Outline

Questions about Course Structure, Syllabus, etc.
Questions from Reading
Question on the Seven Sins

This Week: Unpack Chapter 2: Transience
Working Memory
Understanding the Contents of Our Long Term Memory
    Context
    Schemata
# Working versus Long Term Memory

Two Concept Theory of Memory

**Activation:** Momentary availability of a memory trace

**Strength:** Long term durability of memory trace

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<tr>
<th>High Strength</th>
<th>Low Strength</th>
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<tbody>
<tr>
<td>Well-learned things we are currently thinking about</td>
<td>Things we have just stored for the first time</td>
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<td>Working Memory</td>
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<table>
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<tr>
<th>Low Activation</th>
<th>Well-learned memories we are not thinking about</th>
<th>Things we cannot recall</th>
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<td>Long Term Memory</td>
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Working Memory: History and Definitions

Primary Memory (William James, 1890)
Short Term Memory (Broadbent, 1958)
Working Memory (Baddeley, 1974)

James:

our awareness of the present and the immediate past

Complex cognitive processes require storage and retrieval of intermediate results

Working memory limitations, e.g. mental arithmetic or imagery manipulations
BASIC CHARACTERISTICS
(Atkinson and Shiffrin, 1968)

Entry of Information into STM:
   Requires pattern recognition and attention

Capacity
   Small, 5 to 9 items

Information loss
   Displacement (interference) and decay

Trace duration
   Lost quickly unless attended to or rehearsed

Maintenance of information in STM
   Attention or rehearsal
Experiments

Rapid Decay with Distraction (~10 sec half life)

Brown-Peterson paradigm

study word(s) or trigram(s)

prevent rehearsal
  (count backwards by 3's)

How is Information Lost of STM

Decay vs Interference

Waugh and Norman (1965)
Reitman (1971, 1974)
Working Memory

Modern View of Short Term Memory
Alan Baddeley (1986, 1992)

Working Memory Stores/Holds
  Goals, Place in Plans
  Partial Results
  New, To Be Remembered, Information
  Visual, Verbal, Semantic,....

Working Memory Involves Three Subsystems
  (Baddeley, 1986)
  1) Phonological Loop
  2) Visuospatial Sketch Pad
  3) Central Executive
Phonological Loop

Very similar to Atkinson and Shiffrin Model of STM

Size Determined by Pronunciation Time (1.5 sec)
  -Vocal rehearsal
  -Auditory code
...

Most Experiments on Atkinson and Shiffrin Model of STM Were Studying the Phonological Loop
The Brooks (1968) Experiment

A Dual Task:

Scan a imagined diagram, a block F; classify each corner as at the extreme top of bottom of the figure.

Scan a sentence held in memory; classify each word as a noun or not.

Three response modes:

pointing
tapping
vocal

Later studies show that interference is SPATIAL!!!

Central Executive

Supervisor

Control of Complete Cognitive System
- Plans
- Goals
- Attention and Resource Allocation

Coordination of Various Memory Systems

Not Well Understood

Roles of Goals and Goal Structures In Models Of Complex Cognitive Tasks.
- Driving a Car