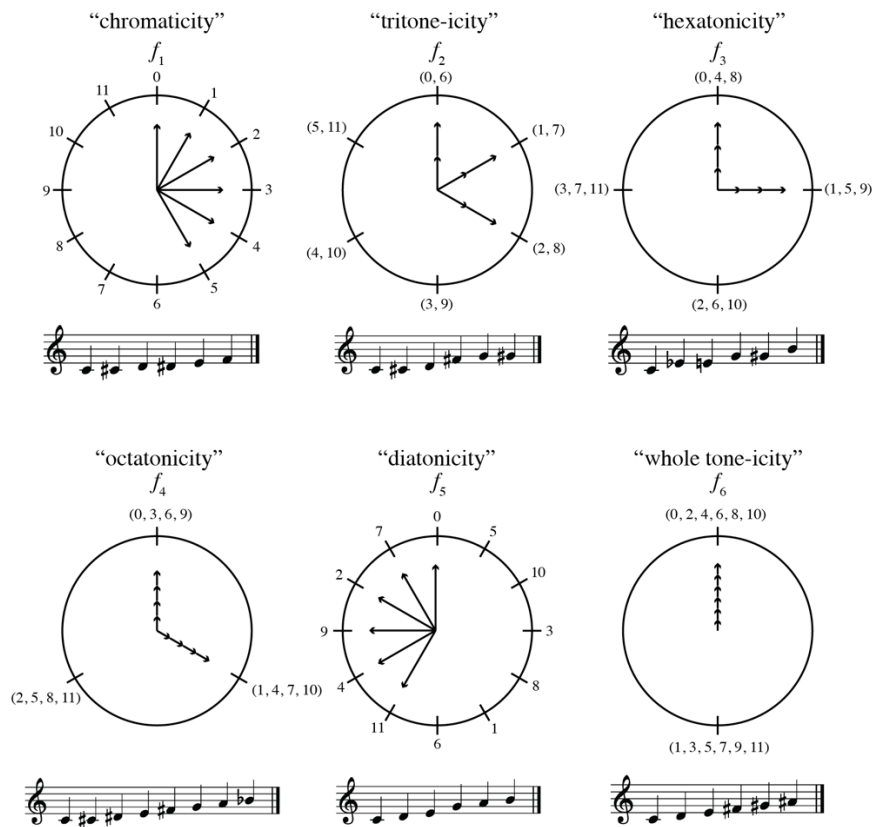
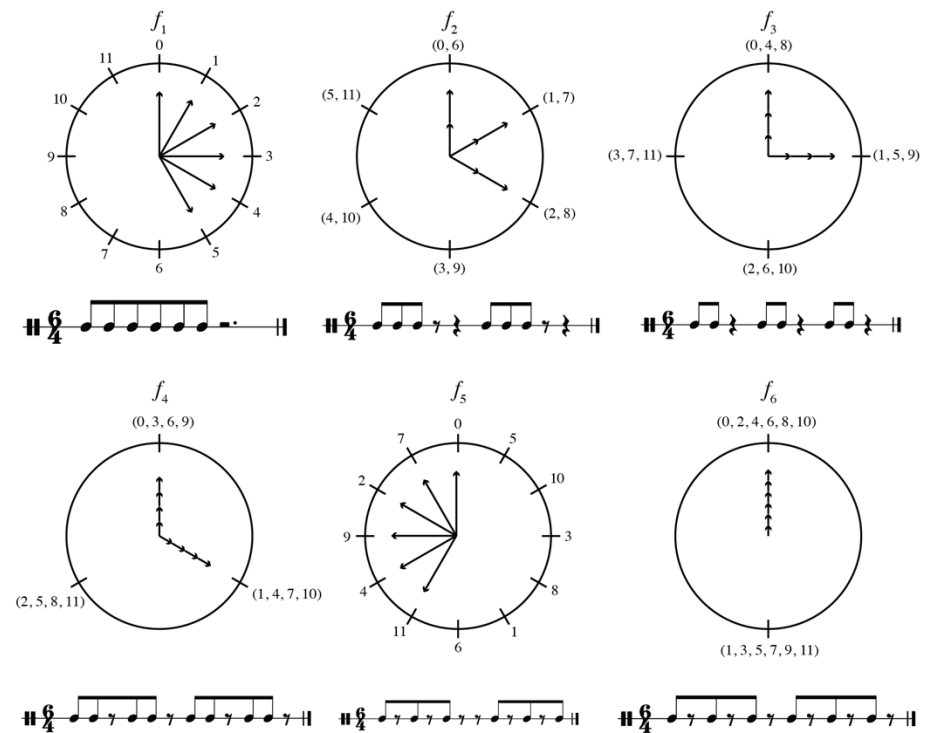


