Symbolic Musical Analysis

CS 275B/Music 254

Practicalities

Course context

- Music 253: Symbolic Musical Data
  - How to **encode** musical data sets
    - Notation
    - MIDI/sound
    - Logical content
- Music 254 Symbolic Music Analysis

  (Music Query, Analysis, and Style Simulation)
  - How to **decode** musical data sets
    - **Query** = data **extraction**
    - **Analysis** = data **evaluation**
    - **Style simulation** = data **assessment and manipulation**

Elements of the course

- **Samples:**
  - **Query:** *Themefinder* (melody)
  - **Analysis:** *Humdrum* (harmony, rhythm, melody)
  - **Style simulation**:

    Humdrum (involves integration of other operations)

Project part:

(a) literature/site survey

(b) tool/software development

(3) presentation and write-up

Topic schedule

- Musical topics:
  - Week 2 Melody; data sources; similarity
  - Week 3 Harmony; current work
  - Week 4 Rhythm; current work

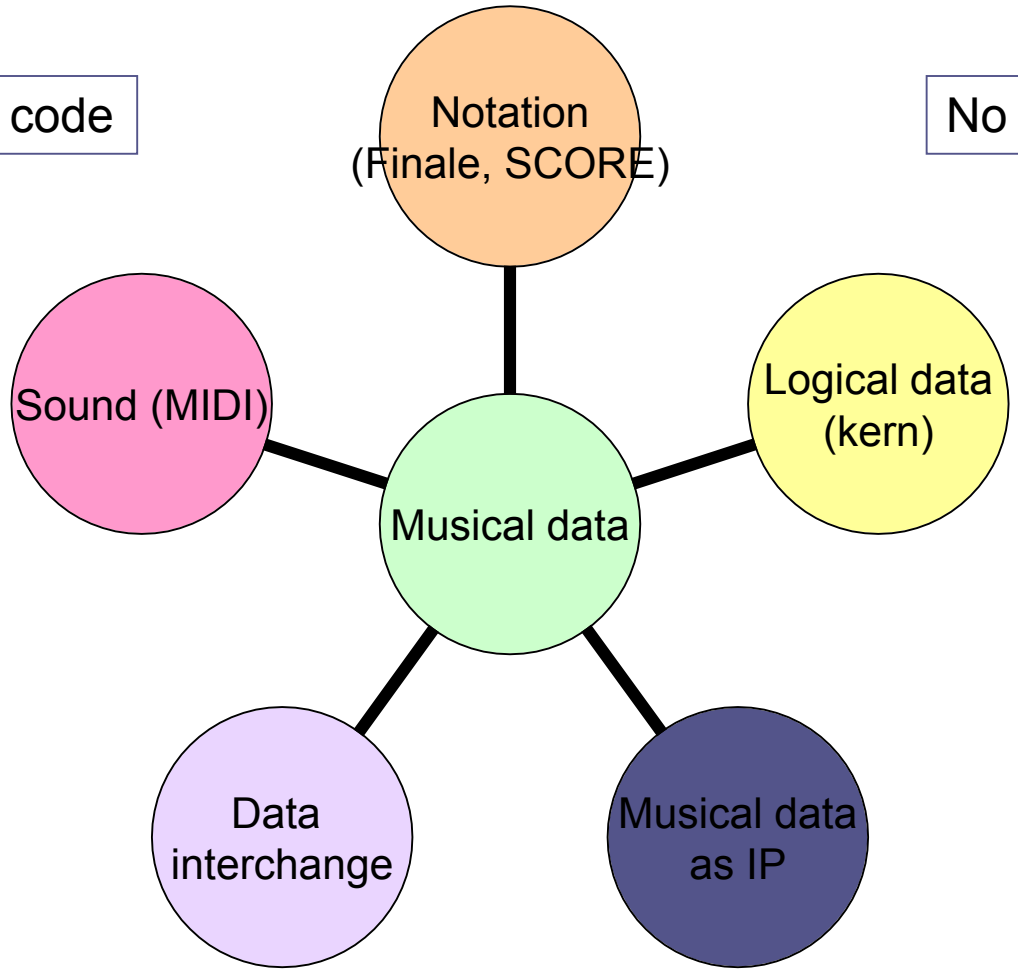
- Methodological topics (vary from year to year):
  - Week 5
  - Week 6
  - Week 7
  - Week 8

