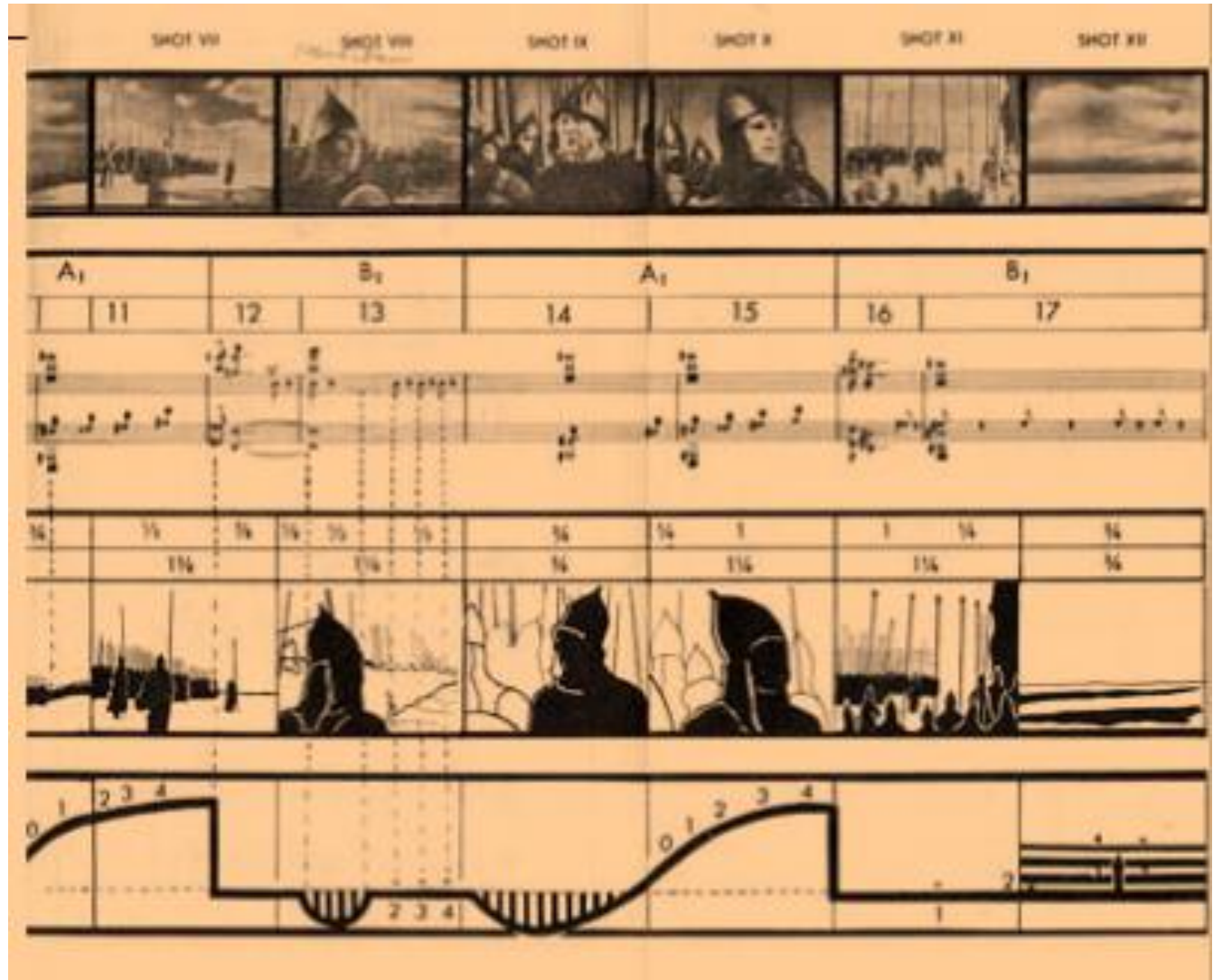


Midi Shortcomings: Temperament, Expression

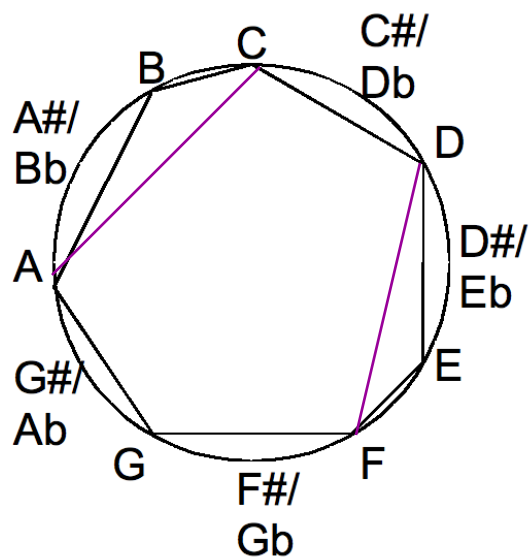
Video synchronization via MIDI

- Score (track)
- Moving images
- Frame numbers
- Bar numbers
- Sound tracks



Mapping (or not) to the chromatic scale

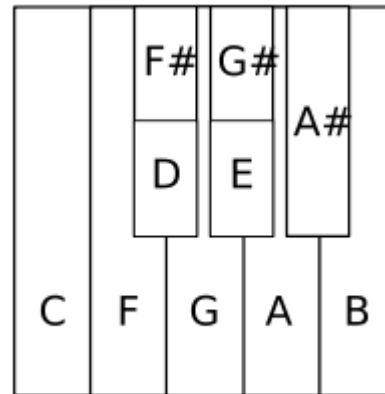
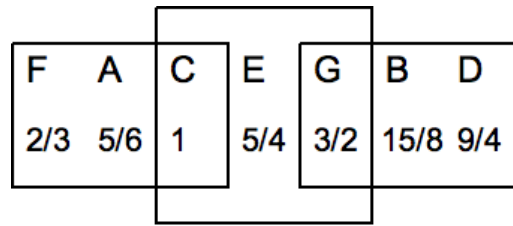
- Diatonic=8 tones
- **Chromatic=12 tones**
- Pentatonic=5 tones



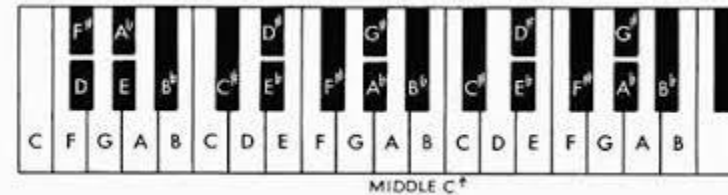
Lady playing tanpura, c1735

Non-equal temperament

- Baroque tunings (18th century)