A DFT-Based Approach to Metricity in Ligeti's "L'escalier du Diable"

Example 1: A standard pcset approach to the DFT (cf. Quinn 2007)



Example 2: A set of prototypes for a metric DFT (cf. Yust 2021)



Example 3: “L’escalier du diable,” primary groove (Pattern A) and resulting DFT profile

<1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0>

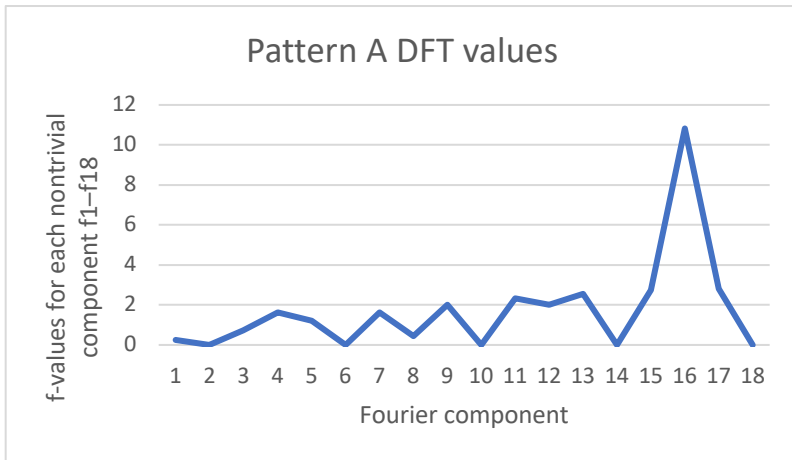
Grouping pattern: 2+2+3 | 2+2+2+3 | 2+2+3 | 2+2+2+3 | 2+2

Presto legato, ma leggiero, $\sigma = 30$

una corda
quasi senza ped.

*) $\frac{12}{8}$ only serves as a guideline, the actual metre consists of 36 quavers (three “bars”), divided asymmetrically.

*) $\frac{12}{8}$ ist nur ein Orientierungshinweis, die tatsächliche Metrik besteht aus 36 Achteln (drei “Takten”), asymmetrisch gegliedert.

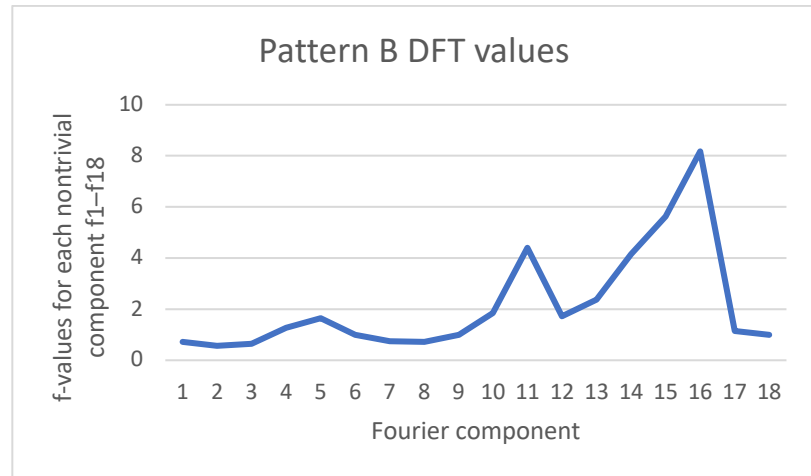


Example 4: “L’escalier du diable,” secondary groove (Pattern B) and resulting DFT profile

<1, 0, 0, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 0, 1, 0, 0, 1, 0, 0, 1, 0, 0>

Grouping pattern: 3 | 2+2+3 | 2+2+2+3 | 2+2+3 | 3 | 3

una corda
pp cresc.

