Using Musical Information

MUSIC 253/CS 275A 1B

STANFORD UNIVERSITY

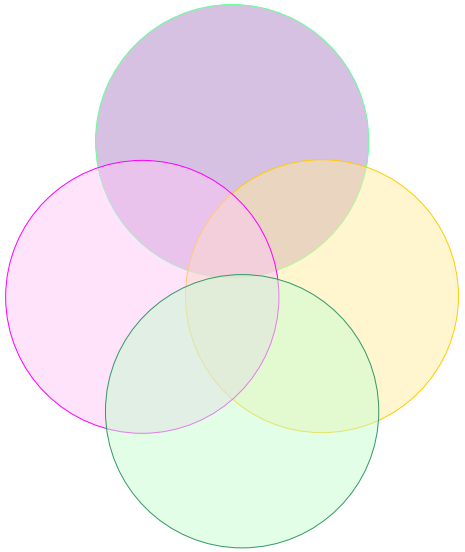
1. Classifying Data Domains

Visual domain
- scores, parts

Aural domain
- performances, recordings

Logical domain
- analytical data sets

Cognitive/perceptual domain
- how we hear/understand music



2. Granularity of information

Data for **interchange**

Data for **classification**

A comparision of three view modes:

Satellite View *Blend View* *DEM View*

Click image for a larger view

Data for **form** analysis

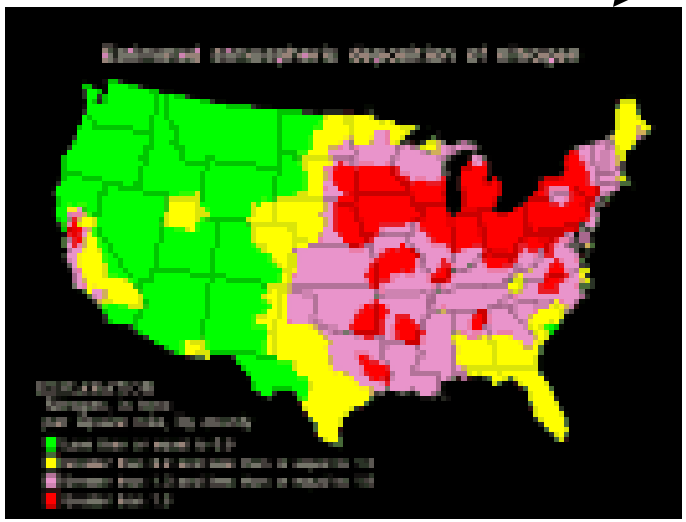
Data for **feature** analysis

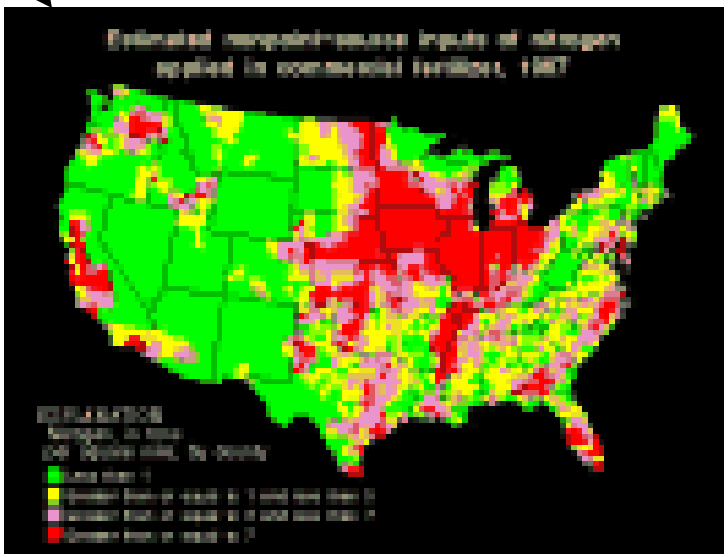
A comparision of different resolution:

20km resolution *1km resolution* *50m resolution*

3. Information for comparison

Entity: the US





Identity #1:

The **atmospheric** nitrogen map of the US

Background=US

Identity #2:

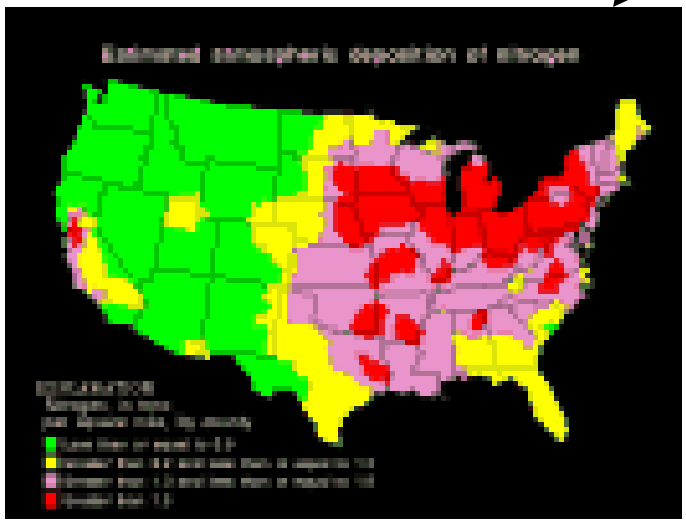
The **ground** nitrogen map of the US

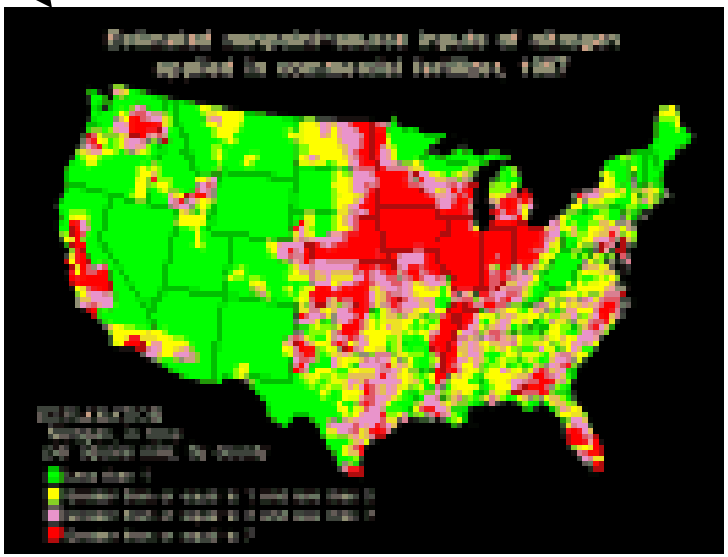
Background=US

3. Information for comparison:

What is in the foreground?

Entity: the US





Identity #1:

The **atmospheric** nitrogen map of the US

Background=US

Identity #2:

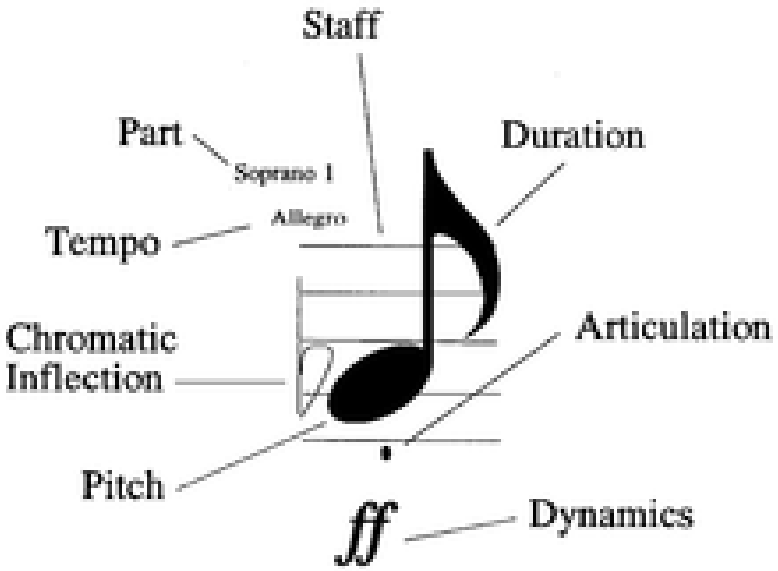
The **ground** nitrogen map of the US

Background=US

4. Musical features of one note

Many features used only selectively

Violin



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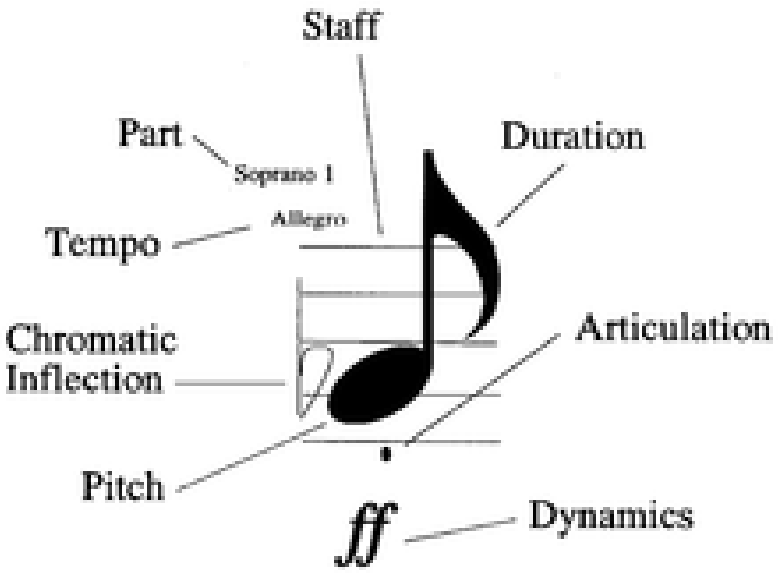