 - “Just” intonation
 - Meantone
 - Werckmeister III



- Arbitrary 8ve arrangements (“short octaves”, split keys)



Electronic replicas offering unequal temperament

- Three modes
 - Equal-tempered
 - Meantone
 - Werckmeister III
- Two acoustic contexts
 - Room
 - Hall
- Two “instruments”
 - Organ
 - Harpsichord
- Five “stops”
 - Harpsichord 1-manual
 - Harpsichord 2-manual
 - Flemish
 - Lute
 - ...

Roland digital harpsichord series (1988--)



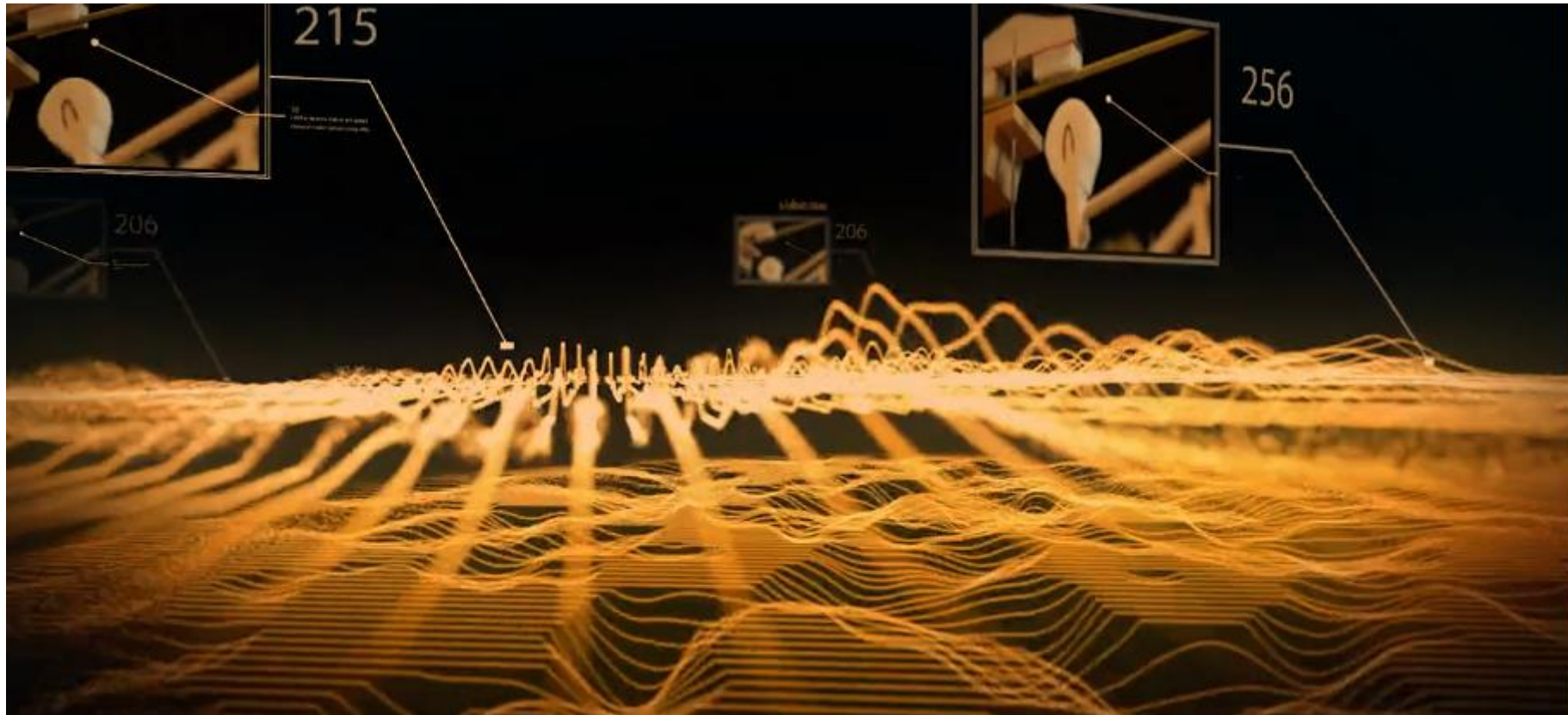
<https://www.youtube.com/watch?v=zZSIHVifRps>