Contexts and resources

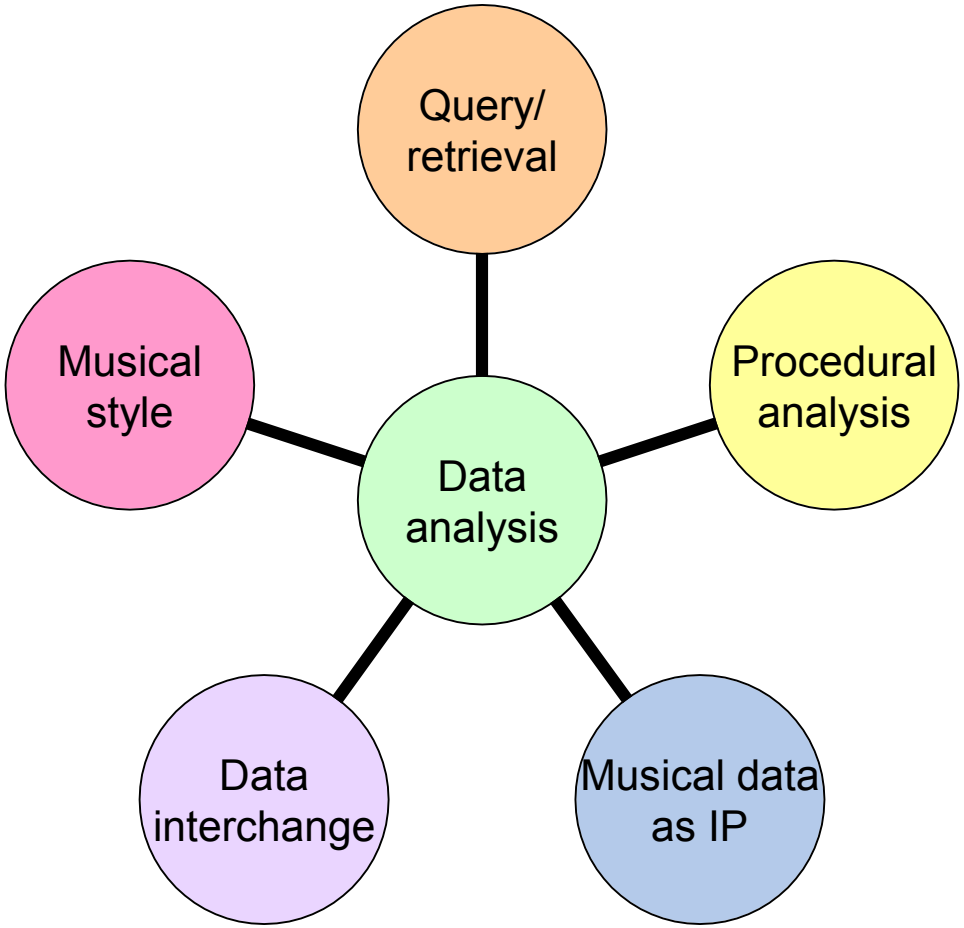
Symbolic Musical Information Scheme

No universal code

No universal translator

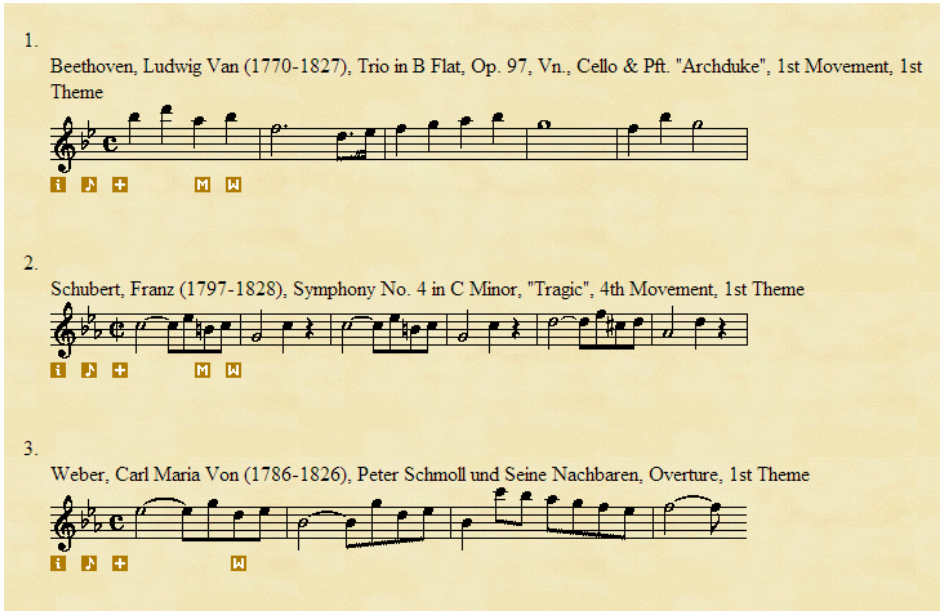


Symbolic Musical Analysis Scheme



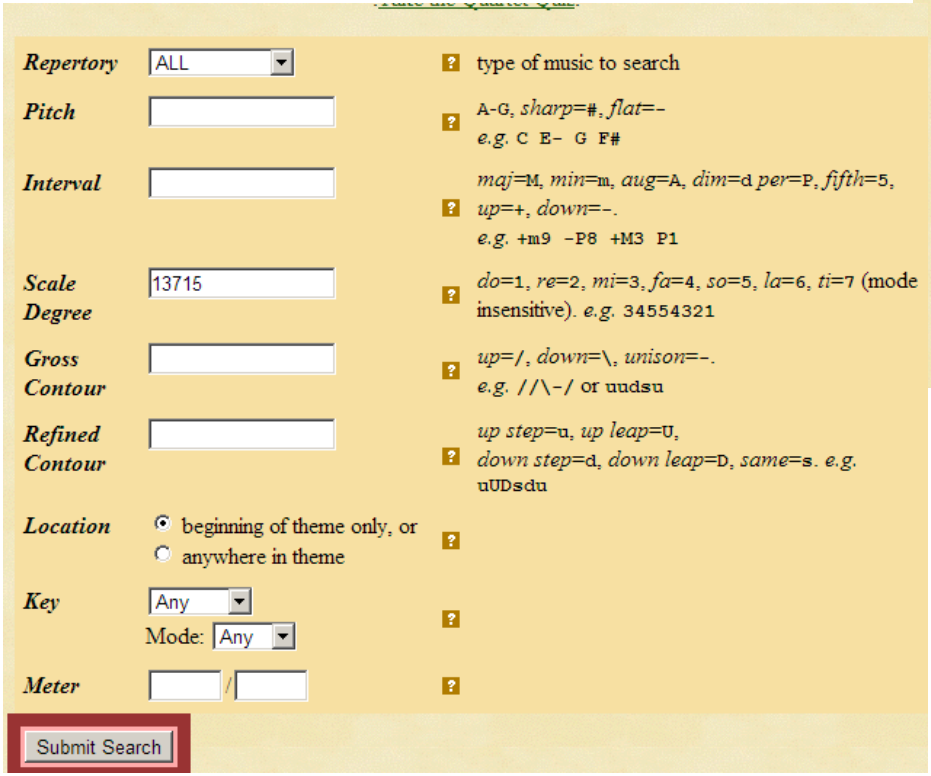
Data resources at CCARH

