**Fuzzy Trace Theory:**

From Wikipedia article:

The time of exposure of each word during study and the number of repetitions have been shown to produce such dissociations.[[38]](http://en.wikipedia.org/wiki/Fuzzy-trace_theory#cite_note-The_rise_and_fall_of_false_recall-38)[[39]](http://en.wikipedia.org/wiki/Fuzzy-trace_theory#cite_note-Repetition_can_have_similar_or_different_effects_on_accurate_and_false_recognition-39) More specifically, while true memory follows a [monotonically increasing function](http://en.wikipedia.org/wiki/Monotonic_function) when plotted against presentation duration, false memory rates exhibit an inverted-U pattern when plotted as a function of presentation duration. Similarly, repetition is monotonically related to true memory (true memory increases as a function of the number of repetitions) and is non-monotonically related to false memory (repetition produces an inverted-U relation with false memory).

* We might want to possibly use its application to reasoning in providing contextual application of QoI. There could be a big difference in verbatim vs. gist information
* What about multiple hops? If I witness an event and then relay the information, whether verbatim or gist, does the next person also store verbatim and gist memories, and if so, are they degraded from the original? Is there a stark difference, then, in me telling you what happened vs. showing you the video?
* Timeliness consideration: Do human memories work like computer multi-level caching? That is, if it’s been recalled/used recently, then it is closest to the processor and is quickly accessible. If it hasn’t been used recently, it is placed onto the hard drive, which requires some delay in retrieving it.

**Questions:**

* In general, we need to figure out how to quantify each of these factors.
* Also, what are examples of applications that we might be able to use?
* How important is the Fan Effect? I tried to learn more about it, but kind of got stymied. Also, how about semanticization? Possibly forego consideration of these for now?
* Retrieval clues – can be something used (and maybe tested) in both humans and computers. Maybe this is a place that we can use machine learning?
* Should we treat gist and verbatim information differently? It seems to react differently as time passes. From Fuzzy-Trace Wikipedia:

In the case of forgetting rates, those experiments have shown that, over time, verbatim traces become inaccessible at a faster rate than gist traces. Brainerd, Reyna, and Kneer,[[35]](http://en.wikipedia.org/wiki/Fuzzy-trace_theory#cite_note-False-recognition_reversal-35) for instance, found that delay drives true recognition rates (supported by both verbatim and gist traces) and false recognition rates (supported by gist and suppressed by verbatim traces) in opposite directions, namely true memory decays over time while false memory increases.

* Confidence values may be something used down the line.
* Should we model things in an end-to-end fashion including encoding, storage, and retrieval?