

P2465 Attention Reading Review

Reference: Raymond, J.E., Shapiro, K.L., & Arnell, K.M. (1992). Temporary suppression of visual processing in an RSVP task: An attentional blink? *Journal of Experimental Psychology: Human Perception and performance*, 19, 849-860.

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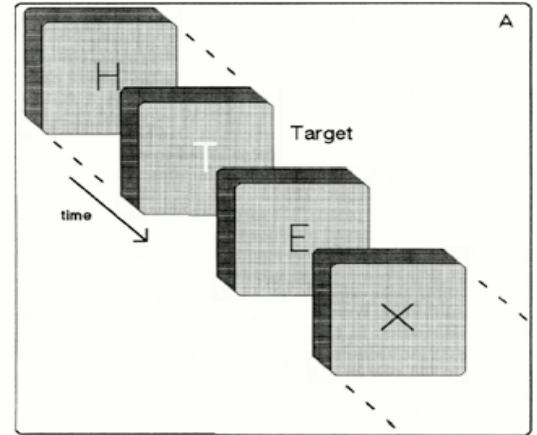
I. Introduction

A. Rapid Serial Visual Presentation

1. Brief presentation of a sequence of stimuli (letters, words)
2. Each stimulus presented in the same location
3. Presentation rate ranges from 6 to 20 items/s

B. Attentional Blink

1. Following target identification, large deficits found in identification of stimuli presented within 700ms after target onset



C. Model Supported by Raymond, Shapiro, and Arnell

1. Attention is allocated episodically
2. An attentional gate regulates flow of information (visual)
3. When the gate is closed, probes are still detected but objects are not identified
4. When opened, attended-to stimulus is recognized and stored in a temporary sensory store, but without maintenance of temporal information
4. With rapid stimulus presentation, two stimuli may flow through the gate
5. Once a second stimulus is processed, confusion in the sensory store causes the attentional gate to close and lock (suppression), preventing further recognition

II. Experiment 1

A. Purpose: To test that stimuli and temporal parameters produce the attentional blink

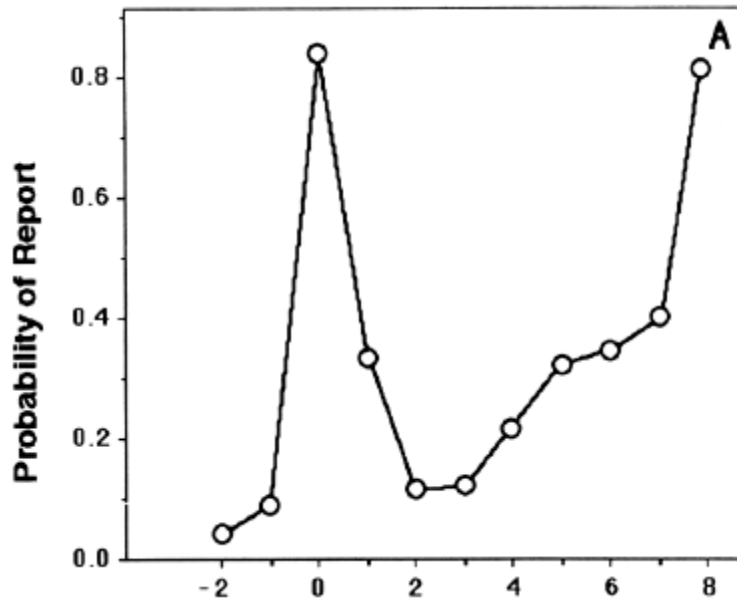
B. Procedure:

1. RSVP of letters with 15 ms presentation time and 75 ms ISI
2. Target letter indicated by its color (white) relative to other letters (black)
3. Ss instructed to name the white letter and report the next three letters in the stream
4. 7 – 15 pre-target items, 8 post-target items

C. Results:

1. Significant decrease in probability of reporting the next seven letters
2. 8th letter after target (+8) as likely to be reported as the target (SOA of 720 ms)

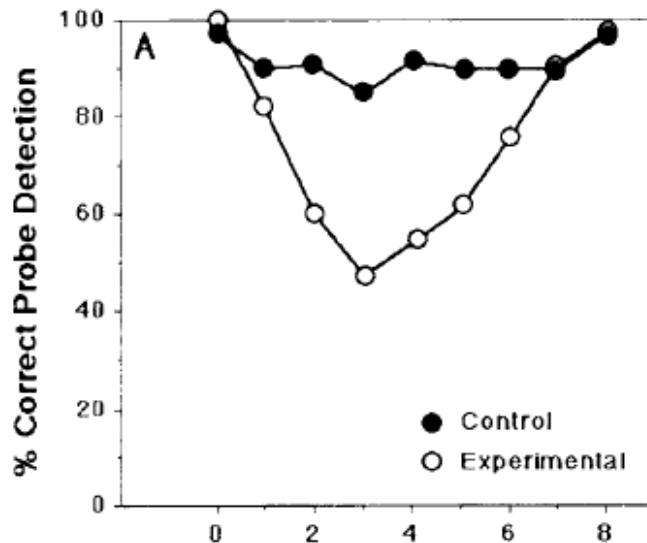
Experiment 1: Probability of Report As a Function of Serial Position



