

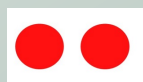


Timing of Mental Events

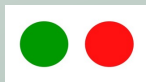
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Introduction

- Priming is observed when the performance of a task is affected by a recent experience, even though performance of the task does not require memory for the recent event (Posner & Keele, *Science*, 1967).
- E.g., E. Rosch (1975, *JEP*) found that subjects who were required to judge whether two stimuli were the same color did so faster on average when they heard (and repeated aloud) the name of one of the colors 2.0 s. before the presentation of the visual stimuli. We can call this “color priming.”



Same



Different

- The current study concerns specifically the timing, or mental chronometry, of the information processing underlying the effect of the auditory prime.
- Rosch found that priming diminished as the time between the auditory prime and visual stimuli decreased. This is called the stimulus onset asynchrony (SOA).
- However, Rosch confounded the SOA with the instructions given to the subjects about how to process the auditory stimulus (i.e., active versus passive priming).

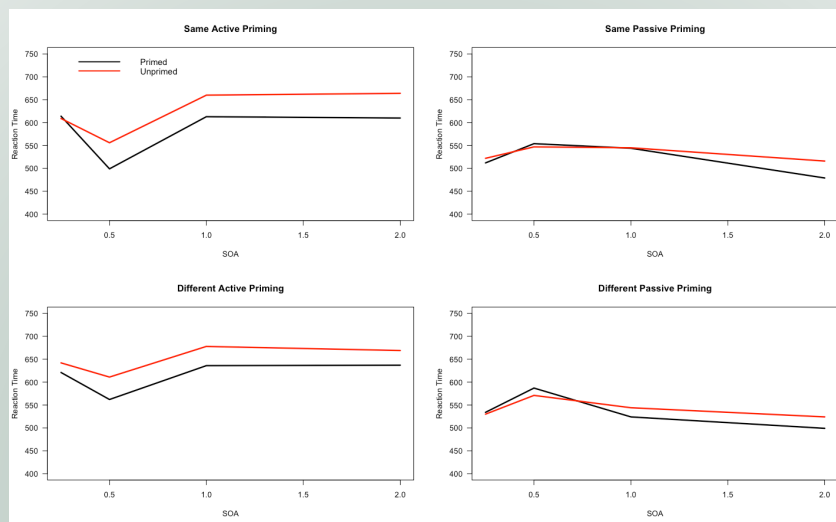


Figure 1. Mean reaction times (RTs) of participants under different priming and SOA conditions

Methods

- Subjects were recruited from the USF Psychology Department participant pool, and they were awarded course credit. Data were collected by a computer in individual subject booths in the Memory Modeling Lab.
- A 2 (Active vs. Passive processing) x 2 (SOA: .25, .50, 1.0, 2.0) x 2 (same vs. Different Stimuli) x 2 (Primed vs. Unprimed) mixed-factorial design was utilized with processing and SOA varied between-subjects.
- Each subject was shown two visual stimuli (see above), then they heard a word naming a color matching at least one member of the pair of visual stimuli or a neutral word (e.g., “red” or the word “blank”). They pressed a key to respond same or different.
- In the Active condition, subjects were required to repeat the word they heard aloud, and in the Passive condition they were not given this instruction.

Results

- The results are presented in Figure 1.
- Overall, RTs were slower in the Active condition than in the Passive condition.
- Priming was observed in the Active condition, but not in the Passive condition.
- Priming was observed in both same and different conditions under the Active conditions.
- There appears to be a non-linear effect of the SOA on RTs.

Discussion

- The results of the Active-Priming condition replicate Rosch’s earlier results when the stimuli were the same. However, priming was observed when the stimuli were different in this experiment, whereas Rosch found no priming.
- The presentation of an actively processed prime .25 s before visual stimuli slowed the same-different decision. This disrupted the priming effect observed at longer SOAs.

References

- Posner, M. I., & Keele, S. W. (1967). Decay of visual information from a single letter. *Science*, 158(3797), 137-139. <https://doi.org/10.1126/science.158.3797.137>
- Rosch, E. (1975). The nature of mental codes for color categories. *Journal of Experimental Psychology: Human Perception and Performance*, 1(4), 303–322. <https://doi.org/10.1037//0096-1523.1.4.303>