PSY:320 Memory

Joseline – 11/07
Short Term Memory

- Limited (7 +/- 2)
- ‘Object Dependent
- ‘State’s Dependent
- Short Lived
- Immediate form of memory not all memory items are necessarily useful  
  (Consolidation)

Sensory Info -> Short Term Memory -> Long Term Memory

(Rehearsal)
Short Term Memory
Working Memory: Memory for immediate use
Long Term Memory

Declarative: Explicit, ‘Remembering’
Semantic (facts) Episodic (When, order of events)

NonDeclarative: (Implicit) ‘Knowing’
Skill Habbits, Priming, Simple Classical Conditioning
The Memory Process
Stimuli -&gt; Encoding -&gt; Storage &lt;-&gt; Retrieval

- Learning
- Perceptual (sensory) learning: Recognition, modality specific (visual, auditory..)
- Stimulus- Response Learning
- Classical Conditioning: Stimulus- Stimulus Learning
- Instrumental (operant) conditioning: Stimulus- Action Learning- Reinforcement
- Motor Learning: Playing piano modality specific
- Rational Learning: Spatial Learning
- Meta Learning: Learning to learn
Identify and categorize objects using ‘perception’
Learning about objects... No association with actions
Ex- Vision: Inferior temporal cortex: Faces and Objects

Areas involved in perception are also involved in (perceptual) memory

Puff of Air → Neuron in Somasensory → Synapse P
(Strong)
1000-Hz → Neuron in Auitory System → Synapse T
(Weak)
≡ Postsynaptic ≡ Blink
The Hebb Learning Rule

If presynaptic and postsynaptic sites are active at the same time, the synapse is strengthened.

Classical Conditioning is not just about food. Different kinds of Classical Conditioning involve different kinds of brain areas.

After conditioning memory can “unconditioned” (Extinction)

Repeated presentations of the conditioned stimulus alone treats to extinction.

PTSD: Deficit in extinction?

Instrumental Conditioning

- Learning an association between an action and its consequence
- How We Learn From Doing
- Need a reinforcing or punishing stimulus
- Ex: In rat: Lever Pressing
- Association between a stimulus a stimulus and an action
- Recall.... Classical Conditioning: Associating between 2 stimuli
- Instrumental Conditioning: Animal has to perform an action