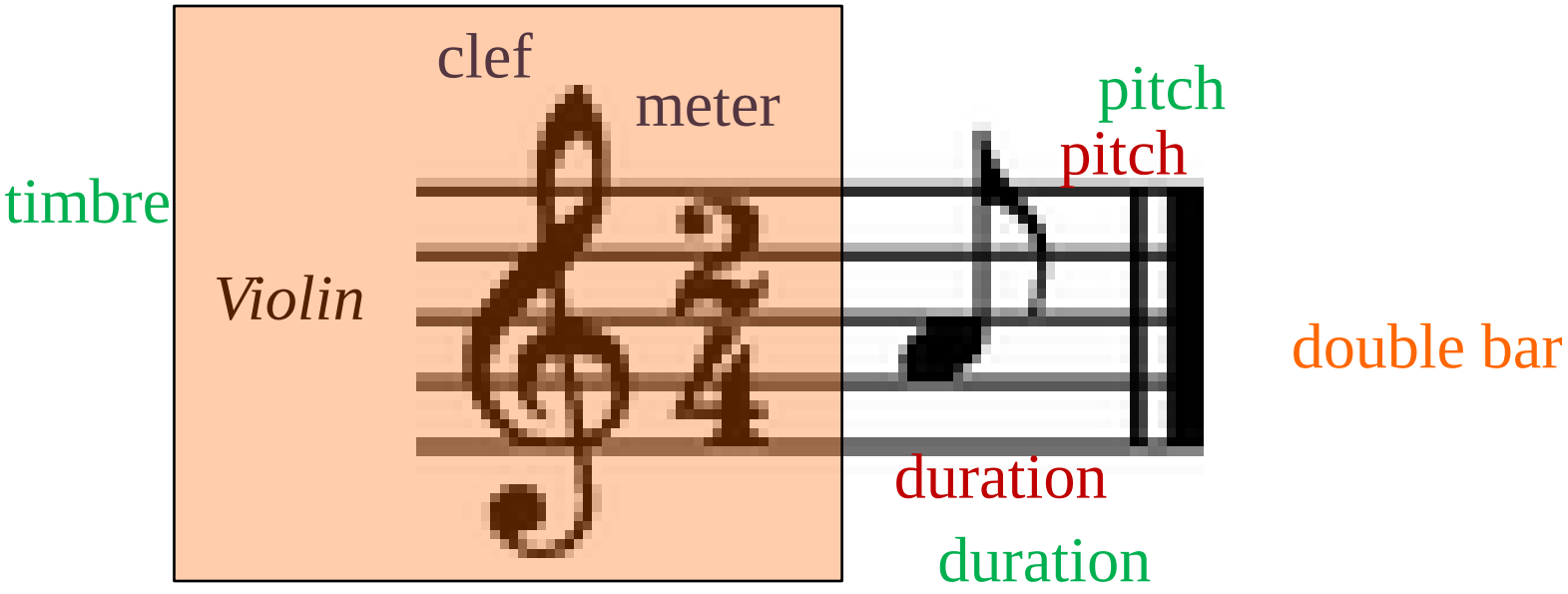
Two features are **fundamental**:

Pitch

Duration

4. Musical features of one note

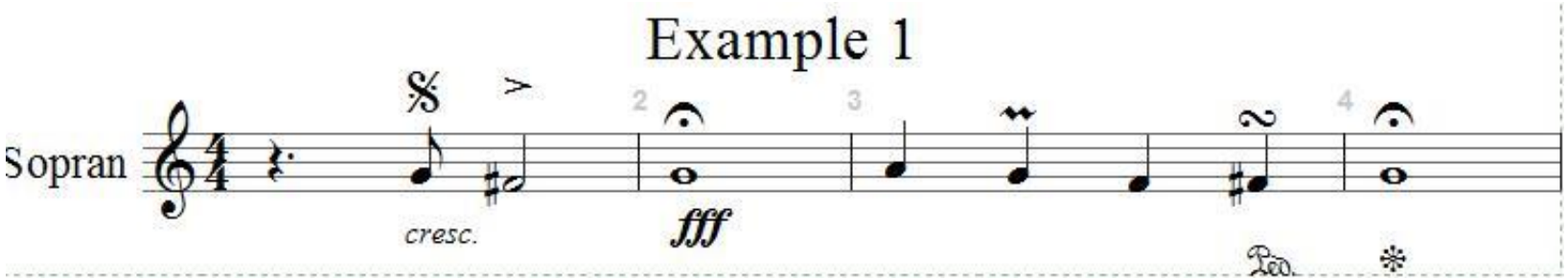
Contextual information (notation)