MIDI in use: Historical vs digital harpsichords

- Original 16th-century instrument: National Music Museum, Vermilion, SD
 - <https://www.youtube.com/watch?v=aq9iwjyq6u0>
- Alteration of tuning, temperament
 - https://www.youtube.com/watch?v=W2gOl1p_0iM [Vallotti tuning, English Renaissance music]
- Split keys, Renaissance harpsichords:
 - <https://www.youtube.com/watch?v=D0OveRacKH0>

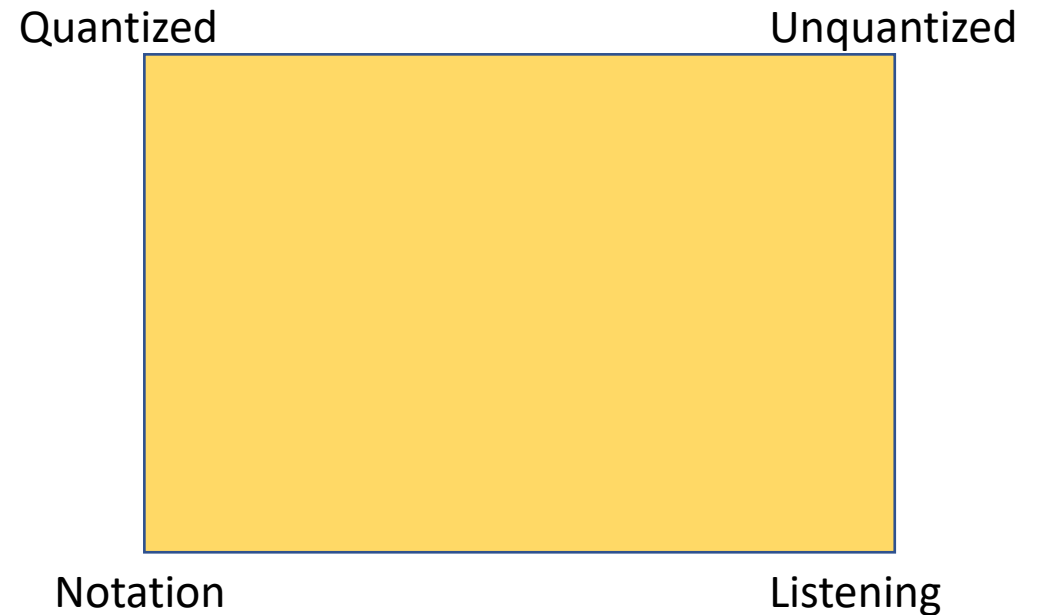
Steinway *Spirio* (electronic recording piano)

<https://www.steinway.com/spirio>



Quantized vs unquantized MIDI files

- **Expression** requires **unquantized** files
- **Unquantized** files **messy to work with**
- **Quantized files** preferable for transcription but **hard to listen to**



Recently built analog instruments

- John Butt demonstrating a replica of a Handel organ
- <https://www.youtube.com/watch?v=v-J3YkRKn7c>