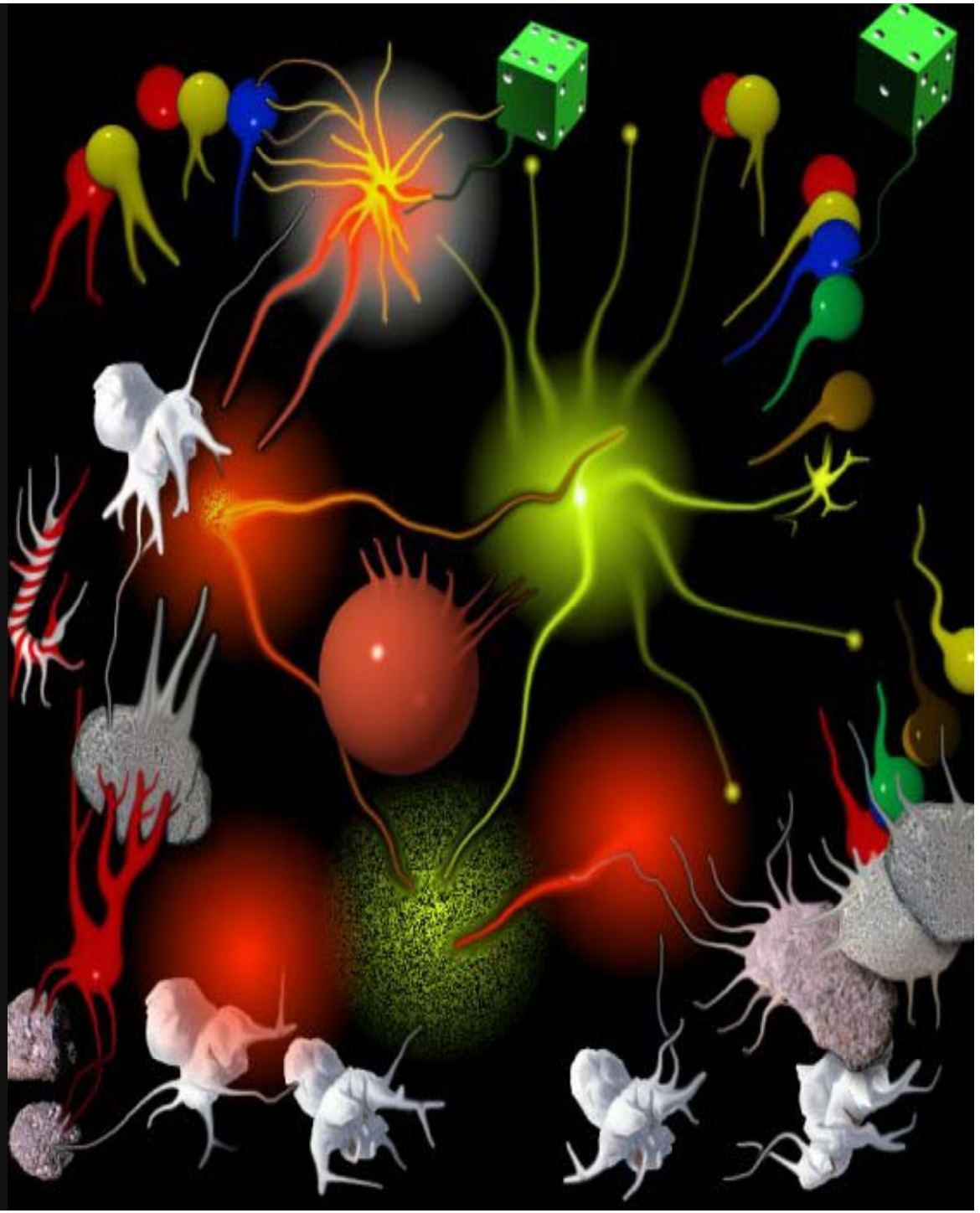
MENTAL IMAGERY



Imagery

- The mental representation of objects or behaviors that are not actually present.

Imagery

- Was important for introspections.
- Totally ignored during the shift to behaviorism.