Contextual information (metadata, aural ambience)

5. Musical features by domain

Articulation

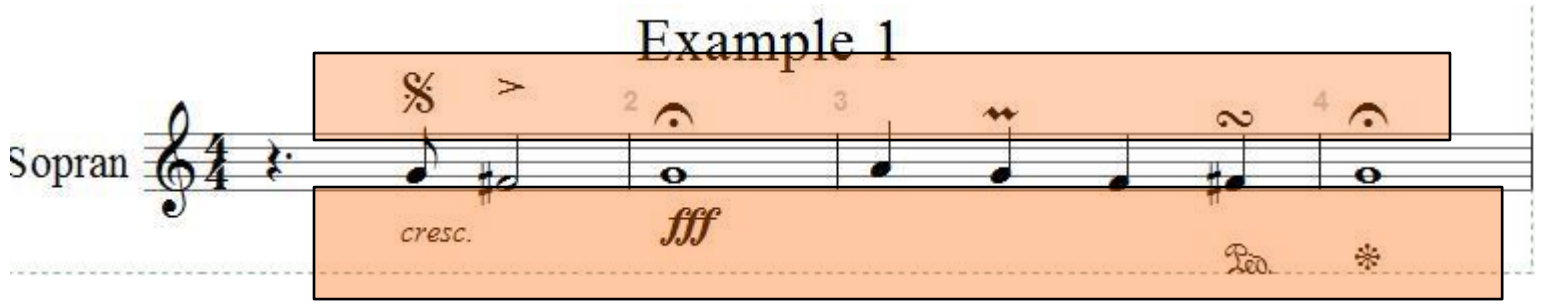


Dynamics, Gesture

5. Domain conflicts (symbols vs sound)

Continuous vs static features

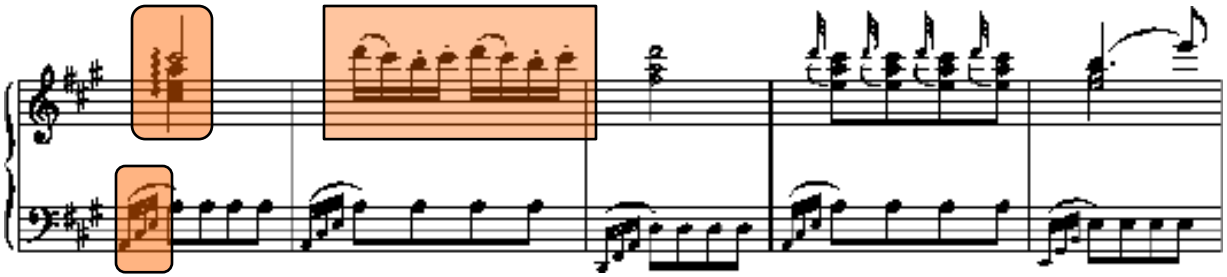
Articulation: many sound events prescribed in one symbolic figure



Dynamics, Gesture: reduced to symbols in writing but may operate on continuum

6. Data beyond time (B*eyond MIDI* #2)

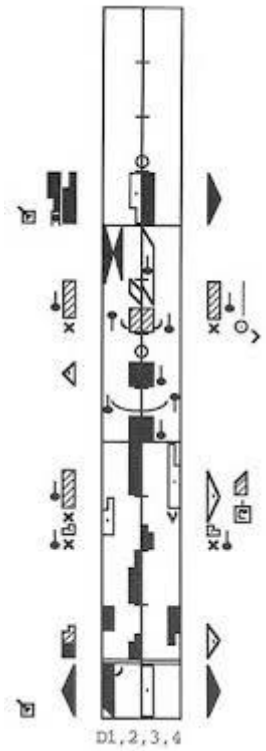
Time-stealing "durations"

