

PSI 428

Attentional Processes

Selective Attention

Learning Objectives

- What is selective attention
- Selective Attention in Audition
- Selective Attention in Vision
- Article Presentation
- **Indirect measures for selective attention**
- Article Presentation

Indirect Measures

- Indirect measures for identification of unattended information.
- Is rejected stimulus perceptually analyzed and identified?
- The general strategy
 - Present both attended and rejected stimulus around similar locations
 - Analyze effects of the rejected stimulus on the processing of the attended stimulus

Indirect Measures

- “Results suggest that even people try to ignore familiar visual stimuli, these stimuli are nonetheless sometimes processed to the point of recognition.”
- It is generally accepted that these results support the late selection theory.

Indirect Measures

- “All stimuli undergo full processing to the point of recognition regardless of the observer’s desires.”
- “Or regardless of what other stimuli are being identified at the same time.”

Indirect Measures

- “Do Stroop (and Stroop-like) effects reflect analysis of rejected stimuli in every trial or in most of the trials?”
- How can we provide an evidence for this distinction?

Indirect Measures

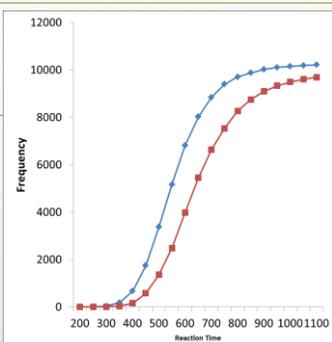
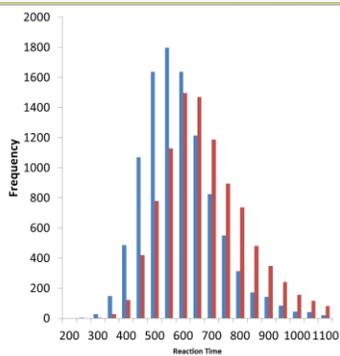
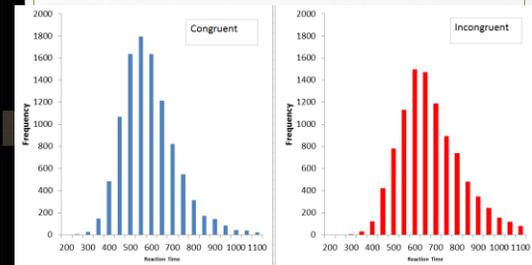
- The average Stroop effect is 30 msec
- If the effects of the semantic analysis of the rejected stimulus is observed in every trial.
 - Then cumulative distribution function should shift 30 msec, without changing its shape

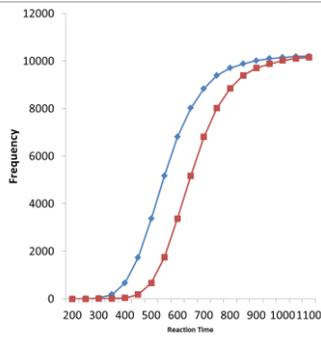
Indirect Measures

- The average Stroop effect is 30 msec
- If the effects of the semantic analysis of the rejected stimulus is observed in most of the trials
 - Then the shape of the cumulative distribution function should be different

Stroop Stimuli

		RENK BOYUTU			
		mavi	sarı	yeşil	pembe
KELİME BOYUTU	MAVİ	30	10	10	10
	SARI	10	30	10	10
	YEŞİL	10	10	30	10
	PEMBE	10	10	10	30





Indirect Measures

- “In Stroop (and Stroop-like) effects, the rejected stimuli comes from the same set as the relevant stimuli.”
- Stroop (and Stroop-like) effects were not observed when the irrelevant stimulus was not to any response.
- These results support the Treisman’s filter attenuation theory

Kahneman, Daniel, and Diane Chajczyk. "Tests of the automaticity of reading: Dilution of Stroop effects by color-irrelevant stimuli." *Journal of Experimental Psychology: Human perception and performance* 9, no. 4 (1983): 497.

Indirect Measures

- Dilution of Stroop effects:
- **Method:** A color word and a color unrelated word shown next to a color bar.

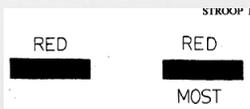


Figure 1. Example of a color-word display (left), and a diluted version of the same display (right).

Kahneman, Daniel, and Diane Chajczyk. "Tests of the automaticity of reading: Dilution of Stroop effects by color-irrelevant stimuli." *Journal of Experimental Psychology: Human perception and performance* 9, no. 4 (1983): 497.

Indirect Measures

- **Results:** “Color naming was facilitated if the color word was congruent with the correct response; otherwise it interfered with color naming.”
- These effects were diminished (diluted) by the presentation of a color-neutral word, or xxx’s elsewhere in the field.

Kahneman, Daniel, and Diane Chajczyk. "Tests of the automaticity of reading: Dilution of Stroop effects by color-irrelevant stimuli." *Journal of Experimental Psychology: Human perception and performance* 9, no. 4 (1983): 497.

Indirect Measures

Table 1
Mean Color-Naming Times and Error Rates in Experiment 1

Color name	Mean RT	Error (%)
Conflicting (C)	682	2.6
Neutral (N)	610	.8
Congruent (G)	561	.0
Conflicting-Neutral (CN)	650	2.9
Dual-Neutral (NN)	614	1.0
Congruent-Neutral (GN)	585	.0

Note. RT = reaction time.

Kahneman, Daniel, and Diane Chajczyk. "Tests of the automaticity of reading: Dilution of Stroop effects by color-irrelevant stimuli." *Journal of Experimental Psychology: Human perception and performance* 9, no. 4 (1983): 497.

Indirect Measures

- **Conclusion:** “The dilution effects represent attentional interference rather than sensory interaction or response conflict.”
- “If all visual stimuli were processed unselectively, one would expect the Stroop effect to be unchanged.”
- Increasing the number of unattended channels reduced the impact of effects of unattended stimuli, suggesting that these channels were indeed attended.