Difficult to study

- Can't see it
- Must rely on the subject's reports
  - Not always accurate
  - Very subjective

Imagery Debate

Analog code

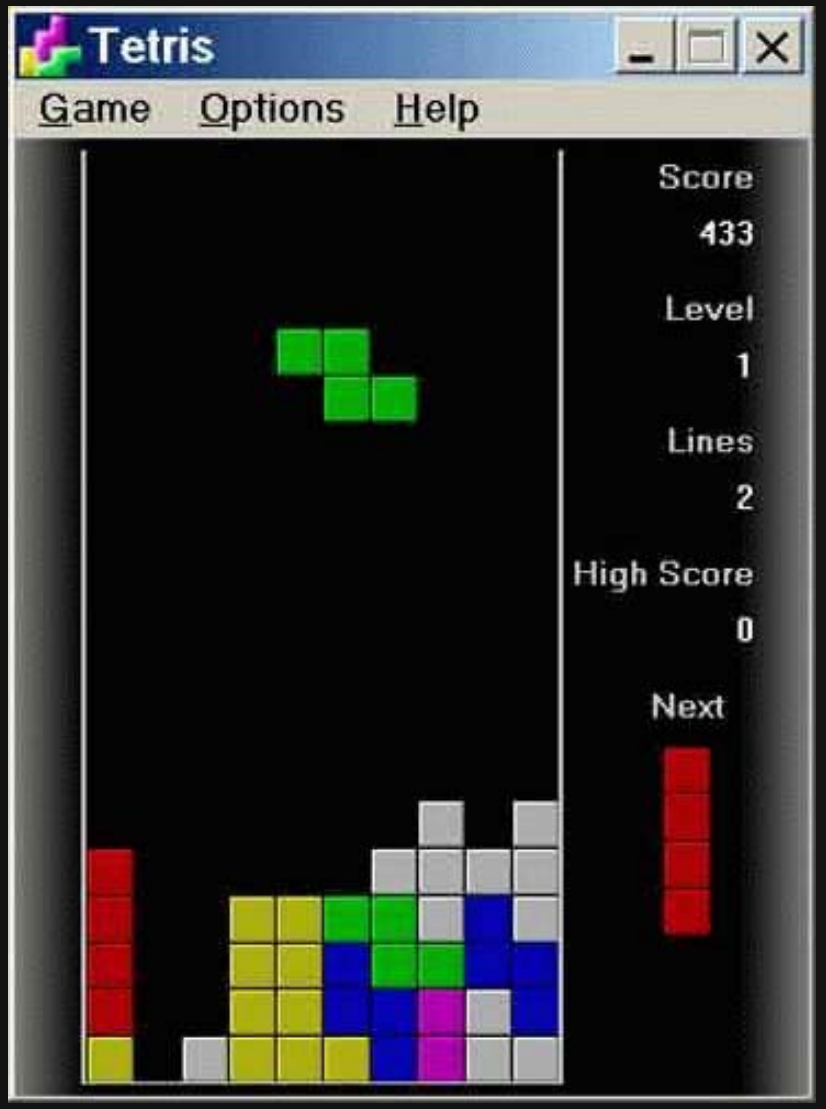
- The representation closely resembles the physical object (or our experience of the object)
- Vision-like process