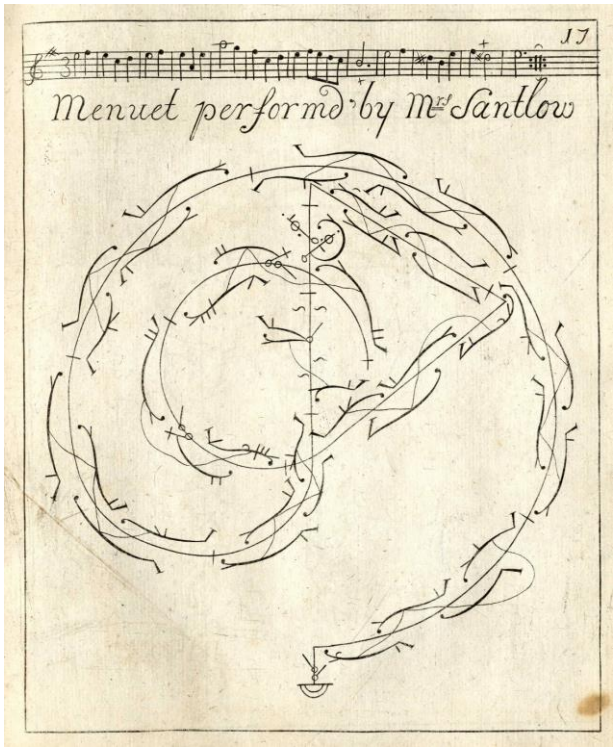


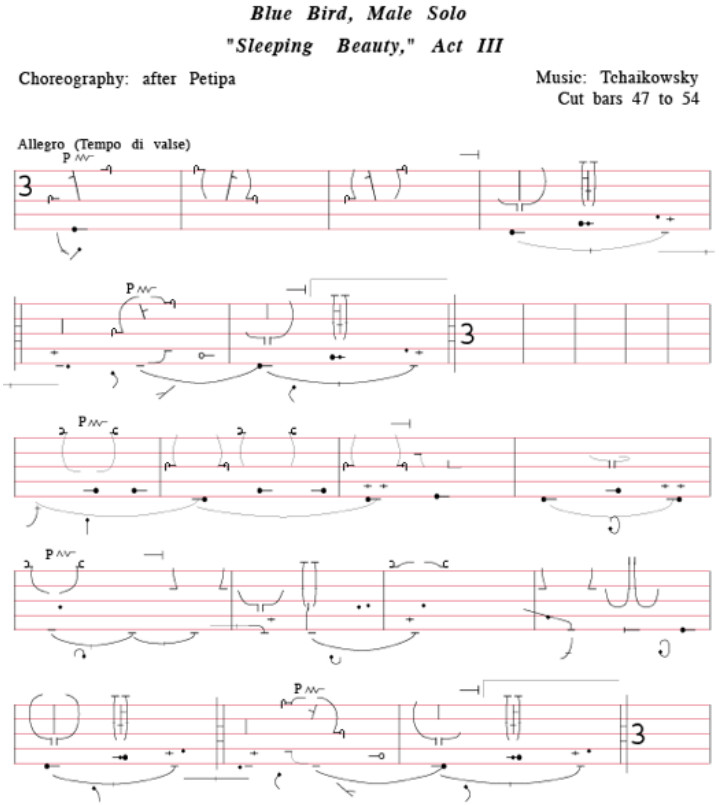
Arpeggios
Grace notes (single, multiple)
Staccatos

7. Gestural data (examples)

Choreography: (L) Labanotation, (M) French dance c1700, (R) Ballet

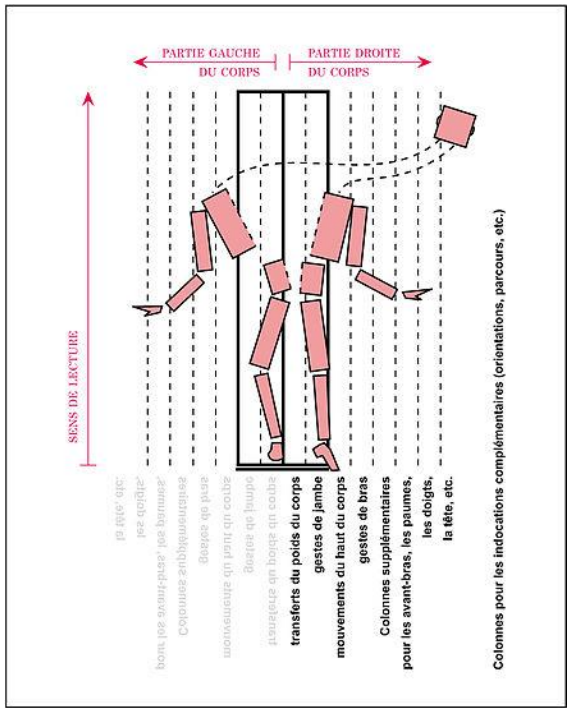






Labanotation

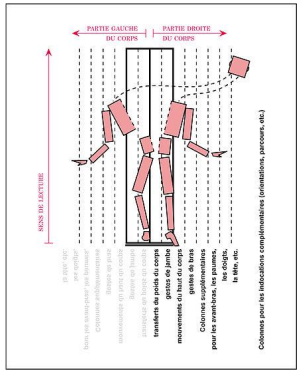
- Rudolf Laban (1879-1958), Hungarian
- Aimed to study dance in a “scientific” way through Laban movement analysis
  - **Labeling parts of the body**

