Midi Shortcomings:
Temperament, Expression
Video synchronization via MIDI

- Score (track)
- Moving images
- Frame numbers
- Bar numbers
- Sound tracks
Shortcomings: Tuning, Temperament

Pitch
• Non-Western
• Non-equally tempered
• Interpretation of accidentals (inflections)

Modes vs. chromatic scale

Diatonic scale

Blues scale
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)
Vicentino’s enharmonic harpsichord (pitch equivalents in cents)

Music for enharmonic harpsichord (from c1550) here by Martino Pesenti (c1650)
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=zSIHVifRps
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