Propositional code

- We have an abstract representation
- Language-like process

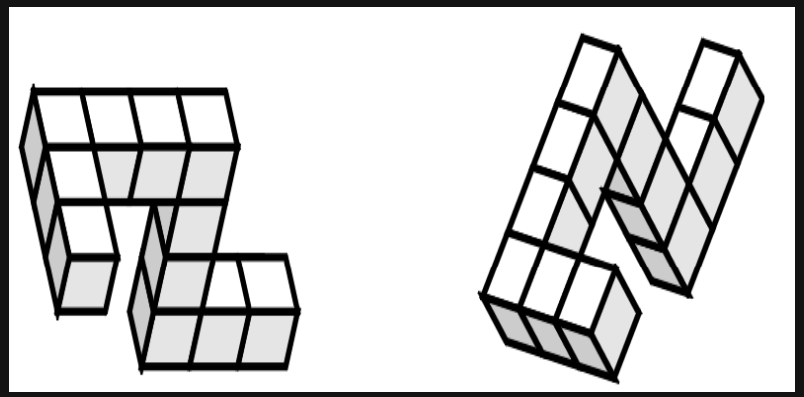
Mental Rotation

- **Ever played TETRIS?**

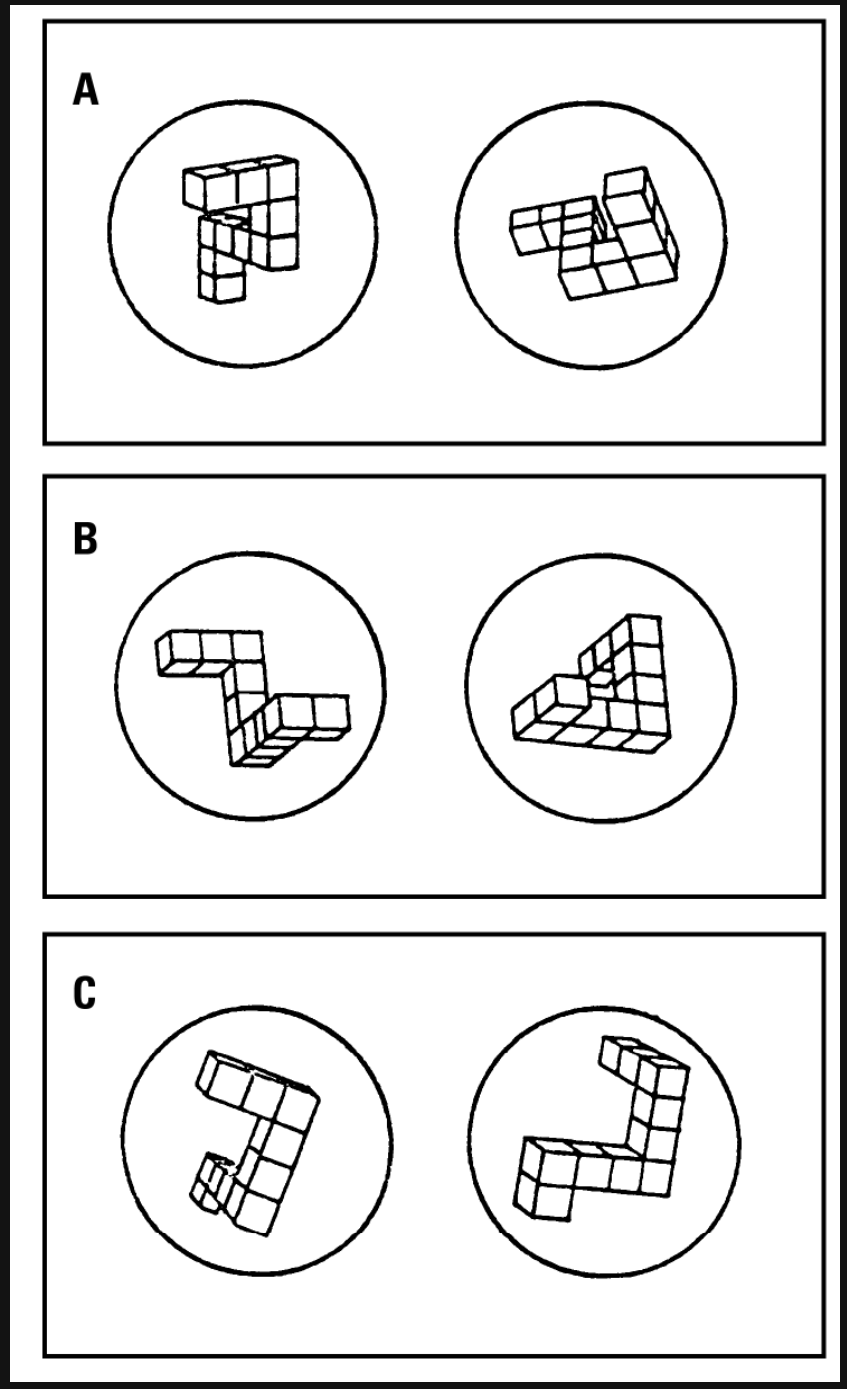


Mental Rotation

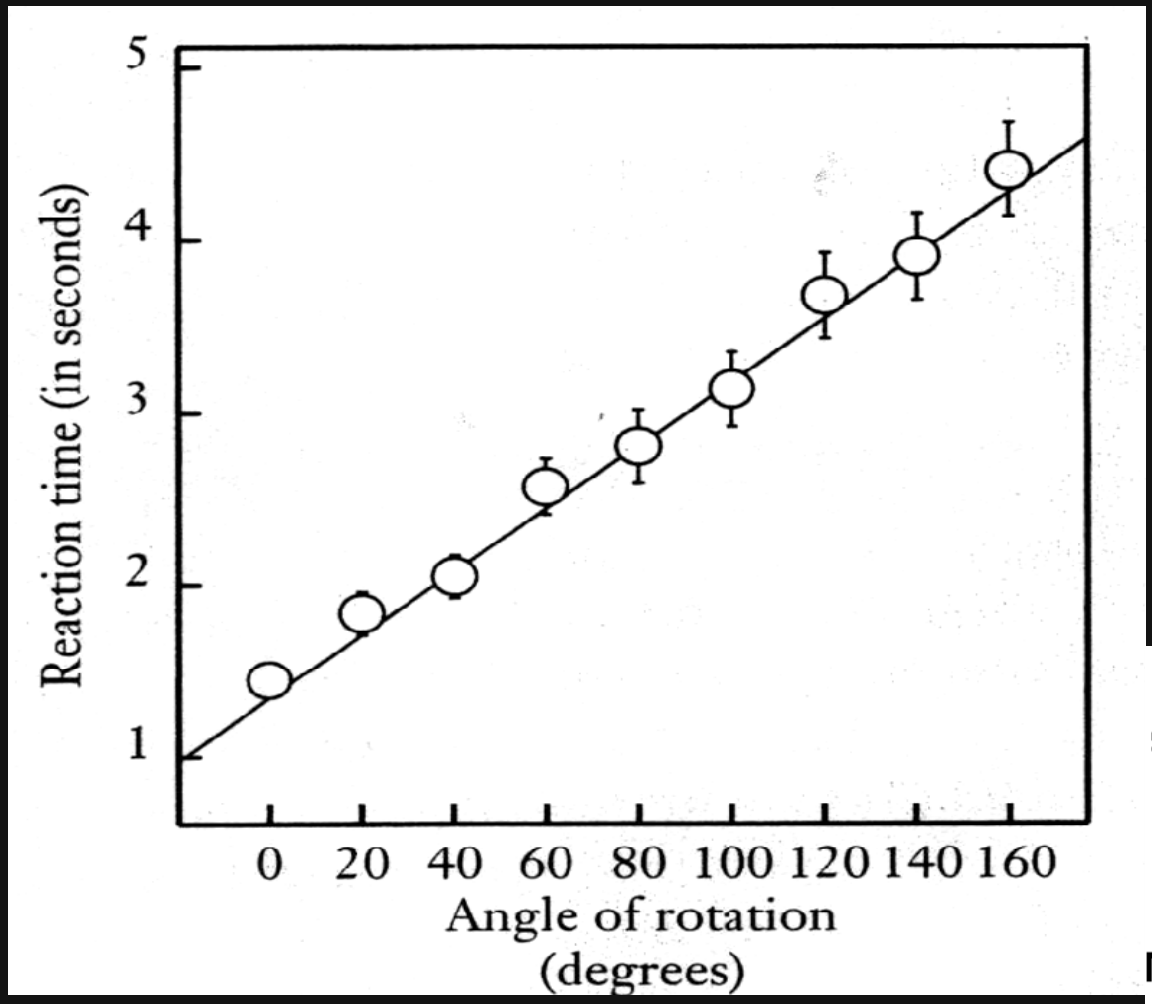
- **Shepard and Metzler (1971)**: Ss examine pictures like these.

