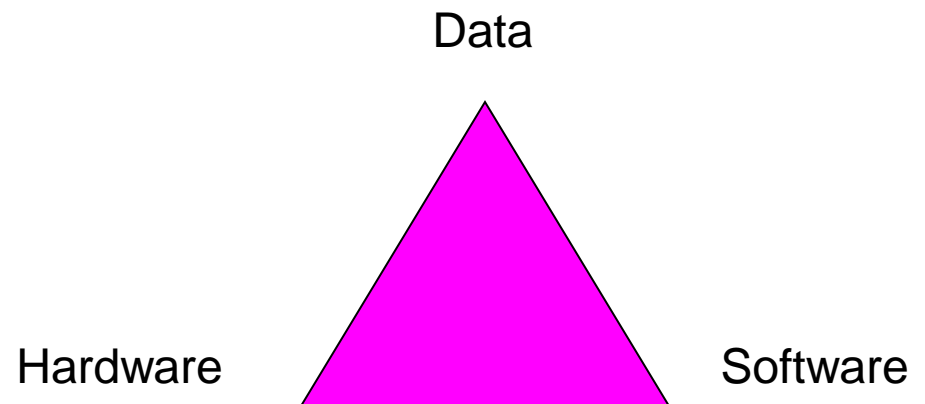- ◦ Application attributes

Frontiers of musical information

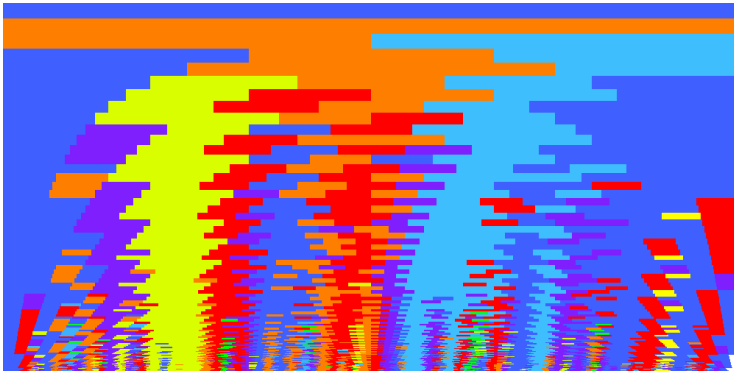Data resource development

Data management and identification

Data interchange
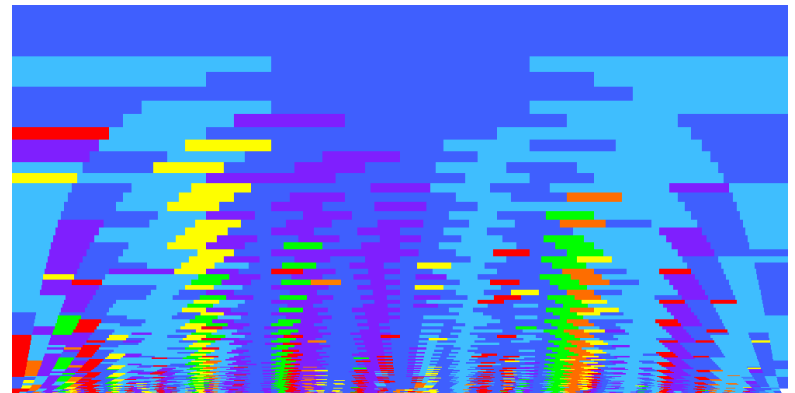
Data query/search and analysis

Data visualization*

Data

Hardware   Software

Harmonic representation schemes (Craig Sapp)

↑

J. S. Bach: Prelude in D Major

Keyscapes (old-style) by Craig Sapp

J. S. Bach: Fugue in D Minor

↓

Piano rolls as music representations
(Stephen Malinowski)

J. S. Bach: Chorale No. 1

(pitch-class mapping)

Chopin: Prelude

(voice-part mapping)

