# Memory and Cognition

## March 18, 2013

* **Forgetting from LTM**
  + Decay theory suggests that information simply weakens or is lost over time if not used.
  + **Jenkins and Dallenbacj (1924) Sleep Study**
    - If decay theory is correct then the study should be the same between the two because it was the same amount of time. If interference is correct, then group B will be better because of less interference.
    - Study in the morning -> tested at night -> Remembered less
    - Study in the night -> tested at morning -> Remembered more
    - Whatever happened in group A during the 8 hours, it interfered with their ability to remember the syllables. Interference does, disproving decay.
  + **Interference** – forgetting is a direct result of more learning.
  + **Retroactive Interference**
    - Definition - New learning interferes with previously learned information.
    - Phase 1 of experiment
      * Dog-roof
      * Exp and control group are given same
    - Phase 2 of experiment
      * Dog-desk
      * Exp group is given dog-desk, control group is given nothing or asked to do an unrelated task.
    - Test
      * Remember pair from phase 1. Depending on the amount of practice one group does effects either positively or negatively interference. If you practice phase 1, you’ll do better, if phase 2, you’ll remember phase 2.
    - Retroactive interference more often happens with episodic memory and not semantic.
  + **Proactive Interference**
    - Definition - Old learning interferes with new learning. E.g. Learning your friends new married name.
    - Response Competition
      * Definition – Occurs when the same cue is associated with two different responses.
      * Example: If you take two foreign languages at once
        + Spanish: Cat -> Gato
        + German: Cat -> Katze
        + This competition reduces the likelihood that even one will be remembered.
  + **Encoding**
  + **Consolidation**
    - Theory – It’s not a theory of forgetting, but rather why the information was never stored in the first place.
    - Learning is a 2 stage process
      * **Conscious encoding**
        + Memories get better over time but subconsciously you are not aware of that.
      * **Subconscious strengthening**
        + Think of jello, there’s a limit. There’s no difference in the consistency of jello between having it in the fridge for ten hours and ten days.
    - **Predictions**
      * A period of mental inactivity is more conductive to consolidation
      * If interrupted, the trace cannot be consolidated and the item will not be stored.
      * If consolidation is prevented, the item should never be recalled.
    - **Consolidation**
      * **Electroconvulsive Shock (ECS)**
        + One side effect is retrograde amnesia. Inability to recall information just before a traumatic event. Rats were shocked in box 1 to run to box 2, then given a big ECS in box 2 to see if they remember.
        + The longer the delay between learning the response and getting their brain shocked, the stronger the memory should be.
      * **Electroconvulsive Therapy (ECT)**
        + Used for depression. There is no number as to how long it takes for memories to be consolidated with ECT. After a while of therapy as they recover, some but not all, of the information will come back. That can be problematic for consolidation theory, if it was never fully consolidated they should never be able to recall it.
      * **Physical Trauma**
        + Trauma – The bigger the injury the more they forget.
  + **Enhance Consolidation**
    - **Sleep Studies**
      * The process is interrupted by mental activity.
      * REM sleep is the most important, but sleep can also bring back memories that you forgot throughout the day.
      * Rat Study
        + Get from Rachel Cline