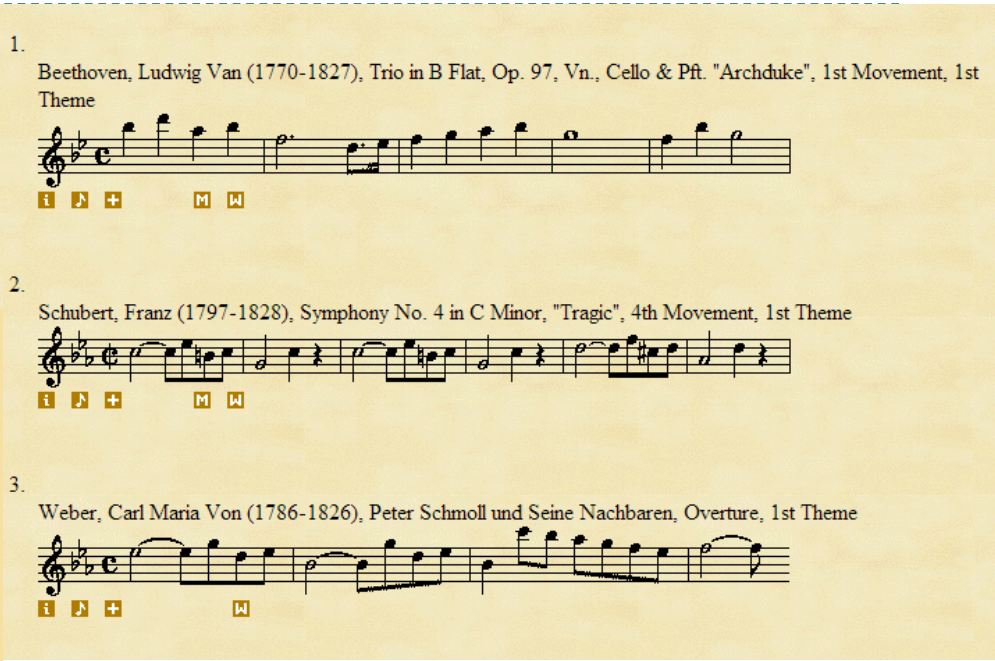
- Monophonic only
  - Essen database (folk music)
  - *Themefinder* repertories
- Polyphonic
  - *KernScores* (keyboard)
  - *MuseData* (chamber, orchestral)



Query (Retrieval) via Themefinder

Search form





Responses

Amico (1997-2005)

