

Theories of meter, rhythm, and form

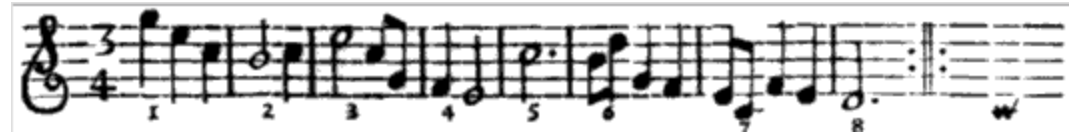
CS 275B/Mus 254

Eleanor Selfridge-Field

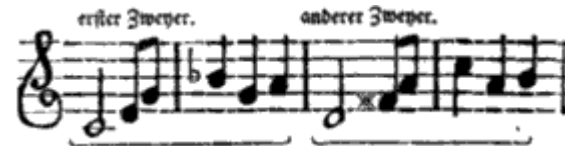
Josef Riepel (1752, 1775)

- **Melodic structure**

- Metric and tonal order at synchronized
- Given minuet melody (A), these are elaborations



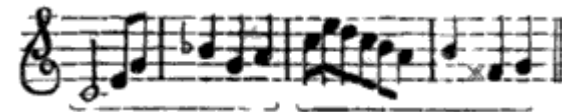
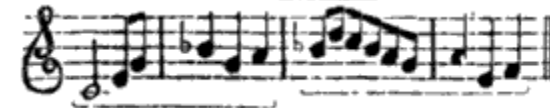
- 1st elaboration



- 2nd elaboration



- 3rd 4th elaborations



Overview

- 18th century theorists
 - Riepel, Koch
- 21st century theorists
 - Ito
 - White

Riepel: schematics of rhythmic motion

- Rhythmic type

- Running notes
- Quarter notes
- Dotted notes
- Immobile notes (dotted $\frac{1}{2}$)

- Activity type

- Move by step
 - Upward
 - Downward
- Move by leap

Similar to Themefinder

<i>Pitch</i>	<input type="text"/>
<i>Interval</i>	<input type="text"/>
<i>Scale Degree</i>	<input type="text"/>
<i>Gross Contour</i>	<input type="text"/>
<i>Refined Contour</i>	<input type="text"/>

Heinrich Christoph Koch (1749-1816)

- Important theorist of 18th century
 - 3-vol. **composition manual** (*Versuch einer Anleitung zu Composition...*1793)
 - Strong emphasis on rhythm and accent
 - Accent: (a) oratorical or (b) pathetic
 - *Musikalisches Lexikon*, 1803
- Very influential in recent years
 - Christopher Hasty: *Meter as Rhythm* (1997)
 - Riepel studies
 - Many Mozart and Beethoven studies

Koch on sonata form (and other structures)

- Posits three tiers
 - **Phrase** (combination of notes)
 - **Period** (combination of phrases)
 - **Form** (combination of periods)
 - Therefore: phrase is microcosm of work
- Reflects high interest in instrumental music

John Paul Ito (2014) , CMU

- “Koch’s Metrical Theory and Mozart’s Music: A Corpus Study,” *Music Perception* 31/3.
- Koch: composers should emphasize events on strong beats
 - Much emphasis on cadences
 - Different rules for different beat categories

1/4 2/4 3/4 4/4 1/4 2/4 3/4 4/4

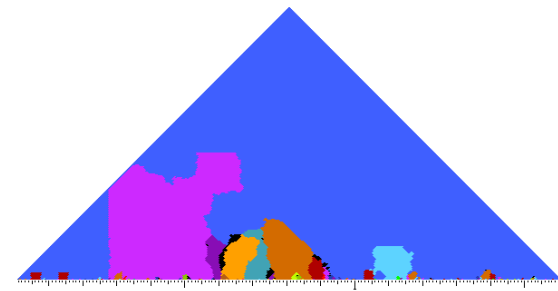
Adagio

• • • • • • • • • •

FIGURE 1. Haydn String Quartet Op. 50 No. 1/ii, mm. 1-6. Reproduction of Mirka, Example 6.4 (2009, p. 214), hyperbeats added. By permission of Oxford University Press, USA.