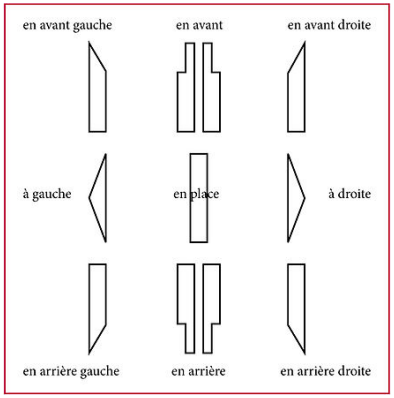


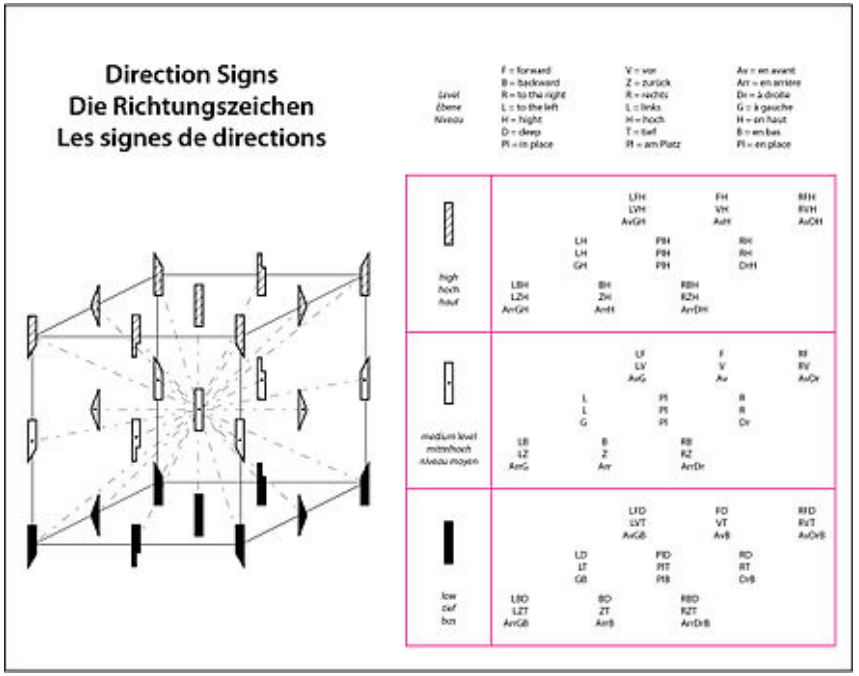
Labanotation

- Rudolf Laban (1879-1958), Hungarian
- Aimed to study dance in a “scientific” way through

Laban movement analysis
- Labeling parts of the body
- **Basic directional signs**
- **27 directional signs (3D)**







