

Keynote speech

Lecture Hall

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10:25 - 11:15

Identification of Mental Architectures in Face Perception Using the Systems Factorial Technology

Mario Fific, *Grand Valley State University*

Failure to selectively attend to a facial feature, in the part-to-whole paradigm, has been taken as evidence of holistic perception in a large body of face perception literature. In this study we demonstrate that although failure of selective attention is a necessary property of holistic perception, its presence alone is not sufficient to conclude that holistic processing has occurred. One must also consider the cognitive properties that are a natural part of information-processing systems, namely, a processing order (serial, parallel), a stopping rule (self-terminating, exhaustive), and process dependency. We demonstrate that an analytic model (nonholistic) based on a parallel mental architecture and a self-terminating stopping rule can predict failure of selective attention to a facial feature. The new insights in our approach are based on systems factorial technology (SFT), which provides a rigorous means of identifying the holistic/analytic distinction. The main goal of the study was to compare potential changes in architecture when two second-order relational facial features are manipulated across different face contexts. Supported by simulation data, we suggest that the critical concept for modeling holistic perception is the interactive dependency between features. We argue that without conducting tests for architecture, stopping rule, and dependency, apparent holism could be confounded with analytic perception. A brief tutorial about how to use SFT in face perception experiments is provided.