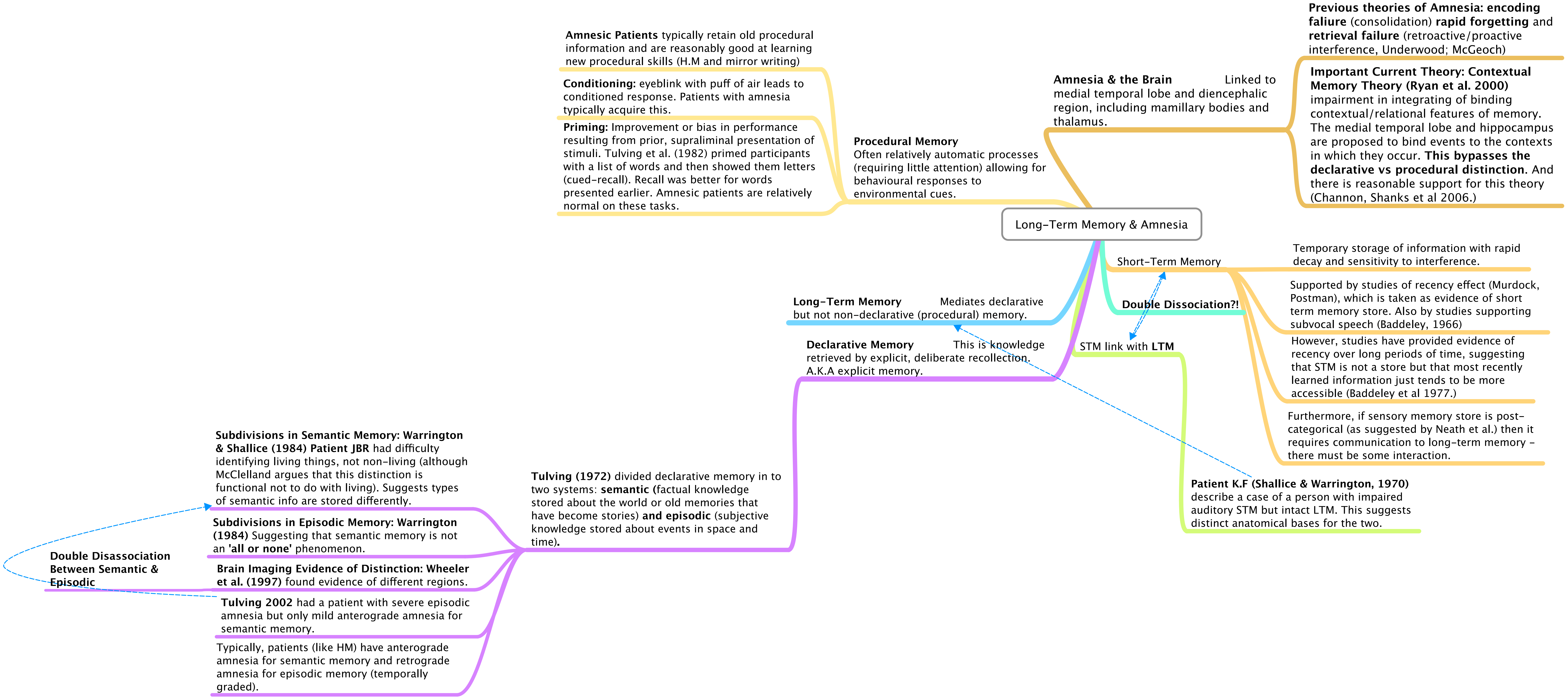

Long-Term Memory & Amnesia

- **Procedural Memory** Often relatively automatic processes (requiring little attention) allowing for behavioural responses to environmental cues.
  - **Amnesic Patients** typically retain old procedural information and are reasonably good at learning new procedural skills (H.M and mirror writing)
  - **Conditioning:** eyeblink with puff of air leads to conditioned response. Patients with amnesia typically acquire this.
  - **Priming:** Improvement or bias in performance resulting from prior, supraliminal presentation of stimuli. Tulving et al. (1982) primed participants with a list of words and then showed them letters (cued-recall). Recall was better for words presented earlier. Amnesic patients are relatively normal on these tasks.
- **Amnesia & the Brain** Linked to medial temporal lobe and diencephalic region, including mamillary bodies and thalamus.
  - **Previous theories of Amnesia: encoding faliure** (consolidation) **rapid forgetting** and **retrieval failure** (retroactive/proactive interference, Underwood; McGeoch)
  - **Important Current Theory: Contextual Memory Theory (Ryan et al. 2000)** impairment in integrating of binding contextual/relational features of memory. The medial temporal lobe and hippocampus are proposed to bind events to the contexts in which they occur. **This bypasses the declarative vs procedural distinction**. And there is reasonable support for this theory (Channon, Shanks et al 2006.)
- Short-Term Memory
  - Temporary storage of information with rapid decay and sensitivity to interference.
  - Supported by studies of recency effect (Murdock, Postman), which is taken as evidence of short term memory store. Also by studies supporting subvocal speech (Baddeley, 1966)
  - However, studies have provided evidence of recency over long periods of time, suggesting that STM is not a store but that most recently learned information just tends to be more accessible (Baddeley et al 1977.)
  - Furthermore, if sensory memory store is post-categorical (as suggested by Neath et al.) then it requires communication to long-term memory - there must be some interaction.
- **Double Dissociation?!**
- STM link with **LTM**
  - **Patient K.F (Shallice & Warrington, 1970)** describe a case of a person with impaired auditory STM but intact LTM. This suggests distinct anatomical bases for the two.
- **Long-Term Memory** Mediates declarative but not non-declarative (procedural) memory.
- **Declarative Memory** This is knowledge retrieved by explicit, deliberate recollection. A.K.A explicit memory.
  - **Tulving (1972)** divided declarative memory in to two systems: **semantic (**factual knowledge stored about the world or old memories that have become stories) **and episodic** (subjective knowledge stored about events in space and time)**.**
    - **Subdivisions in Semantic Memory: Warrington & Shallice (1984) Patient JBR** had difficulty identifying living things, not non-living (although McClelland argues that this distinction is functional not to do with living). Suggests types of semantic info are stored differently.
    - **Subdivisions in Episodic Memory: Warrington (1984)** Suggesting that semantic memory is not an **'all or none'** phenomenon.
    - **Brain Imaging Evidence of Distinction: Wheeler et al. (1997)** found evidence of different regions.
      - **Double Disassociation Between Semantic & Episodic**
    - **Tulving 2002** had a patient with severe episodic amnesia but only mild anterograde amnesia for semantic memory.
    - Typically, patients (like HM) have anterograde amnesia for semantic memory and retrograde amnesia for episodic memory (temporally graded).