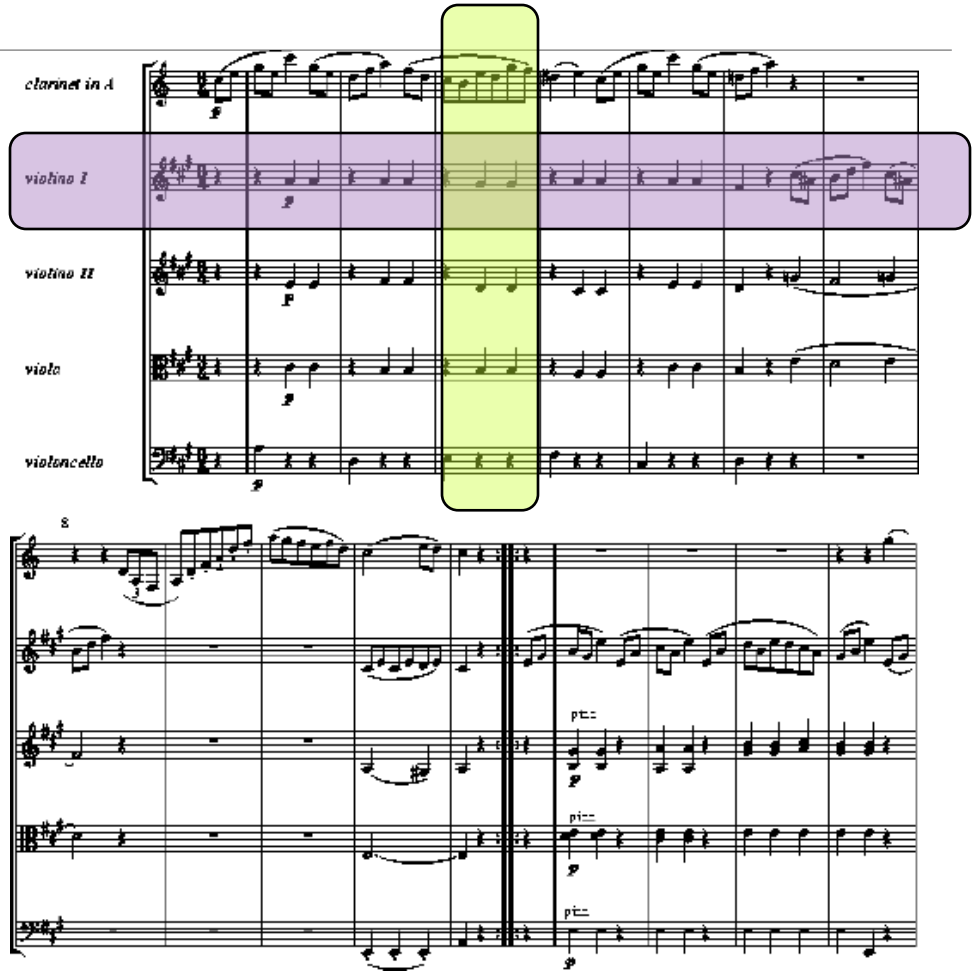
8. Score organization

Types 1a, 1b (*Beyond MIDI* #1)

Score-major systems

Part- major systems

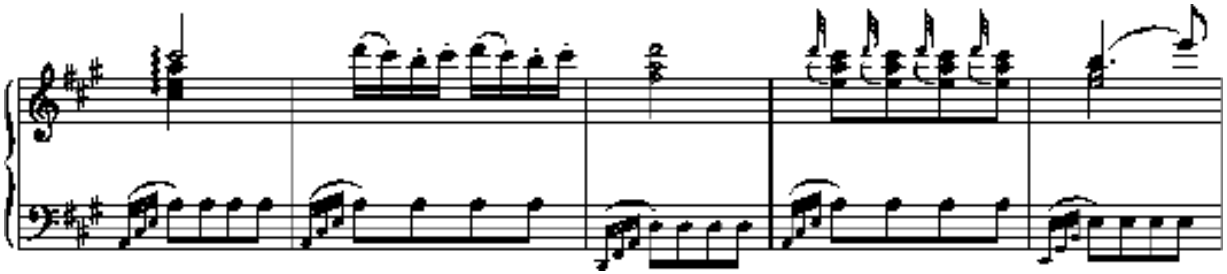
Page-traversal dilemmas



9. Score organization

Type 2 (*Beyond MIDI* #2)

The "grand staff"



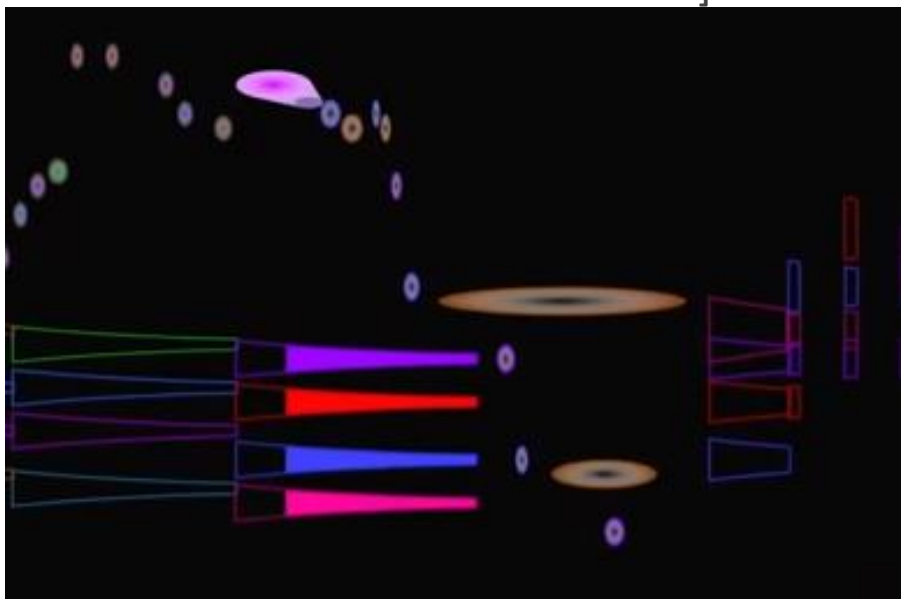
The grand staff as a single instrument

10. Sound features not in notation

Sound decay

http://www.youtube.com/watch?v=WdGQulTuwiQ

[from Stephen Malinowski's Music Animation Machine]