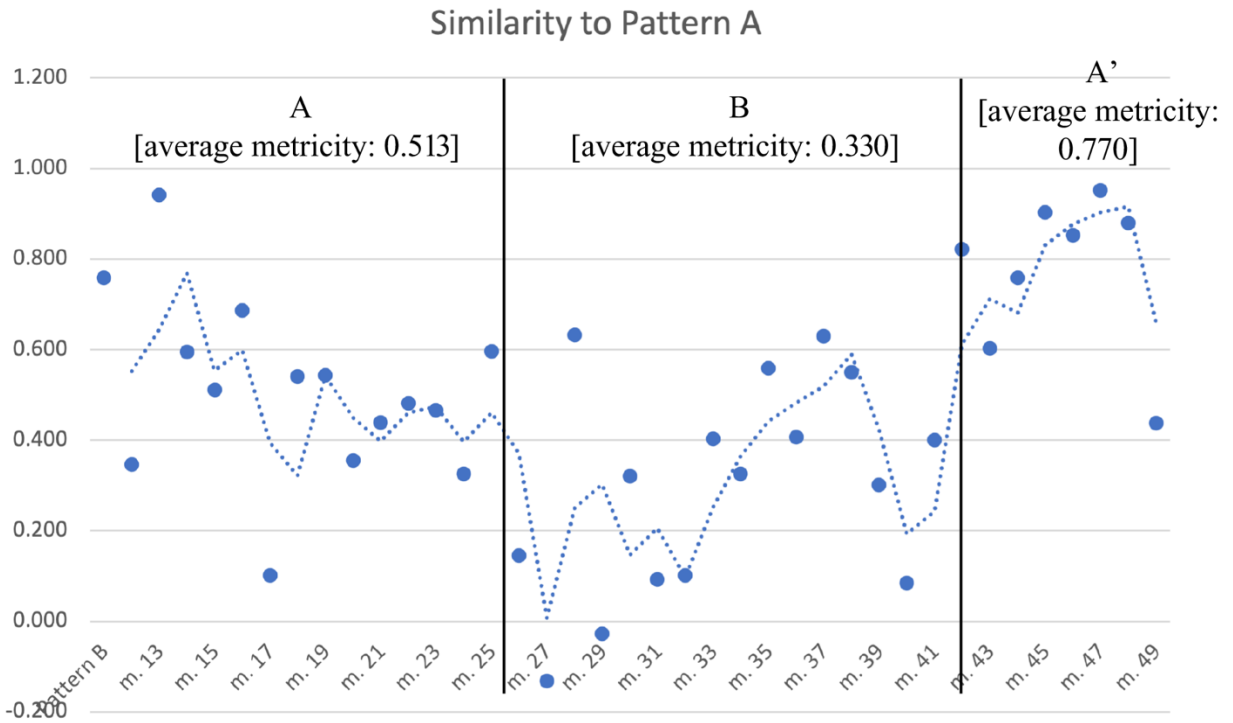


Example 5: A hypothetical rhythm of n=16 that would maximize f_{16}

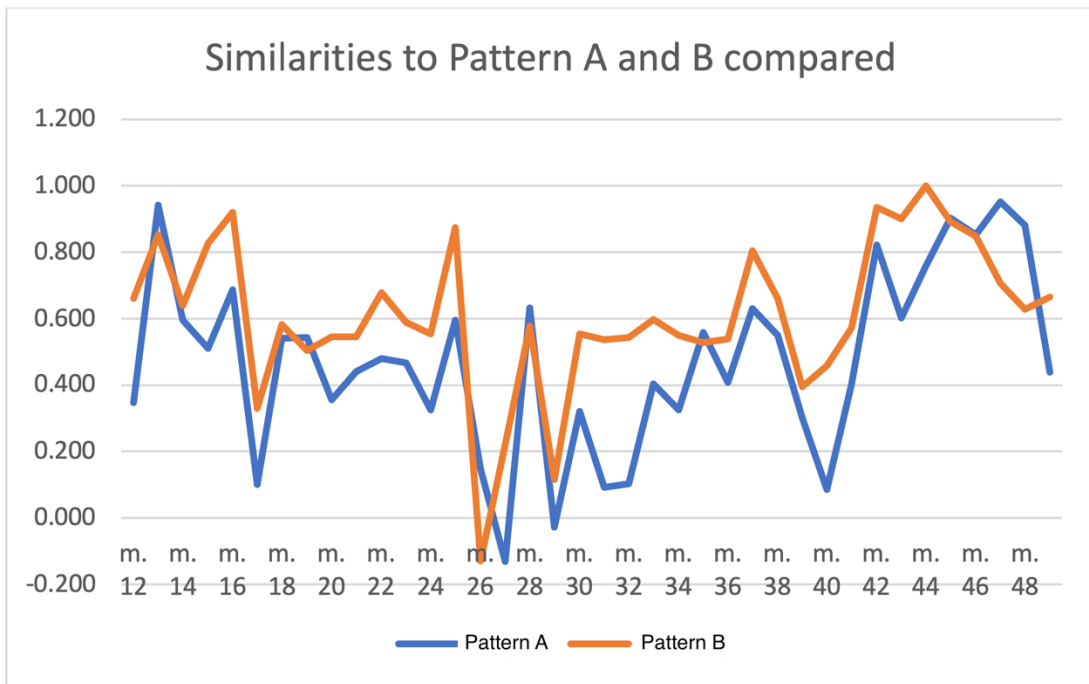
f_{16} prototype: 18 / 4 $\overbrace{\text{4}} \overbrace{\text{4}} \overbrace{\text{4}} \overbrace{\text{4}} \text{(4)}$