Meta-data vs Semantic searching

Generic objects

- fruit
- jars
- cloths

Specific objects

- peaches
- vase
- apricot

Ambiguities

Intermediation

Basic colors

- blue
- green
- white

Categories

Gradations

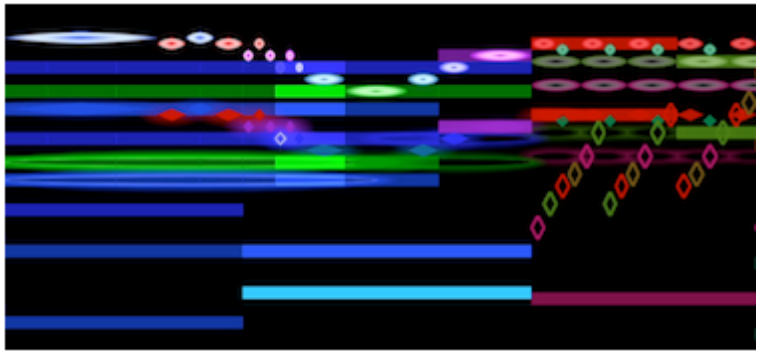
Specific colors

- teal (blue)
- forest (green)
- off-white

Major areas of music analysis

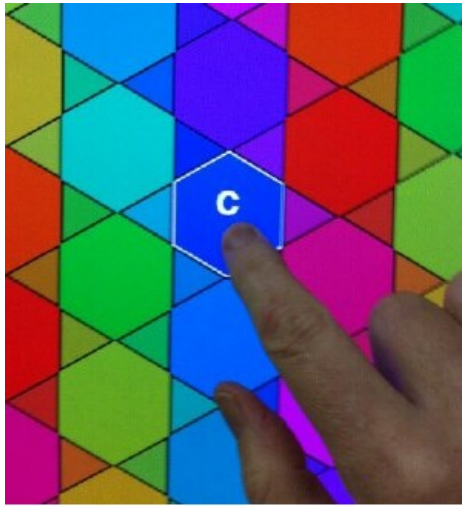
Feature extraction and analysis

Voices, textures

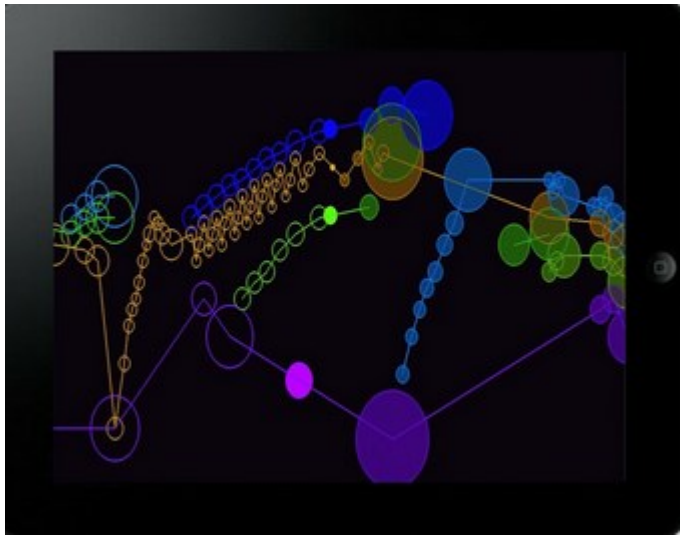


Articulation, dynamics

From the work of Steven Malinowski

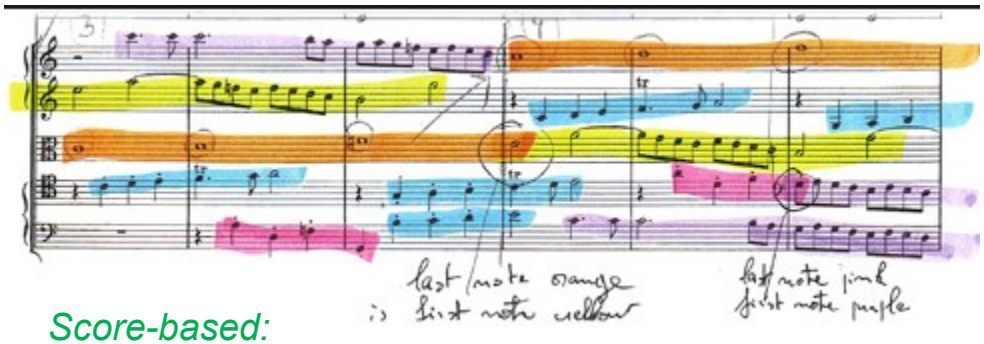


Tonal relations

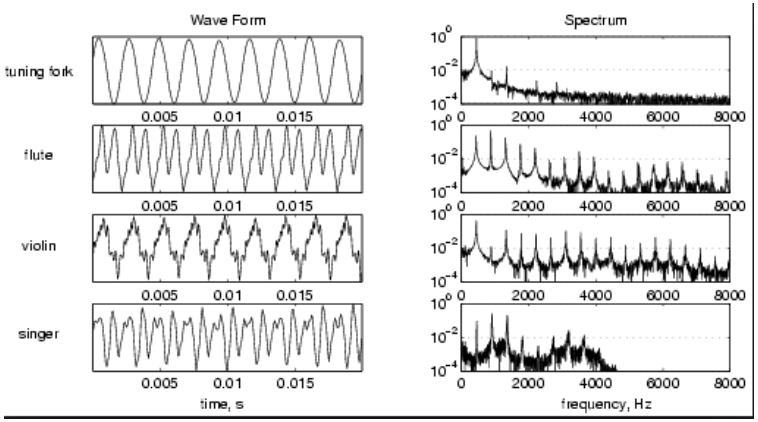


