Composer Attribution by Quantifying Compositional Strategies

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L.B. Meyer: “Style is a replication of patterning, whether in human behavior or in the artifacts produced by human behavior, that results from a series of choices made within some set of constraints.”

Application
Attribution of disputed organ fugues in Bach catalogue.

Undisputed fugues of J.S. Bach, W.F. Bach (son) and J.L. Krebs (student), for comparison. Projection into two dimensional space using Fisher-transformation.

Feature set, designed to detect low-level, unconscious replicated patterns:

- Amount of seconds
- Amount of thirds
- Amount of fourths
- Amount of augmented fourths
- Amount of diminished fifths
- Amount of fifths
- Amount of sixths
- Amount of sevenths
- Amount of octaves
- Amount of parallel thirds
- Amount of parallel fourths
- Amount of parallel sixths
- Suspension by step
- Voice density
- Amount of dissonance
- Bars starting with dissonant
- Entropy of harmonies
- Entropy of pitches
- Entropy of sonorities
- Stability of rhythm

Classification of disputed fugues

BWV 534
BWV 536
BWV 537
BWV 546
BWV 565
BWV 567

Parallels
Intervals
Consonance / Dissonance
Variation in rhythm

Laws (physical)
Rules (cultural)
Strategies (individual)