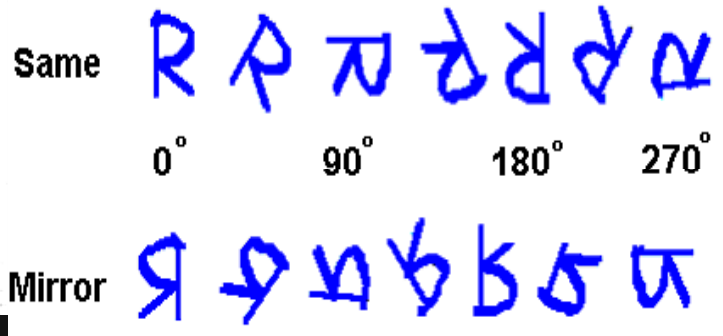


  - Say whether the objects are the same or different.
    - ½ same but rotated, ½ mirror images


A
B
C

Mental Rotation





Mental Rotation

- Data from rotation experiments has been taken to support that images are rotated in the mind through a "functional space" - distance is represented in the image
- The greater the degree of rotation required, the more time needed to complete the rotation

Mental Rotation-Implications

- These findings were big for 2 reasons:

1. They were very orderly.

2. Showed that imagery could be studied objectively.

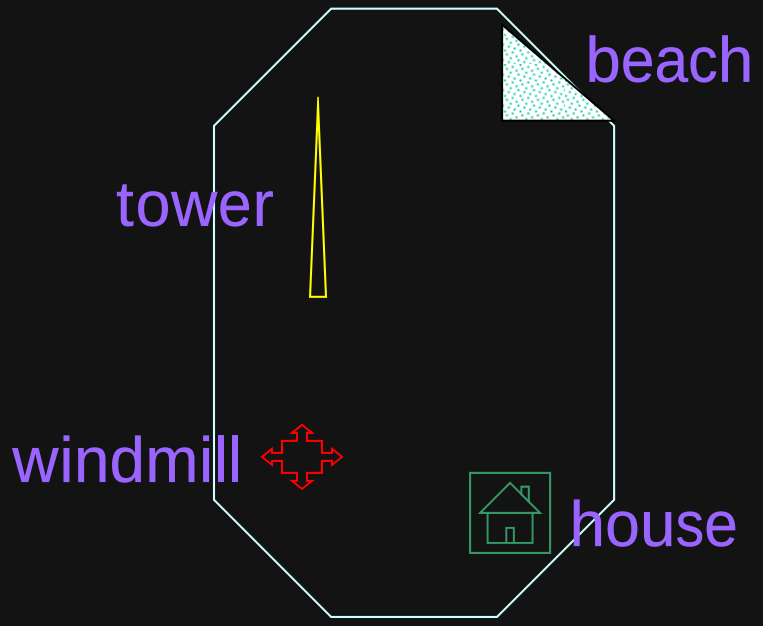
Mental Scanning

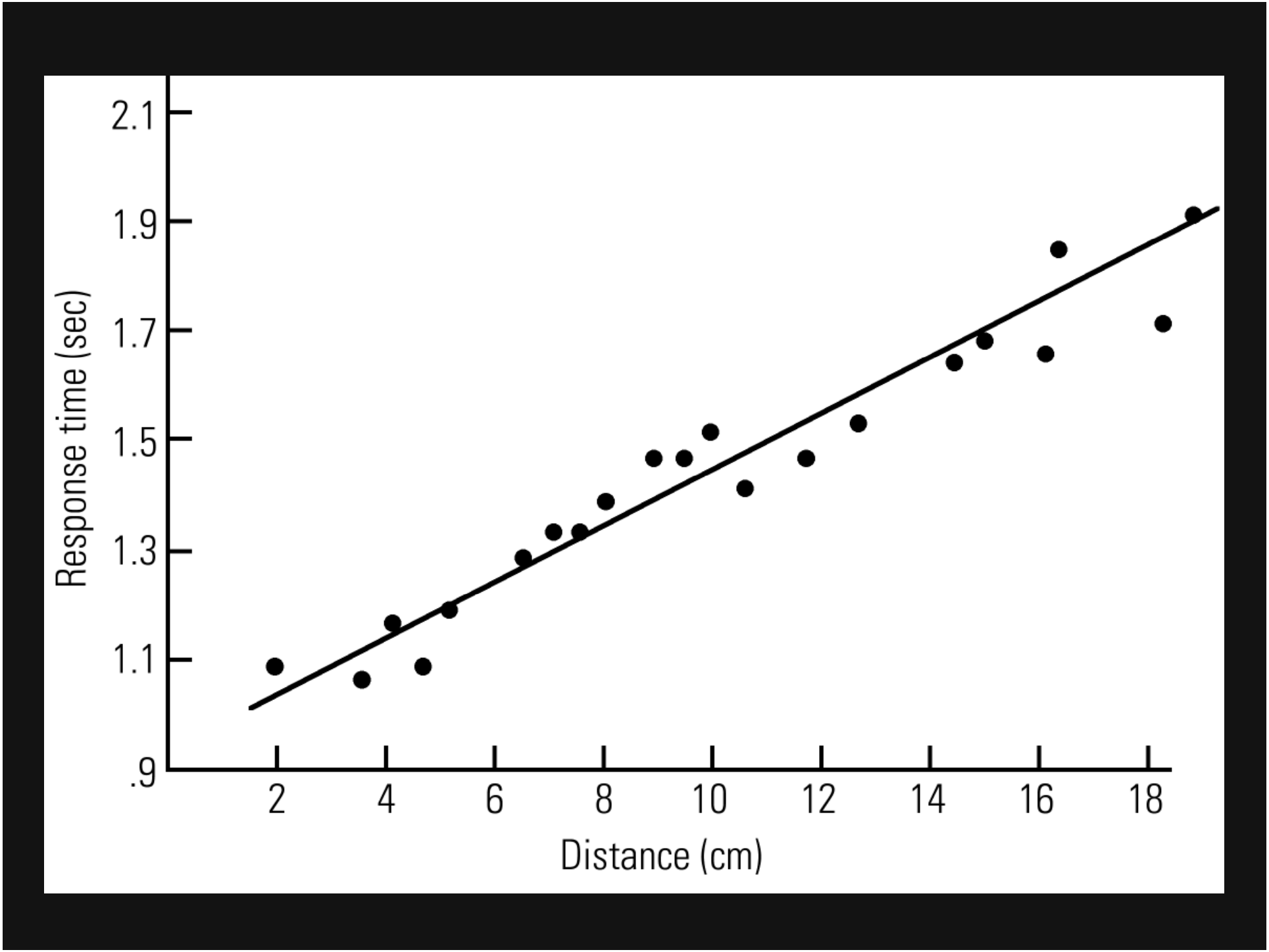
- Subjects are asked to study a map of locations, and to form an image of the map

- They are asked to focus their attention at one location (“house”) and to press a button as soon as they can “see” a second named place (“beach”)

Mental Scanning

- Map to be learned:




Response time (sec)
2.1
1.9
1.7
1.5
1.3
1.1
.9
2
4
6
8
10
12
14
16
18
Distance (cm)

Mental Scanning

- The further apart the two locations, the longer it took subjects to report that they could see the second location in the image
- There were no distance effects when they memorized a list of location names and had to respond whether certain words were on the list

Imagery

- Mental scanning and rotation experiments provide support for images as a depictive form of representation
- Imagery appears to use parts of the visual system

Imagery and Interference

- Segal and Fusella asked participants to detect very faint signals, either auditory or visual.
  - Participants were instructed to form either a visual or auditory image
- Results: forming a visual image interfered with visual detection, EXCEPT when the image matched the target
  - Visualizing an "H" made it easier to see "H"

Segal and Fusella (cont.)