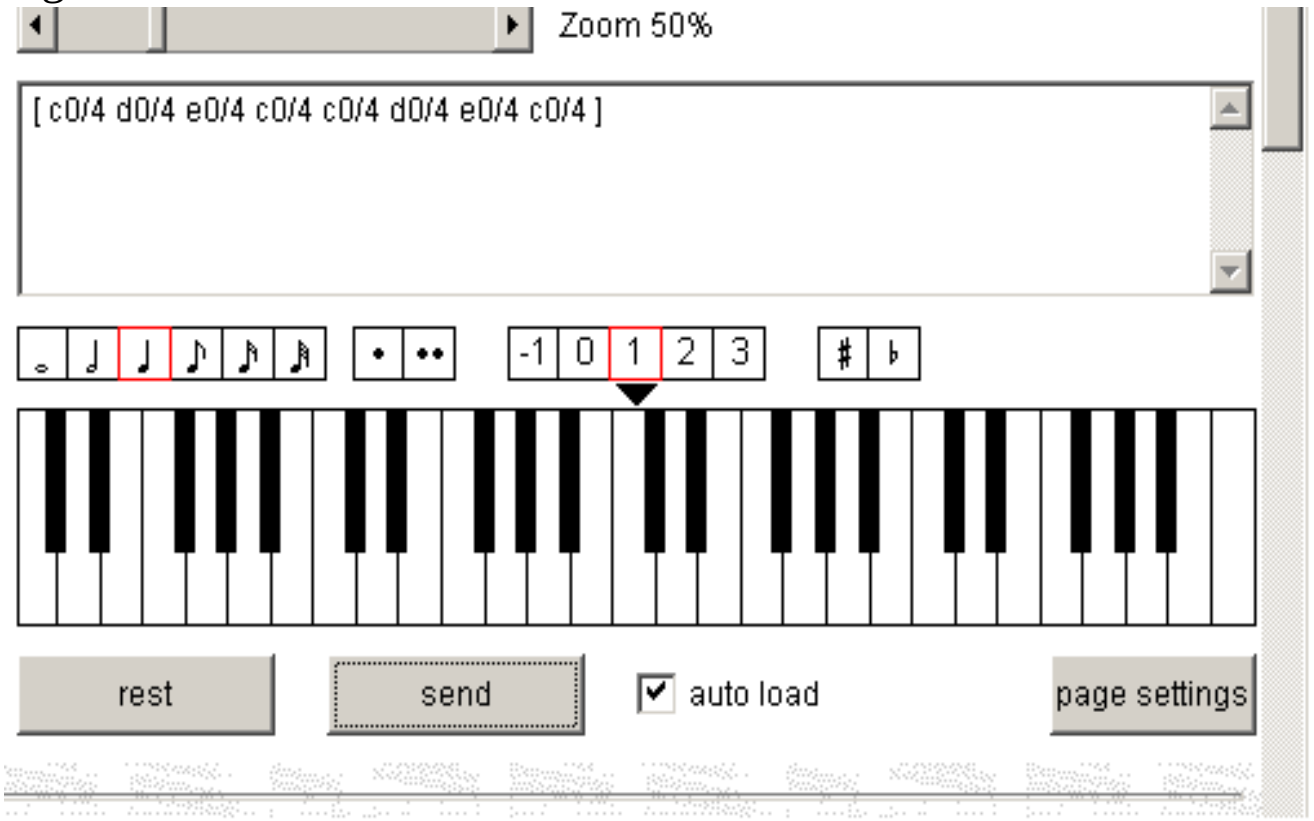
11. The GUIDO *NoteServer* *(ASCII input)*

Developed by Holger Hoos et al at the Fraunhofer Institut, Darmstadt, 2000-04]

3. Stored data

2. Symbol

1. Sound



Find method for entering: pitch, inflection, octave

http://www.noteserver.org/

Guido input: Pitch and Duration
Feature definition and grouping

Data
representation stored

Note duration

Note prolongation

Octave number

Pitch inflection

Pitch (key no.)