Memoria Misera

A Brief Tour Of Your Human Memory And Its Failings

WARNING: Presentation contains unverified personal gnosis (UPG). I am NOT a certified psychologist.

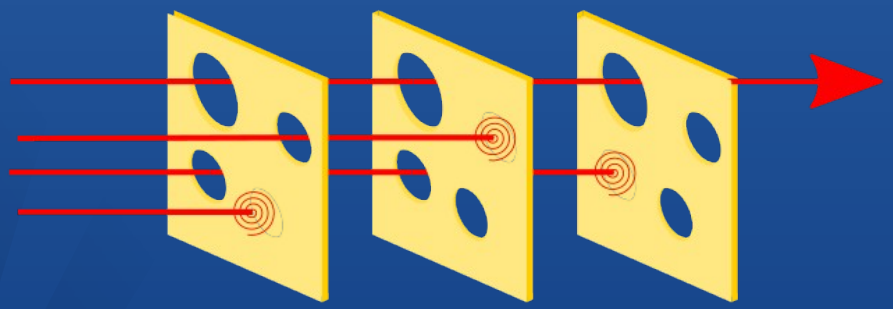
Who is Arazil?

- We are a “Fae adjacent” Listari (Space Elf) researcher of far-sight (divination) and related topics.
- We are also a Fusion / Raqs Sharqi / Raqs Baladi belly dancer.
- We have been around the community since around 1999.
- We are a psychology-philosophy college drop out and not an actual “psychologist.”
  - We did get a college degree in “computer psychology” though.
- We have an aversion to using the first person singular pronoun.

Session Overview

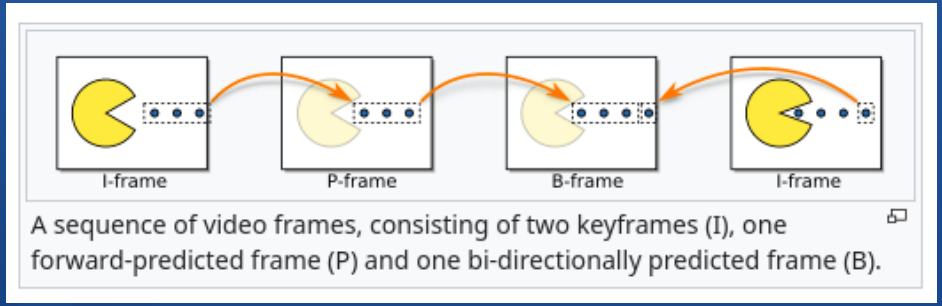
- Your Brain On Bandwidth (“How We Get Memories”)
- A Photographic Memory (“How We Store Memories”)
- Arazil’s Stratification Theory
- Time vs. Memory
- Your Memory Is Important To Us (“Why Is This Important?”)
- Corrupting The File System
- Dunning-Kruger Effect
- The Seven Sins Of Memory
- Other Failure Modes
- Additional Resources

Your Brain On Bandwidth



- We are being blasted by a firehose of data at all times.
- Our senses pick up a small portion of this data and send it to our brain.
- Our brain then runs the raw sensory data through further filters and compression to keep the bandwidth under control.
- Our brain further splits the data between the “conscious” and “unconscious” levels.
- The resulting process resembles the “swiss cheese model of security”: Data is discarded at every stage of the filtering process and only select “lucky” pieces of data make it all the way through to the “conscious” layer.

A Photographic Memory



A sequence of video frames, consisting of two keyframes (I), one forward-predicted frame (P) and one bi-directionally predicted frame (B).

- Memory can be thought of as a modern day video file
  - Video is split between keyframe and inter-frame type pictures (frames).
  - Memory is split between verbatim and gist type memories.
- Video uses keyframes to store complex pictures and provide a static reference point for video playback.
  - Our memory system contains “verbatim” memory that stores complete facts and figures much like a keyframe
- Video uses inter-frames that tie into other inter-frames and keyframes. This saves storage cost while allowing the picture to be reconstructed when required.
  - Our memory system contains “gist” memory that stores memories by referencing other memories.
- Psychologist call the divided “verbatim” and “gist” memory system the “Fuzzy Trace Theory of Memory.”

A Fuzzy Trace Theory

- Gist Memory
  - “Dynamic” memories that depends on other memories (semantic processing)
  - Influenced by “Gestalt Psychology” which focuses on synoptic system analysis over individual component analysis.
- Verbatim Memory
  - “Static” memories that store actual attributes in a standalone fashion
  - Influenced by “Structuralist Psychology” which focuses on distinct components and processes.