Off the grid

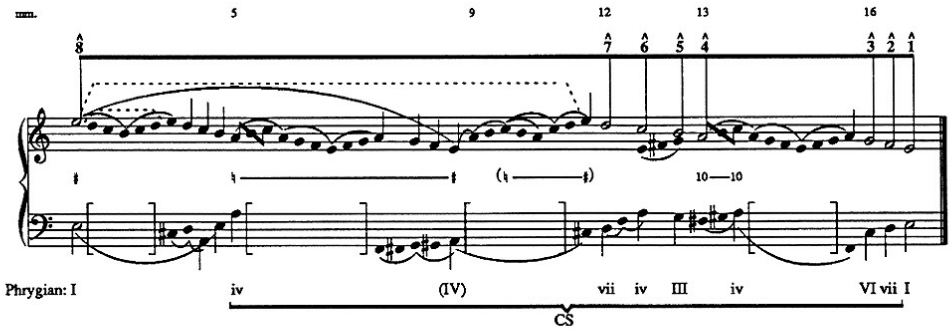
Musical style (analysis)

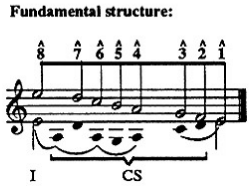


Score-based: conventional

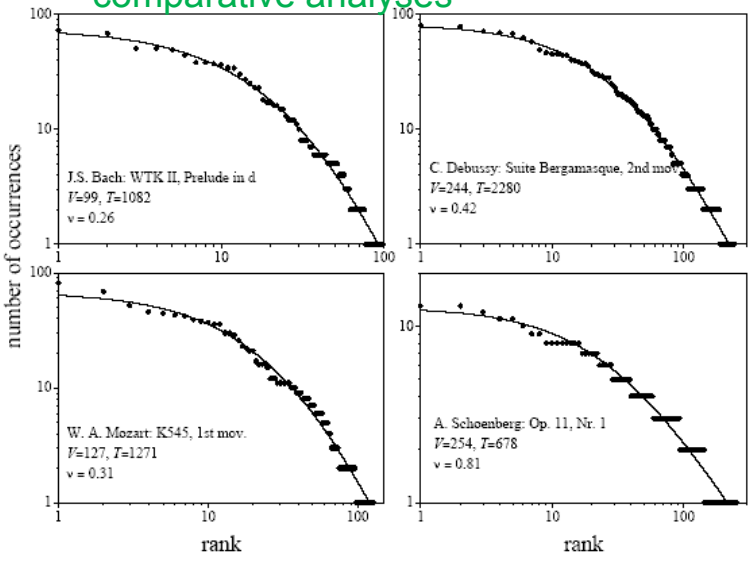


Performance-based: event-based, comparative analyses



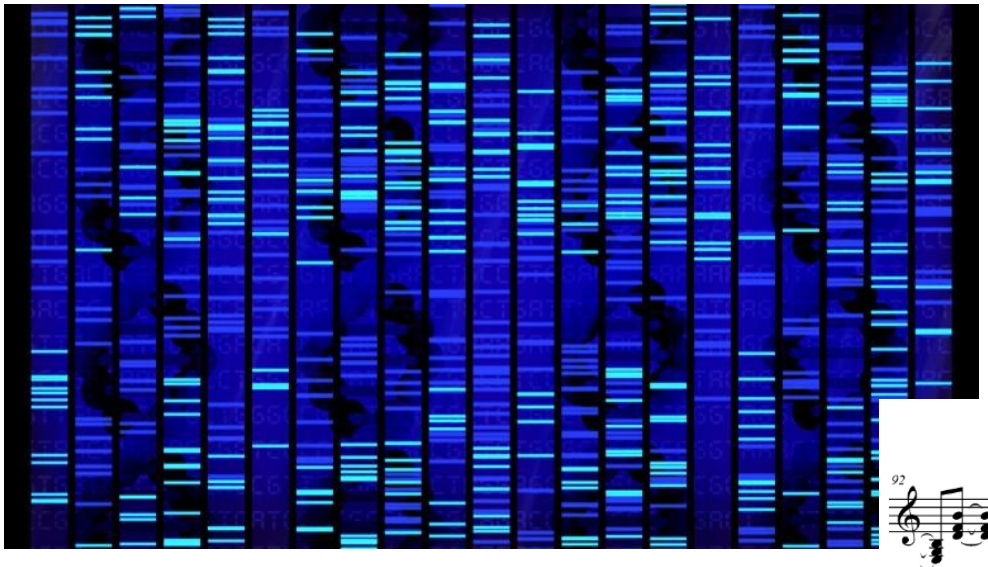


Score-based: Schenkerian (graphical)

