

9.65 Sept. 24, 2001 Attention II. HANDOUT

Assigned reading: Luck, S. J., Vogel, E. K., & Shapiro, K. L. (1996, October 17). Word meanings can be accessed but not reported during the attentional blink. Nature, 383, 616-618.

REMINDER: Lab I here in 56-154 on Wednesday, Sept. 26.

1. Visual attention: Treisman & Gelade's theory
  - a. Feature integration theory
  - b. Visual search
  - c. Illusory conjunctions
2. The Psychological Refractory Period (PRP)
3. The Attentional Blink (AB)
4. The Theory of Signal Detection

**1. Visual attention: Treisman & Gelade's theory**

**a. Feature integration theory:**

**b. Visual search: simple features versus conjunctions of features:**

-Feature maps

J. Wolfe: Guided search.

**Feature integration in the brain: The binding problem**

### **c. Illusory conjunctions**

Treisman & Schmidt (1982).

## **2. The Psychological Refractory Period (PRP)**

a. Basic phenomenon

b. Three main theories

c. Pashler's PRP paradigm for studying dual task interference

d. Why is there a bottleneck?

## **3. The Attentional Blink (AB)**

Searching for two targets in rapid serial visual presentation (RSVP): e.g., two letters among a string of digits, presented at 100 ms/item.

Model: Chun & Potter (1995): Two stages of processing:

**Luck, Vogel, & Shapiro study:**

#### **4. The Theory of Signal Detection:**

One important landmark in the understanding of the inferential, bet-placing character of perception was the Theory of Signal Detection, sometimes known as TSD. This theory emerged from psychophysical studies of the ability to detect a faint tone or light.

**Absolute threshold?**

**False alarms**

**The theory of signal detection [TSD]**

**Criterion**

So 2 factors: **sensitivity** (distance between distributions,  $d'$ ), and **bias**, or criterion (beta).

Note that the signal detection approach is related to the approach in Chapter 3 and the perception lecture: the use of prior knowledge and context to fill in missing, partial, or faulty perceptual information.