

Beyond the Mozart K448 effect?

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DARTMOUTH

Sonata in D and Fugue

For two Pianos

(Köchel, Nos. 449 and 450)

Edited by
Edwin Hughes

W. A. Mozart
Composed in 1784

Allegro con spirito

Piano I

Piano II

The first system of the score shows the beginning of the piece. Piano I (top) starts with a treble clef, a key signature of one sharp (F#), and a 3/4 time signature. The music begins with a chordal texture, followed by a series of eighth-note patterns. Fingerings are indicated with numbers 1-5. Piano II (bottom) starts with a bass clef and a similar key signature and time signature. It begins with a bass line of eighth notes, mirroring the rhythmic pattern of Piano I. The tempo is marked 'Allegro con spirito'.

I

II

The second system continues the piece. Piano I (top) has a treble clef and continues with eighth-note patterns and some chords. Piano II (bottom) has a bass clef and continues with a steady eighth-note bass line. The tempo remains 'Allegro con spirito'.

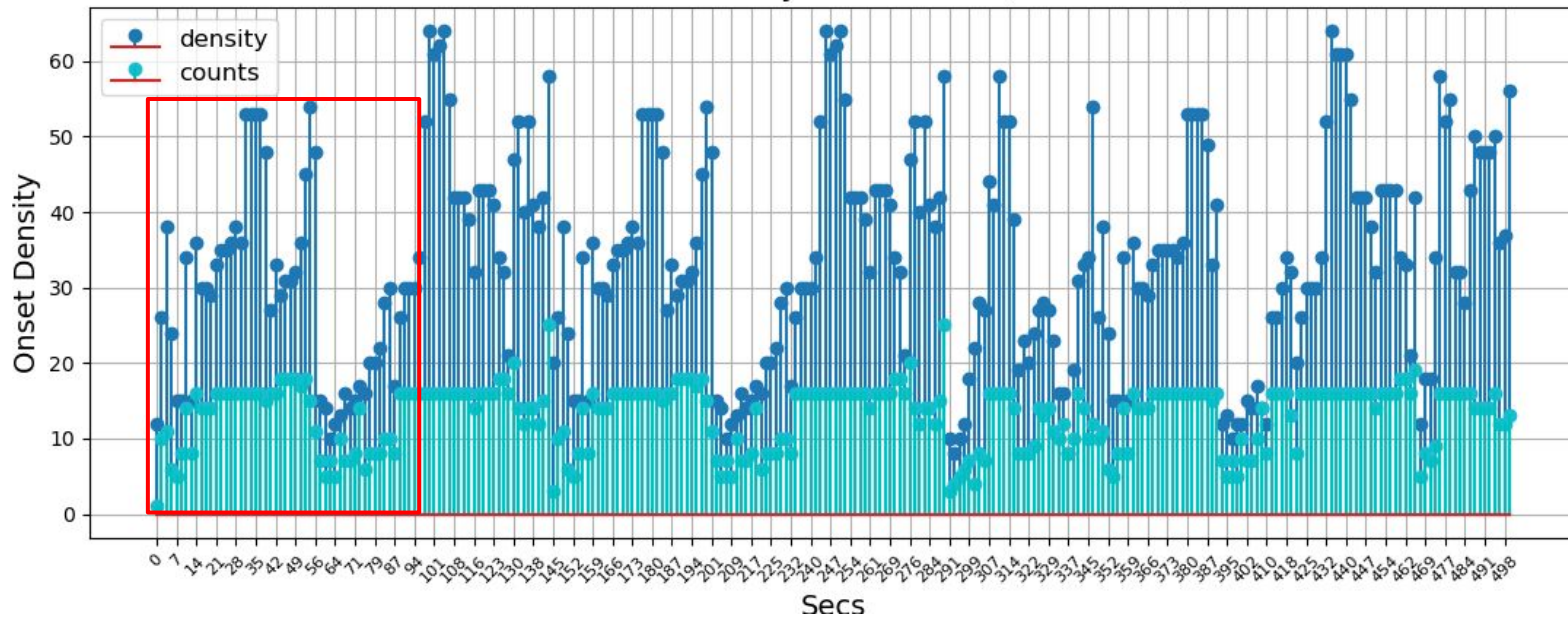


Entrainment
or
Engagement?



