Melodic Similarity
"Natural history" of similarity

**Concept of similarity** fundamental to organization of most art music

**Types of similarity** widely variant

**Roles of similarity** widely variant

Similarity in *art music* is **intentional**
Contour matches (accidental)

Target:
- Chant: “Lucis Creator”

Some hits:
- Bach *WTC*
- Bizet: *Carmen*
- Saint-Saens: *Carnival* (via Offenbach)
- Mozart: Symphony No. 41, IV
Melodic “invisibility” factors

- Elaboration of something simple
- Compound melodies (monophonic)
- Psycho-acoustic tricks (polyphonic)
- Rotating melodies
- Ambiguous foreground/background
- Metrical ambiguity
Elaboration

Bach, Art of Fugue (after Wiering et al.)

Contrapunctus I, alto.

Canon per Augmentationem in Contrario Motu. soprano. EMD 5.55284: PTD 5.90789
Classic features of melody: *symbols vs humans*

Eerola et al, MP (2001): **Statistical vs perceptual melodic similarity**
- Material used: Finnish folk songs

Frequency distributions (symbols)
- Tones
- Intervals
- Durations
- Two-tone transitions

Frequency distributions (listeners)
- Tessitura
- Mean pitch
- Rhythmic activity
- Rhythmic variability
- Melodic predictability
Algorithmic vs Human Judgment
(Daniel Muellenseifen)

Works by Passion Fruit

<table>
<thead>
<tr>
<th>Class</th>
<th>Intervals</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>-4</td>
<td>&lt; -7</td>
<td>Big leap down</td>
</tr>
<tr>
<td>-3</td>
<td>-7, -6, -5</td>
<td>Leap down</td>
</tr>
<tr>
<td>-2</td>
<td>-4, -3</td>
<td>Big step down</td>
</tr>
<tr>
<td>-1</td>
<td>-2, -1</td>
<td>Step down</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>Same</td>
</tr>
<tr>
<td>1</td>
<td>1, 2</td>
<td>Step up</td>
</tr>
<tr>
<td>2</td>
<td>3, 4</td>
<td>Big step up</td>
</tr>
<tr>
<td>2</td>
<td>5, 6, 7</td>
<td>Leap up</td>
</tr>
<tr>
<td>4</td>
<td>&gt; 7</td>
<td>Big leap up</td>
</tr>
</tbody>
</table>

Features:
- intervals
- contour
- rhythm
- harmony
- recurrent motifs
Composers’ perceptual tricks

Compound melody

One voice that we hear as two

Distributed melody

Two voices that we hear as one
Rotating melodies

Haydn: “Archduke” String Quartet
Perceptual tricks:
Ambiguous foreground/background

Schubert
Perceptual tricks: **Metrical ambiguity**

Col intimissimo sentimento ma senza troppo marcere la Melodia

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Ratner

Brahms
Tune-family studies (social cognition)

“Morris tune”

◦ Weelkes (1608)

◦ Jones (1802)

“Londonderry air”

◦ Verse part: 1704

◦ Chorus part: 1850
A similarity study: The Ballo di Mantova

Fuggi fuggi fuggi da questo cielo, aspr' e duro, spietato gelo

Prima Parte

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4/10/2024
The “Ballo di Mantova,” cont.

De ge-bo-den da-gen Viert, o Ca-tho-lijk: Dat ghy Godt mooght be-
ha-gen, En win-nen ‘t hel-mer-ijck.
Same melody, different social contexts: The “Ballo di Mantova,” cont.

Dance of Mantua (17\textsuperscript{th} c.) as Dvorak’s “Moldau” theme (19\textsuperscript{th} c.)

As “Hatikva” (Israeli national anthem)
What makes “similar” melodies recognizable?

- **Meter** (except compound adaptations)
  - Especially rhythmic patterns associated with particular dance steps
    - Residues of motor memory?

- **Mode** usually (not always) preserved
  - Are major > minor equivalent to minor > major?

- **Social convention**
  - Properties external to music itself