The *Music Animation Machine*
(Stephen Malinowski)
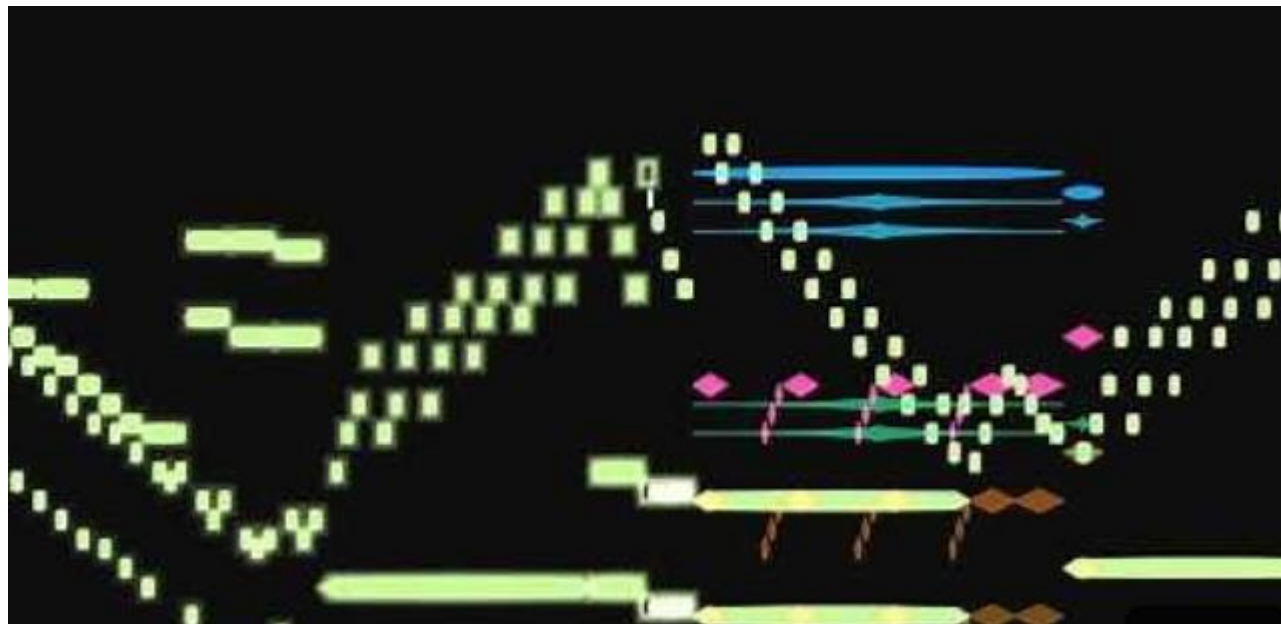
2006: Bach Prelude and Fugue in D Minor

https://www.youtube.com/watch?v=ipzR9bhei_o

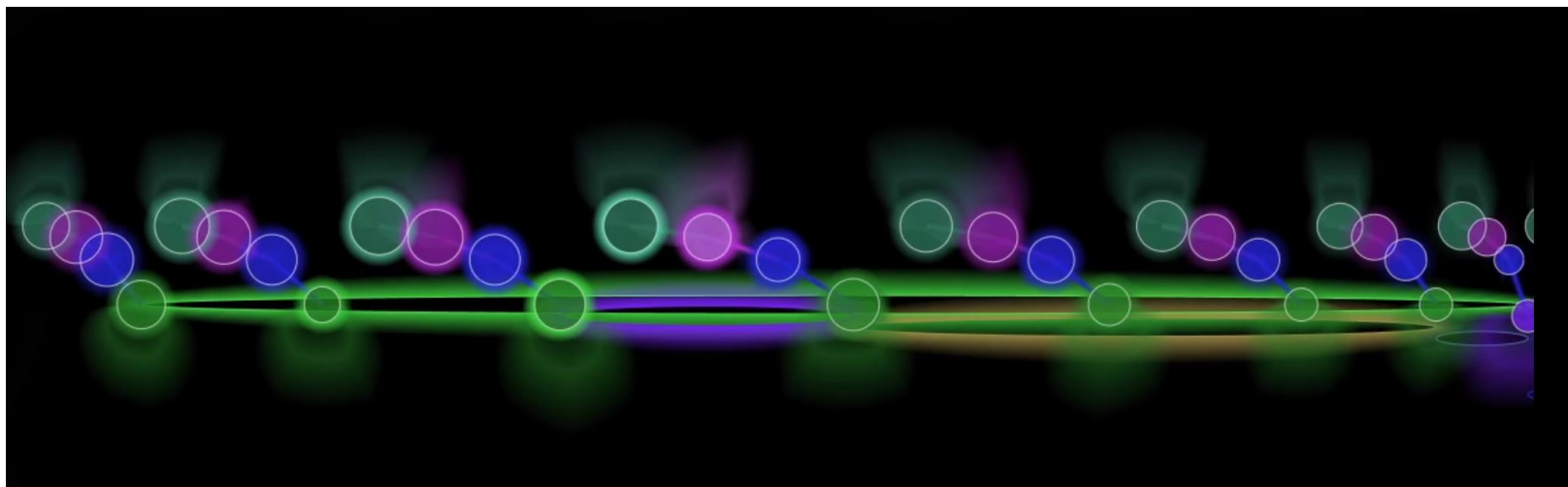BWV 565

The *Music Animation Machine*
(Stephen Malinowski)

Mozart Piano Concerto No. 20 (K. 466), I:

https://youtu.be/7QgOBbKl0eY

The *Music Animation Machine*
(Stephen Malinowski)

Rachmaninoff: Les Larmes (Tears). Op 5, No. 1

https://www.youtube.com/watch?v=aHEbmYVCcKE

Malinoski: Resources for the Music Animation Machine (musanim)

Highlights year by year:

http://musanim.com/YouTubeHighlights/

Techniques used (with examples):

https://www.musanim.com/YouTube/