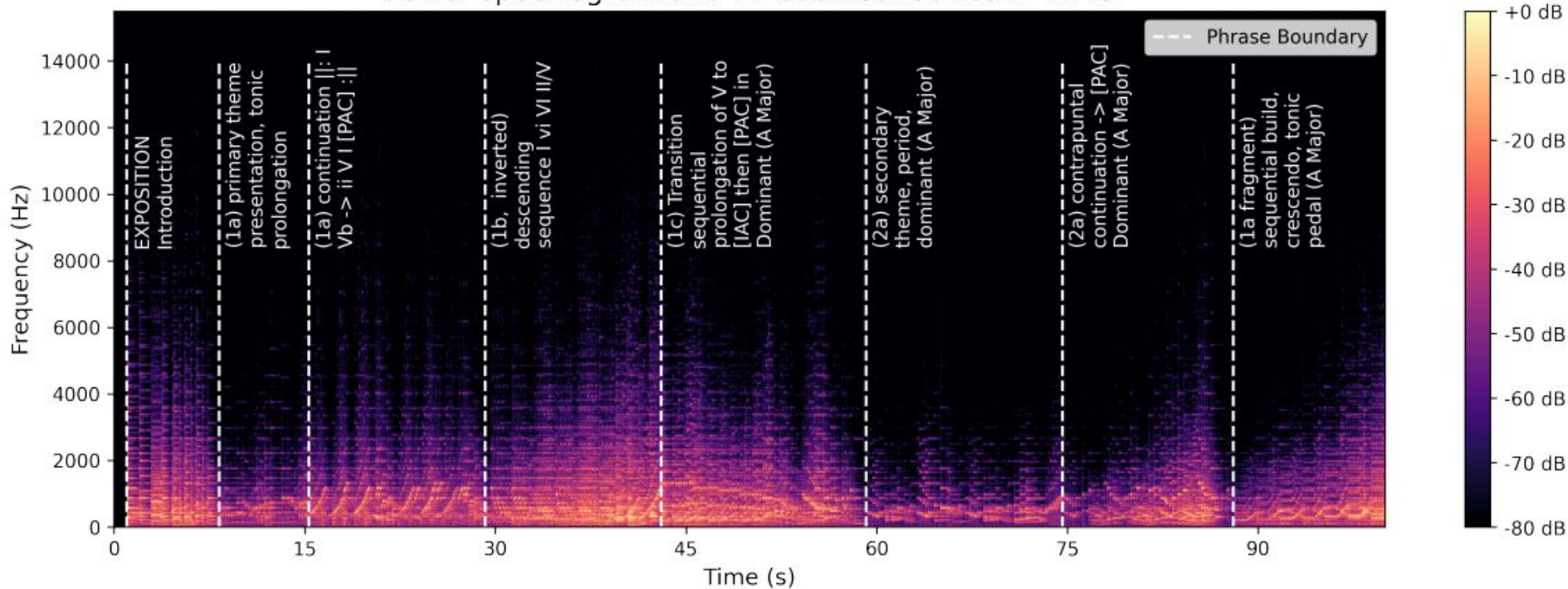
K448 Note Density

K448 Onset Density and Counts (measures)