- Forming a visual image did not interfere with detecting an auditory signal (sound)
- Forming an auditory image did interfere with detecting an auditory signal

Percentage detections

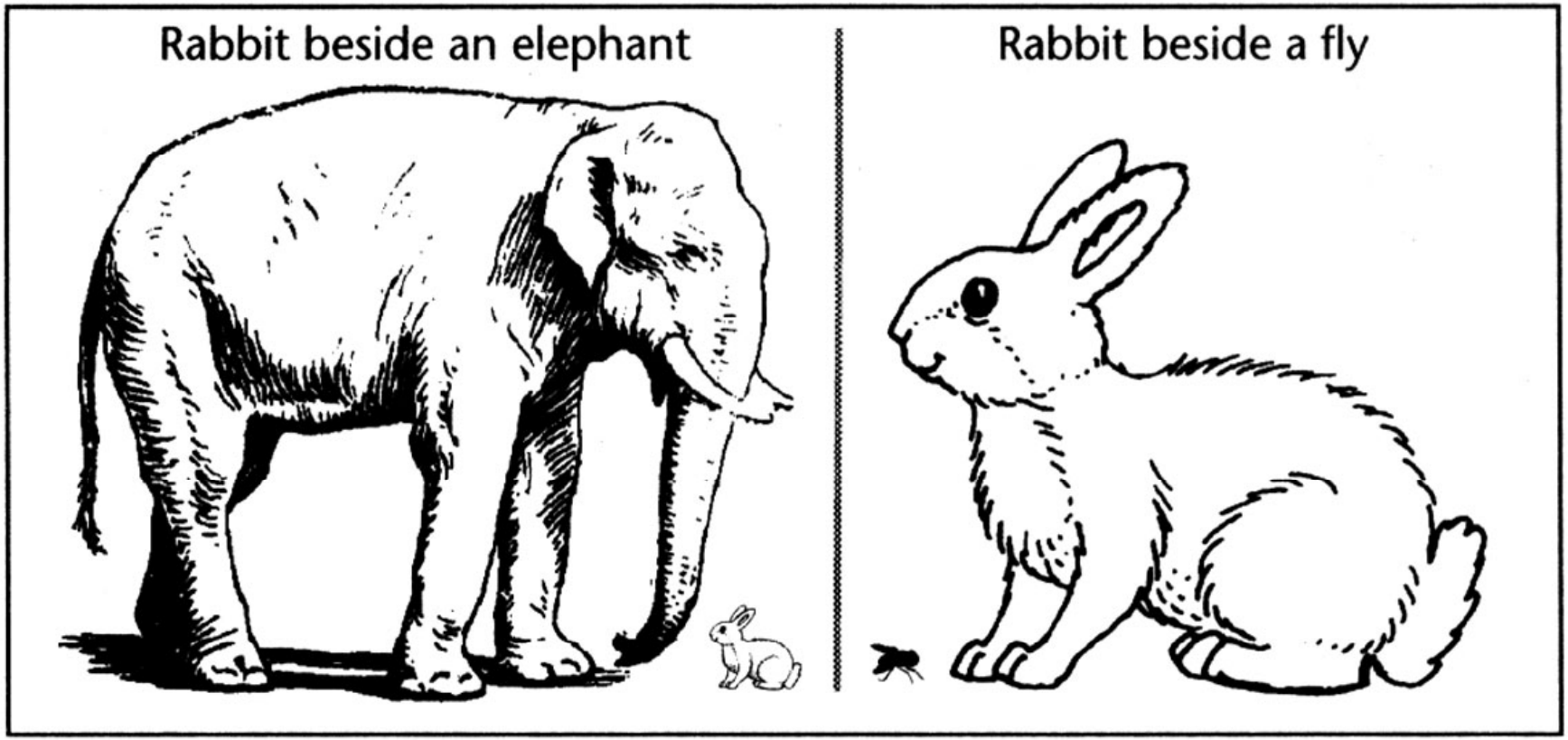
	Visual signal	Auditory signal
While visualizing	61%	67%
While maintaining an auditory image	63%	61%

Percentage false alarms

	Visual signal	Auditory signal
While visualizing	7.8%	3.7%
While maintaining an auditory image	3.6%	6.7%

Visual imagery and visual perception use some of the same resources, so there is interference when both tasks must be done at the same time.

Imagery and Size



Imagery and Size

- Kosslyn (1975) showed that judgments about larger images were made faster than judgments about smaller images

Imagery and Shape

- Paivio (1978)
  - Harder to make judgments about imagined objects if they are more similar.

Viewer
THE END