

ABSTRACT

An important goal in the study of object perception is to understand how the brain integrates various visual properties into a coherent object. Currently, neural synchronization is regarded as a flexible and effective way to perform this integration. Under the framework of this theory, one question that has not been explored will be raised inevitably that whether synchronization underlying perception is automatic, that is, it is independent of attention. My hypothesis is that perceptual integration could be performed automatically through neural synchronization. Two experiments were designed to study it. In Experiment 1, participants were required to press a key to respond to match one of four stimuli: red circle, green circle, and red rectangle, green rectangle. Over 1/3 of the times, a sound was presented before the visual stimulus lasting for 40 or 80 ms. The presence of the sound was random, unpredictable. In Experiment 2, two numbers were presented on a computer screen before displaying the target stimulus. The interval between the numbers and visual stimulus was 100 ms, 200 ms, and 400 ms.. The participants were required to respond the target stimulus as quickly as possible if the sum of two numbers was odd, otherwise no response was necessary.

Results showed that latency of synchronization underlying perception was the same in all conditions of the two experiments, indicating that synchronization might be independent of attention.