K448 Structure

Power spectrogram and Phrase Boundaries in K448



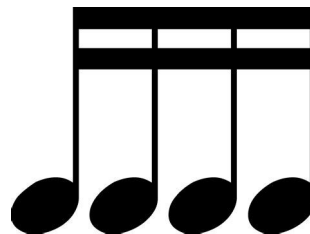
136 BPM



2.266 Hz

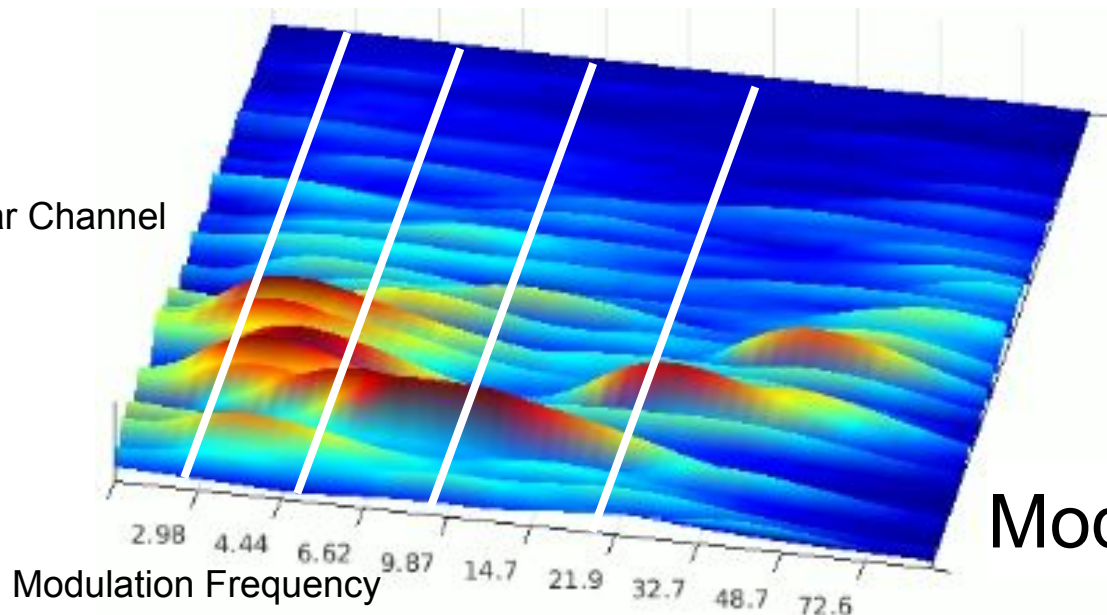


4.533 Hz



9.066 Hz

Cochlear Channel



Modulation Spectrum

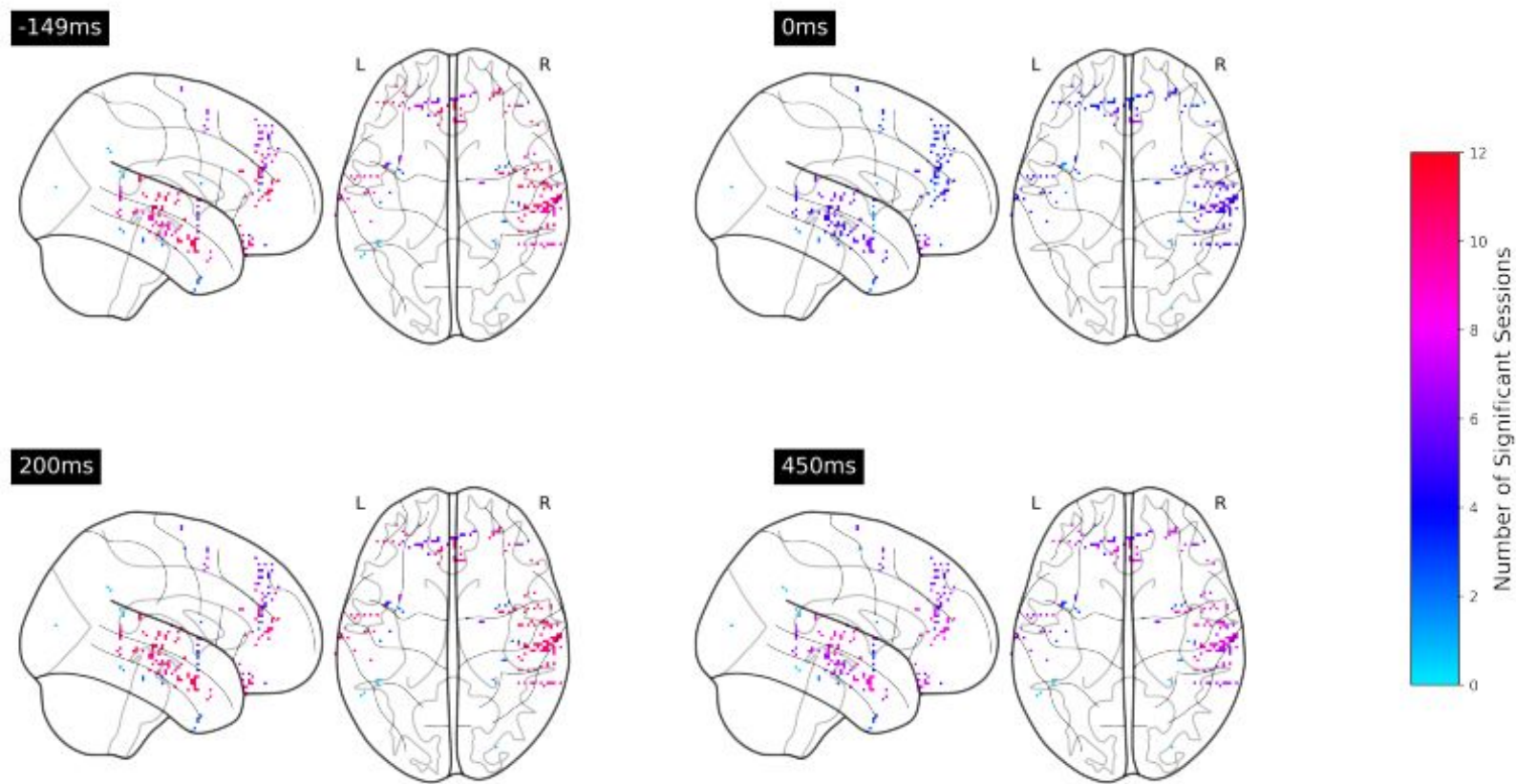


Figure 10. Number of sessions in which neural responses to note onsets and phrase boundaries are significantly different at -149, 0, 200, 450 ms relative to the stimulus markers.

Why Mozart?

- Structure / Sonata Form ?
- Tempo / Beat ?
- Rhythmic Surface ?
- Modulations (Between Harmonics)?

Isolating the factors:

Timbre / modulation spectrum

- Spectral matching

- Mozart with other instruments

Tempo

- Coldplay

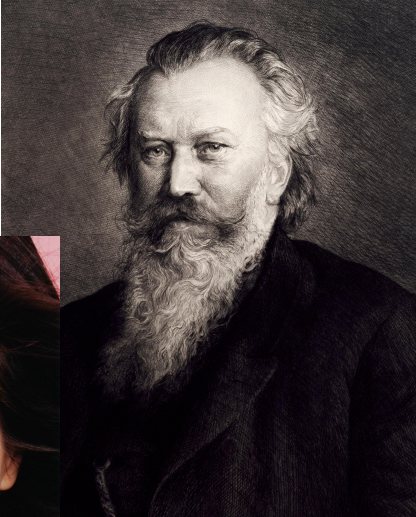
- Other piano music

Rhythmic surface

- Mozart - rhythm only

- Bach - matching rhythm

Beyond Mozart?



Sonata in D and Fugue
For two Pianos
(Kolar, nos. 100 and 101)

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W. A. Mozart
Composed in 1784

Allegro con spirito

Piano I

Allegro con spirito

Piano II

A musical score for two pianos. The top system is for Piano I and the bottom system is for Piano II. Both are in 4/4 time and marked 'Allegro con spirito'. The score shows the first few measures of the piece.

A musical score for two pianos, continuing from the previous block. It shows measures 1 through 4 for both Piano I and Piano II. The notation includes treble and bass clefs, notes, rests, and dynamic markings.

Other tempo-matched classical piano:

http://aum.dartmouth.edu/~mcasey/JSBach_PreludeNo2_Cminor_137bpm.wav

Tempo-matched rock/pop:

http://aum.dartmouth.edu/~mcasey/Coldplay_Clocks_132bpm.wav

Tempo-matched disco:

http://aum.dartmouth.edu/~mcasey/EarthWindFire_BoogieWonderland_135bpm.wav

K448 monotonic (no pitch variation), all notes are D (the tonic) in their nearest octave.

<http://aum.dartmouth.edu/~mcasey/K448-136bpm-Monotonic.wav>

No rhythm:

http://aum.dartmouth.edu/~mcasey/Wagner_LohengrinWWV75-PreludeToActI.mp3