

Perception
(information acquisition)
&
Attention
(‘spotlight’ of perception?)

Perception

Recap last lecture

When measuring sensitivity to a stimulus

- Make sure the animal perceives the stimulus as intended (not using different modality etc.)
- Distinguish between miss & false alarm, what is control? (with noise?)
- (1) Electrophysiological: reactivity of receptor
- (2) Peripheral processing: color constancy, contrast enhancement, etc.
- (3) Behavioral reaction: motivation? Setting of response criterion?
- To avoid bias by latter, use d' as sensitivity measure (signal detection theory)

Perception

In what way may perception be important for your research?

Perception

More processing of sensory information

- Visual search: parallel – serial
- Cross-modality processing: feature integration theory, texture segregation, gestalt object recognition
- Search images, priming

Attention

Processing perceived information: attention

What does having an ‘attention focus’ mean?

What does it imply about behavioral flexibility and how it is limited by neural mechanisms?

Attention

Processing perceived information: attention

What does having an ‘attention focus’ mean?

Limited capacity to process all incoming sensory information

What does it imply about behavioral flexibility and how it is limited by neural mechanisms?

Constraints on perception: allocation of energy to brain, allocation of time to different (visual or other) tasks, possibly advantages to restricted search (food specialization, search images)

Processing perceived information: attention

What does having an 'attention focus' mean?

Limited capacity to process all incoming sensory information

But what does this really imply?

Not entirely parallel information processing; 'suboptimal' choices if perception not considered; brain a significant cost

How do mechanisms of learning constrain behavioral strategies?

Giurfa & Menzel: bees – look for the different stages of memory and how these were shown

Cheng: rats – limitation on learning & modularity of mind