Note increased melodic and harmonic movement in approaching cadence.

Ito: points of departure



- Whether Koch is an appropriate guide to Haydn and Mozart
- Challenged by **data**:
 - Mozart piano sonatas: 251 phrases selected from all sonatas, certain phrase types excluded
 - 80% of phrases substantiated Koch's claim
 - Compare to Sapp **attack sums** for Mozart Sonata No. 17, i

<http://kern.ccarh.org/cgi-bin/ksanalysis-attacksum?option=1&url=http%3A%2F%2Fkern.ccarh.org%2Fcgi-bin%2Fksdata%3F%3Dusers%2F%3Dcraig%2F%3Dclassical%2F%3Dmozart%2F%3Dpiano%2F%3Dsonata%26file%3Dsonata17-1.krn%26f%3Dkern>

However...

- **Duple meter**: highest % coincidence
- Study of instrumental movements (mainly symphonies) in **6/8**, **3/8** had lower scores
 - Examples of beat-shifting ($6/8 = 2/8 \times 3$)

Ito: Hypermeter

- “Hypermeteral Schemas, Metrical Orientation, and Cognitive-Linguistic Paradigms,” JMT 57/1 (2013), 47-85.
- Looks at three-way reciprocity

Hypermeteral units

The image shows a musical score for the first movement of Beethoven's Piano Sonata op. 31/3, measures 1-8. The score is in 3/4 time and features a complex hypermetrical structure. Above the staff, a series of time signatures (1/4, 2/4, 1/4, 2/4, 3/4, 4/4, 3/4, 4/4) are indicated by dashed lines, representing the hypermetrical units. The tempo markings are *Allegro*, *ritar.*, *dan.*, *do*, and *a tempo*. The dynamics are *p*, *cresc.*, *sf*, and *p*. Below the staff, three colored boxes (pink, blue, pink) represent the hypermetrical units. A thick black arrow points from the first pink box to the second blue box, and another thick black arrow points from the second blue box to the third pink box, illustrating the three-way reciprocity.

Example 1. Beethoven Piano Sonata op. 31/3, i, mm. 1-8

Christopher William White (2014), Yale

- “Changing Styles, Changing Corpora, Changing Tonal Models,” *Music Perception* 31/3.
 - Cognitive aspects of tonal listening “vocabulary”
 - Data used: “Yale MIDI archive” (files from classicalarchives.com)
 - Concepts derived from Temperley/Marvin (2008)

White methodology

'Salami" = McGill



FIGURE 1. Three methods of surface divisions.

Method: [n-grams](#) (mainly tri-grams) of harmonic progressions

Analysis: [clustering into tree structure](#) organized chronologically, [with Handel as baseline](#)

White, cont.

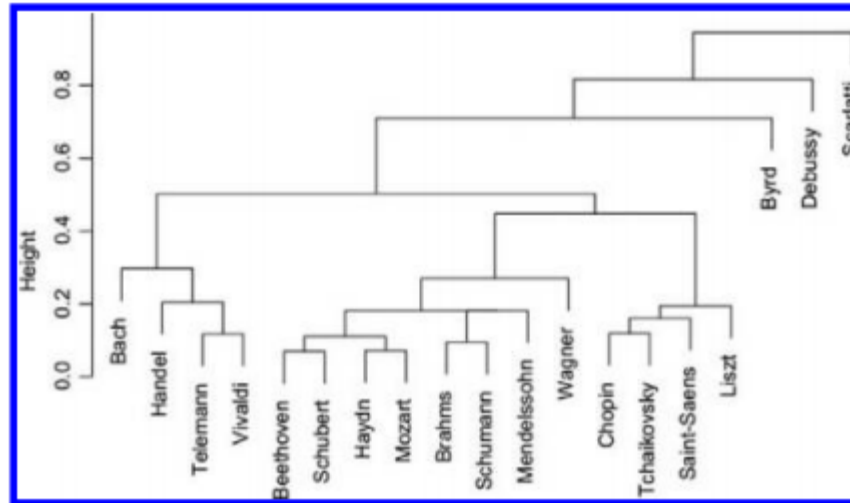


FIGURE 2. Cluster analysis of composers' trigram frequencies.