Ligeti groove: 18 / 4 $\underbrace{\text{5}} \underbrace{\text{4}} \underbrace{\text{3}} \underbrace{\text{4}} \text{(5)}$

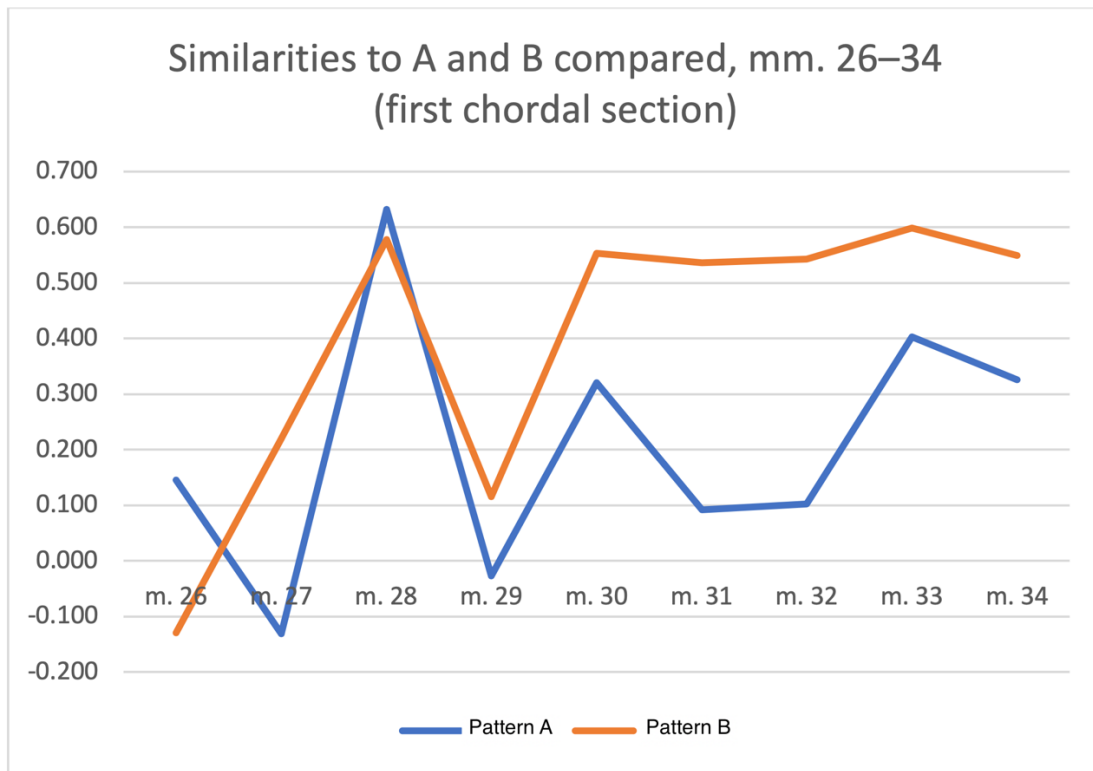
Example 6: Similarity values for each measure relative to Pattern A

