

Art and Ambiguity - Semantic and syntactic processing of Art: perception of paintings and associated distinct neurophysiological brain responses.

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The terms „semantics“ and „syntax“ stem from linguistics, where the syntax refers to the structure of a sentence and the semantics to its meaning. This concept can be extended to the domain of image processing, where the processing of natural scenes with violated semantics or a violated syntax evokes distinct ERPs, in the N300/400 and the P600 time window, respectively. To address whether semantic and syntactic violations are processed differently in artworks, we presented participants with surrealist paintings containing semantic or syntactic violations, edited versions of those paintings without violations, and as control real photographic versions of each painting. Results indicate that all presented images were processed as Artworks, probably due to carry-over effects of the paintings. Recorded EEG data showed ERP signals which were opposite to those occurring with everyday life pictures, syntactic violations eliciting higher amplitudes in the N300 and N400, and semantic inconsistencies eliciting a higher amplitude in the P600. We conclude that viewing artworks does include automatic syntactic and semantic expectations, which however importantly differ from those in everyday-life scenes, and we therefore propose a new operationalization.