

## Ch. 6 Long-Term Memory

### Depth of Processing Model

- **Craik and Tulving (1975)**
  - Subjects asked to process words using three different levels of processing
    - **Structural**- is the word in capital or lowercase letters
    - **Phonemic**- rhyming
    - **Sentence**- used in a sentence
  - Then given a memory test
  - Asked to free recall as many words as possible
- Findings- subjects three times more likely to recall words used in a sentence
- Depth of processing- people are more likely to remember items that are processed in a deep, meaningful way

### Semantic Codes

- Semantic codes
  - Semantic features refers to the meaning elements of a word
  - We store and recall information based on semantics
- **Fillenbaum (1966)**
  - Subjects- college students
    - Listened to 96 sentences
      - i.e. the door was open
  - Then asked to recall what they heard from a list of sentences
    - The door was open
    - The door was closed
    - The door was not open
    - The door was not closed
  - Findings—interested in errors
    - Subjects selected the correct sentence most of the time
    - Errors were most semantically (meaning) similar and syntactically least similar—i.e. might choose door was not closed

### Importance of Prior Knowledge

- **Chi (1978)**
  - Subjects- adults and 10 yr old advanced chess players
    - Examined influence of prior knowledge on short term memory
    - Compared memory span for digits and chess configurations
  - Findings—
    - 10 yr olds performed worse than adults on digit span

- 10 yr olds performed better than adults on memory for chess configurations
- Conclusions-
  - Importance of prior knowledge
  - STM works with LTM- how much knowledge we have about a subject influences our memory for new related information

## Memory and Sleep

- **Takashima et al (2006)**
  - Subjects shown 320 pictures
    - Asked to nap
    - Measured slow wave sleep duration
    - After nap shown 80 more pictures
  - Scans done during recall- subjects shown 80 old (remote-before nap), 80 recent (after nap), and 80 new (control) pictures
- Findings—
  - Subjects were more likely to recall pictures they had just seen
  - For old pictures, recall was correlated with the amount of slow wave sleep (remote)
  - Neuro-scans show activity in hippocampus up to three days later
    - Sleep helps to prepare for learning and consolidate memory

## Short Term Memory Loss

- STM loss
  - Anterograde amnesia- inability to make new memories
  - Almost always occurs as a result of damage to the hippocampus
- **Hippocampus**
  - Located in the medial temporal lobe
  - Shaped like a seahorse
  - Critical for forming new memories
- Consciousness and memory
  - Ex. Clive Wearing (damaged hippocampus; every time he saw his wife he got excited; but still knows how to play piano)
    - Motor/procedural memory is still present because that is not in the hippocampus

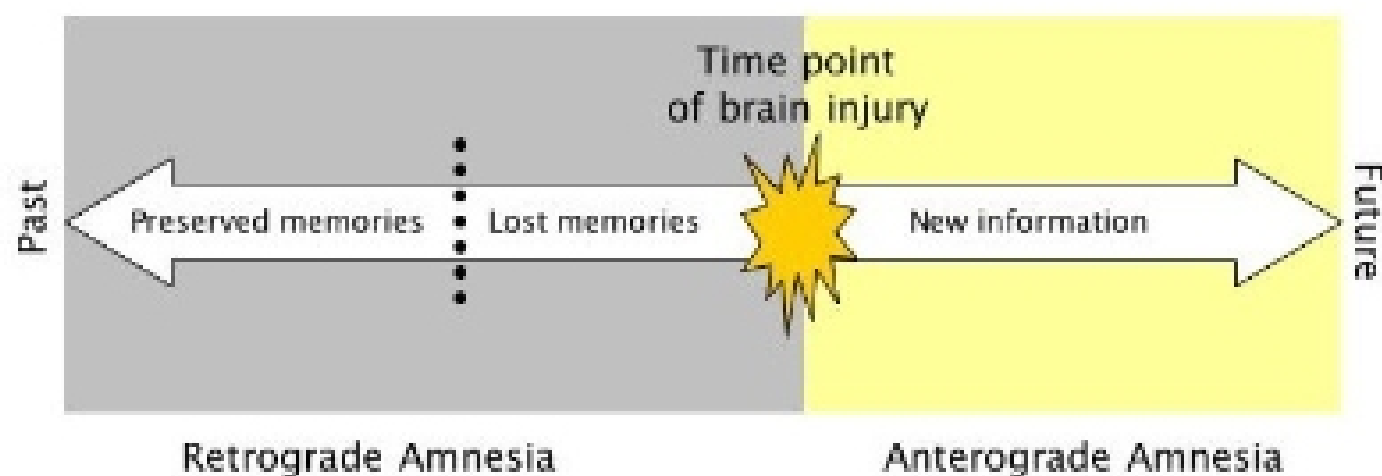
## Long Term Memory

- **Explicit memory**
  - Declarative memory
  - The conscious recollection of facts and descriptive details of past events
  - Two subtypes

- Semantic memory- information, facts, knowledge of words/language
- Episodic memory- situation contextual; autobiographic
  - Retrospective
  - Prospective- planning for the future, things you have to do later
- Implicit memory
  - Non-intentional, occurs without consciousness
  - Subtypes
    - Procedural memory- motor memory- how to do something
    - Priming (reading word tree makes processing related word oak faster)
    - Conditioning and emotional conditioning

### Amnesia

- Anterograde amnesia
  - Moving forward (new memories)
  - Short term memory loss
  - It can last days, weeks, months, forever
- Retrograde amnesia
  - Previous memories, before accident
  - Ribbot's Law:
    - Memory loss generally follows a pattern
    - States that events just prior to an ictus are most vulnerable to decay
    - Remote memories are more resistant



### Patient HM

- Henry Moliason
  - Post- traumatic epilepsy began at age 10
  - By his 20's seizures were uncontrollable and life threatening