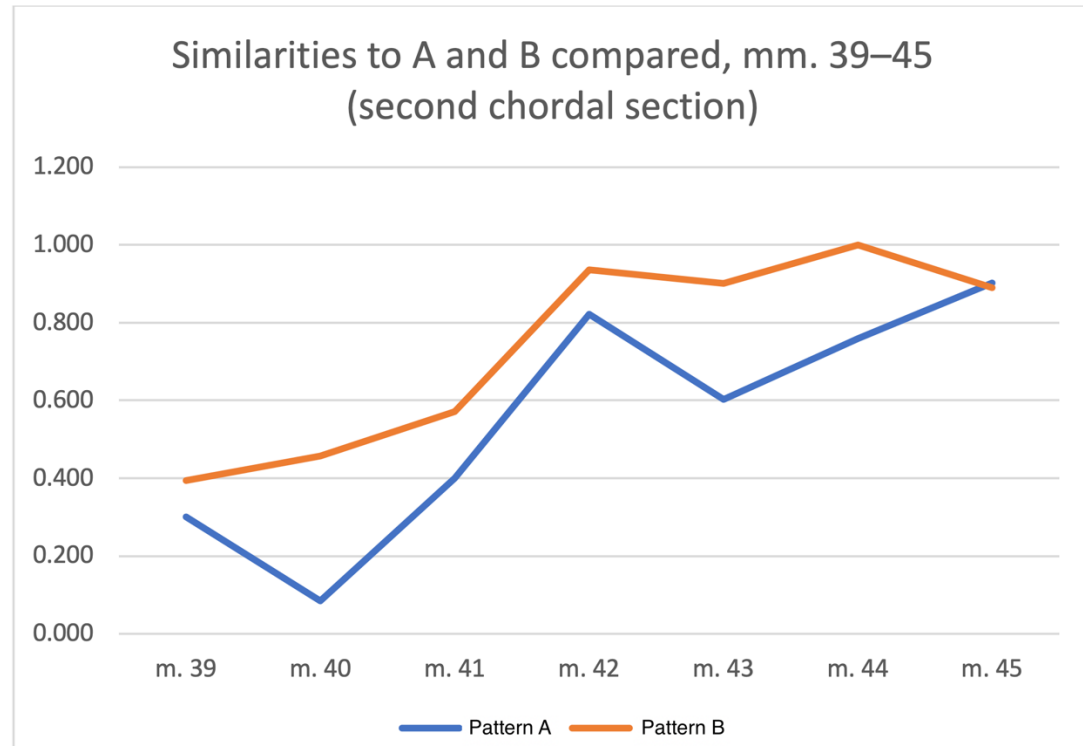


Example 7: Similarity values of Patterns A and B compared



Example 8: Similarity values of Patterns A and B compared in two select passages





Select Bibliography

- Amiot, Emanuel. 2016. *Music Through Fourier Space: Discrete Fourier Transform in Music Theory*. Cham: Springer International Publishing.
- Chiu, Matthew G. 2018. “Form as Meter: Metric Forms through Fourier Space.” Master’s thesis, Boston University.
- . 2021. “Macroharmonic Progressions through the Discrete Fourier Transform: An Analysis of Maurice Duruflé’s Requiem.” *Music Theory Online* 27, no. 3 (September).
- Quinn, Ian. 2006. “General Equal-Tempered Harmony (Introduction and Part 1).” *Perspectives of New Music* 44, no. 2: 114–58.
- . 2007. “General Equal-Tempered Harmony (Parts 2 and 3).” *Perspectives of New Music* 45, no. 1: 4–63.
- Yust, Jason. 2016. “Special Collections: Renewing Set Theory.” *Journal of Music Theory* 60, no. 2: 213–62.
- . 2017. “Review of Emmanuel Amiot, *Music Through Fourier Space: Discrete Fourier Transform in Music Theory*.” *Music Theory Online* 23, no. 3.
- . 2021. “Steve Reich’s Signature Rhythm and an Introduction to Rhythmic Qualities.” *Music Theory Spectrum* 43, no. 1 (Spring): 74–90.