III. Experiment 2

- A. Purpose: To test whether the attentional blink is sensitive to task complexity (multiple letter identifications versus letter identification followed by probe detection). Also, to demonstrate that the attentional blink is not due to sensory degradation (masking).
- B. Procedure:
1. Stimuli and procedure identical to Experiment 1, except for what's listed below
 2. Half of the trials included a post-target probe (X) in one of eight serial positions
 3. In the experiment condition, Ss instructed to name the target letter and indicate whether the probe (X) was present
 4. In the control condition, Ss instructed to just report the presence of the probe
- C. Results: % correct for probe detection sensitive to serial position, indicating the presence of an attentional blink. Also, the control condition did not exhibit a decrement in performance

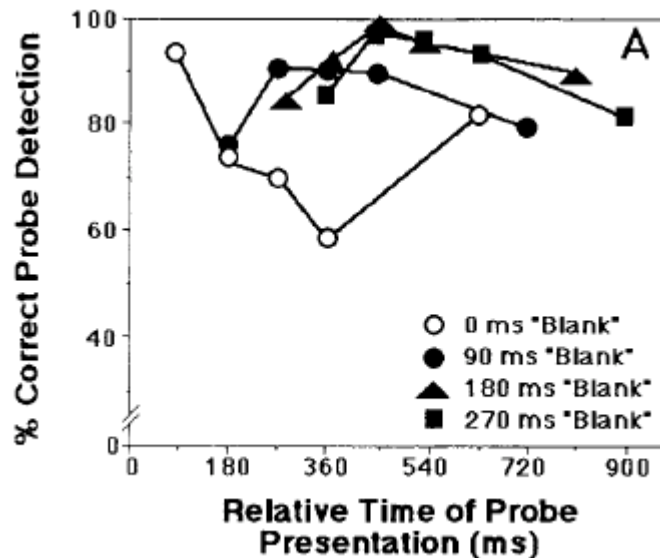
Experiment 2: Probe Detection As a Function of Serial Position



IV. Experiment 3

- A. Purpose: To test if the suppression mechanism is insensitive to post-target events
- B. Procedure:
 - 1. Adds to previous procedure a blank interval of varying duration between target and +1 (1st word after target)
 - 2. Blank intervals were either 0, 90, 180, or 270 ms
- C. Results: The absence of attentional blink with intervals greater than 90 ms argues that the gate adapts to post-target episodes. The blank prevents confusing stimuli from interfering with identification of the target and keeps the attentional gate unlocked.

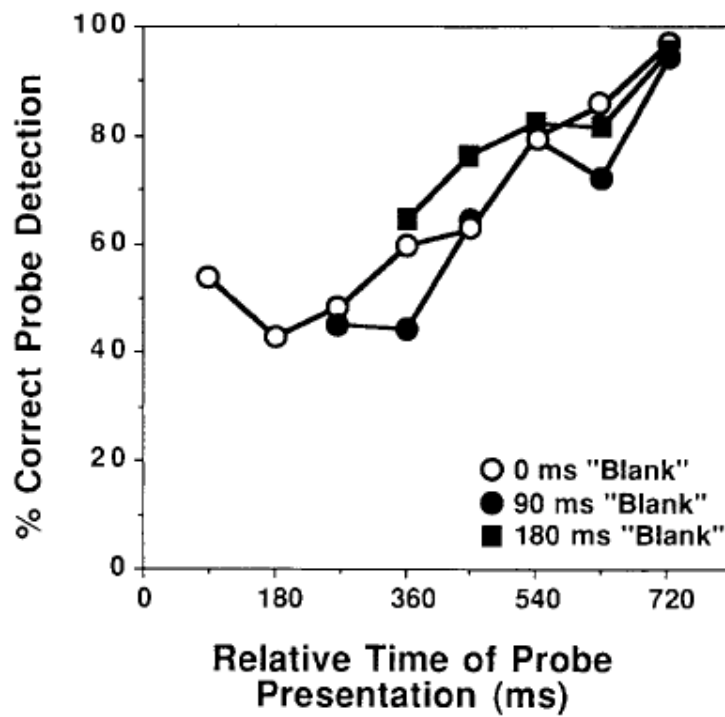
Experiment 3: Probe Detection As a Function of Relative Time of Presentation (SOA of 90 ms) and Blank Interval Duration



V. Experiment 4

- A. Purpose: To further test the suppression mechanism's sensitivity to post-target information.
- B. Procedure:
 - 1. Identical to previous except that blank interval presented after +1 instead of after target (intervals of 0, 90 ms, and 180 ms)
- C. Results: Attentional blink exhibited after 90 ms blank interval, suggesting a locking of the attentional gate. Clear evidence that the attentional blink occurs only when two targets are processed in rapid succession (not as a result of processing a single stimulus)

Experiment 4: Probe Detection As a Function of Relative Time of Presentation (SOA of 90 ms) and Blank Interval Duration



Note: The blank intervals displayed above are inserted after +1 (1st serial position following target).