

Music to the brain

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PROPOSITIONS TO THE THESIS

Music to the Brain

investigating auditory scene analysis with polyphonic music

Niels R. Disbergen

1. Music is ideal to investigate naturalistic Auditory Scene Analysis (ASA) processes
2. Neural attention mechanisms are capable of shaping the way auditory streams are represented in auditory cortex
3. ASA of naturalistic music stimuli requires a large temporal-frontal network of cortical regions
4. An integrated or segregated perception of polyphonic music is achieved through an interactive interplay between neural bottom-up and top-down processes
5. Understanding the neural mechanisms underlying a given perceptual phenomenon can be best achieved through a combination of an in-depth behavioral investigation and multiple brain-imaging methods
6. Engineering advances in data analysis algorithms are of great value for Neuroscience
7. It is not enough for code to work. It should be structured, direct, and developed in way that it can be safely used by others
8. Advanced and state-of-the-art machine learning analysis strategies in Neuroscience require a large amount of high-quality data for each individual subject
9. Advances in human-machine interaction can be fueled through knowledge on neural stream segregation mechanisms
10. Truth can only be found in one place: the code (Robert C. Martin)