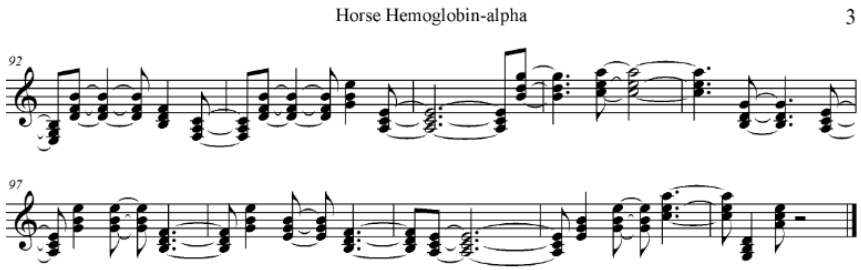


DNA-sequencing algorithms

Dang Vu: feature propagation in improvised Vietnamese chamber music (adaptation of genetic analysis sw)

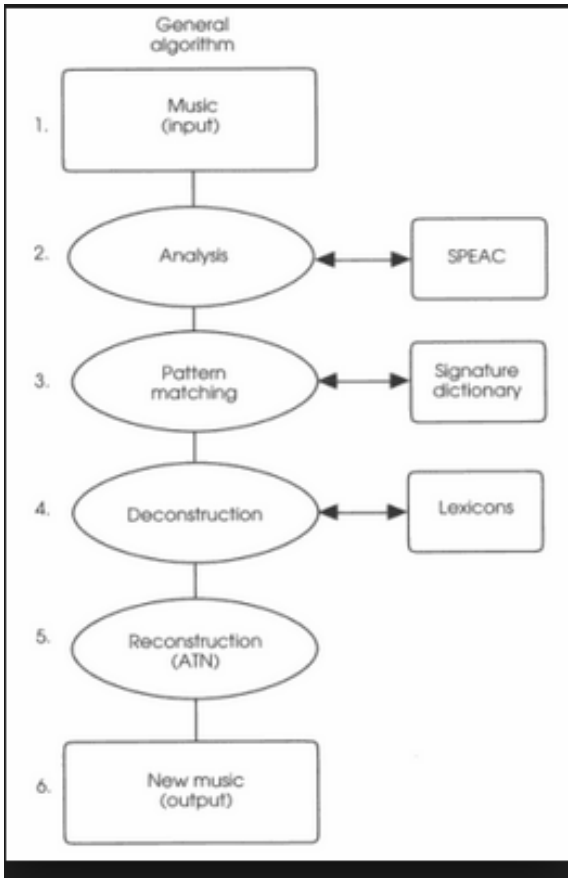


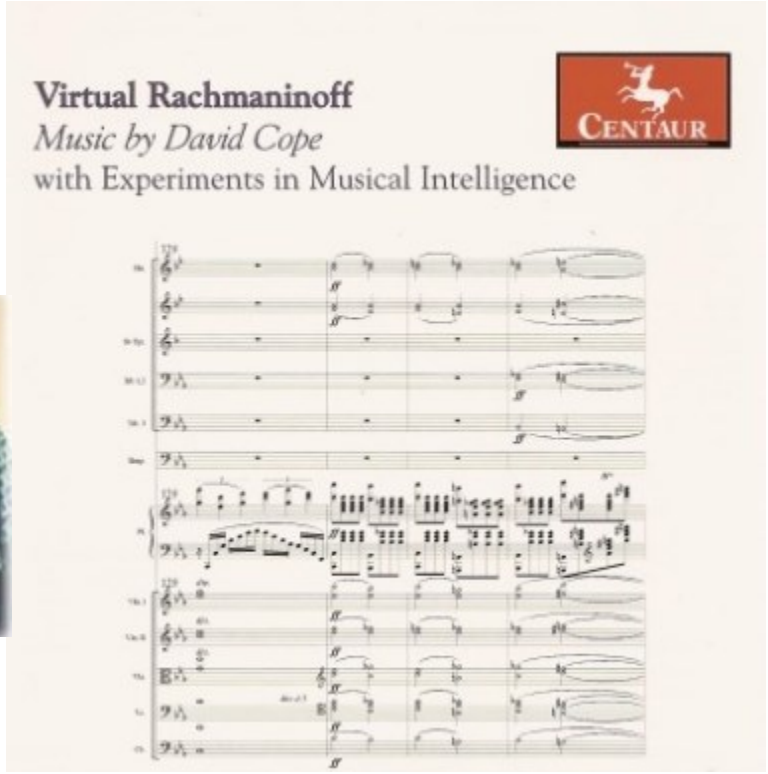
Horse hemoglobin > music (Gene2Music, UCLA)



Musical style (simulation)

Work of David Cope (UCSC)



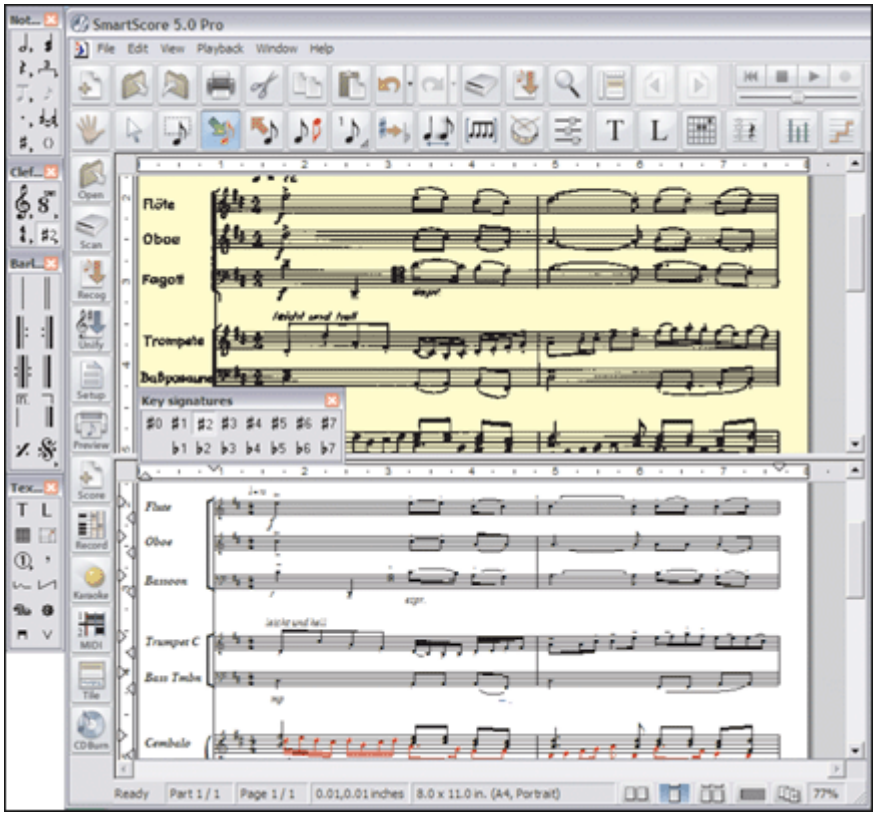


Data interchange

- CS 275A
  - MusicXML
  - MEI (in progress)
  - MIDI (common default)

(Data supply)

- CS 275B (if relevant)



Other possible areas of study

- Procedural analysis
- Structural analysis
- Style/feature clusters

- Methods from other disciplines
  - Linguistics
  - Mathematics
  - Psychology/cognition
  - Information theory

- New representations
  - Non-Western music
  - Pre-tonal music
  - Post-tonal music

- Audio/symbolic linking