Arazil’s Memory Stratification Theory

- Memory storage tend to resemble a glacier: Memory age and density are correlated to each other.
  - Newer memories are more distinct and detailed with a preference for “verbatim” type memories. (top of the glacier)
  - Older memories are more vague and uncertain with a preference for “gist” type memories. (bottom of the glacier)

Time vs. Memory

- Time appears to move slower during new experiences. The new experiences create more dense memories. The high memory density makes it feel like time has slowed down.
- Time appears to move faster during routine experiences. Our memory will naturally truncate the new routine experience data as it is considered a duplicate copy of the old routine experience memory. The missing data makes it feel like time is moving faster than it actually is.

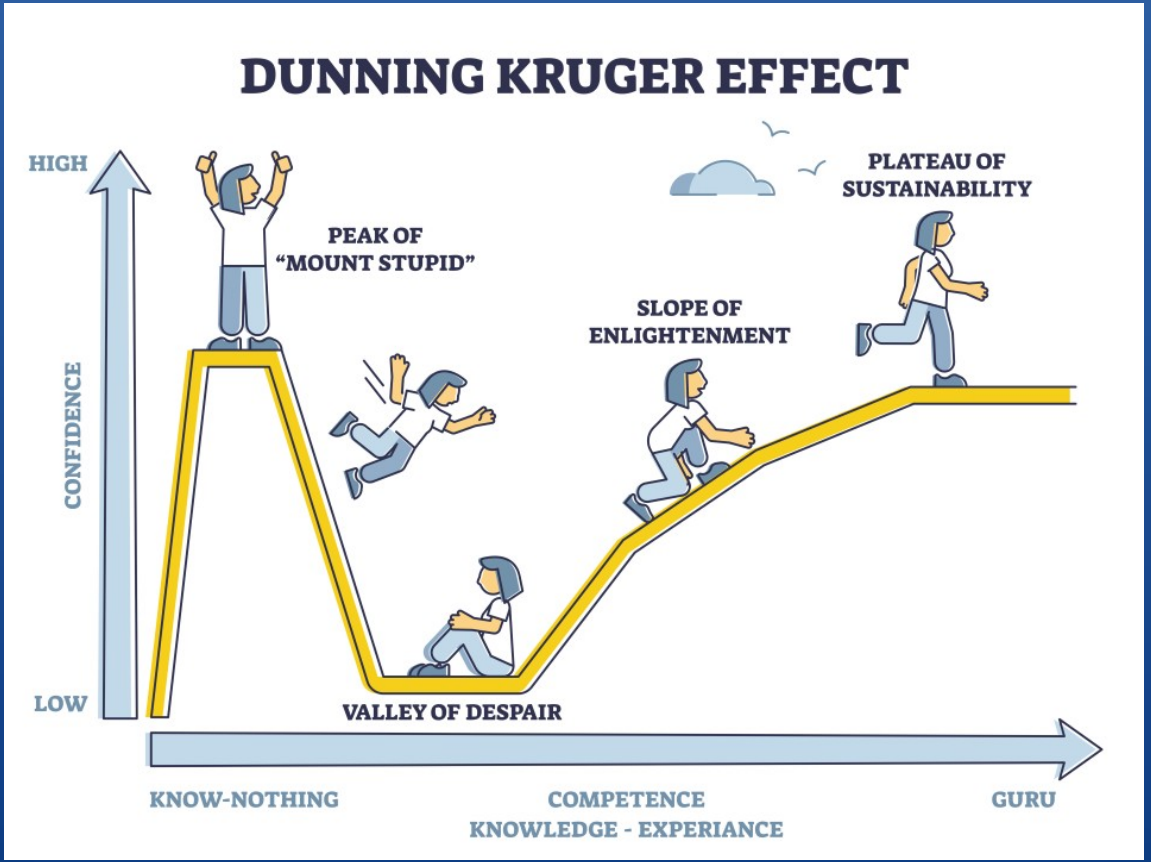
Your Memory Is Important To Us

- Memory informs the present.
- A past not remembered is a past that didn’t happen. (in our view of the world)
  - “Those that do not remember the past are doomed to encounter echoes of it.”
  - This is why memory manipulation is a common feature of the speculative fiction genres.

Corrupting The File System

- Memories can get corrupted during the encoding (put) and the recall (get) stages.
- Memories tend to get filed with a state dependent tag.
  - This leads to a “state-dependent memory” phenomena where recall gets easier if our current state lines up with the memory’s state.
- Memories from early life tend to get misfiled and lead to “infantile amnesia.” (“Hippocampal encoding of memories in human infants” – Science DOI: 10.1126/science.adt7570)

Dunning-Kruger Effect



The Seven Sins Of Memory

- Transience – This is where one memory incorrectly influences another. Caused by a breakdown of gist memory.
- Absent-mindedness – This is where something is not encoded properly due to insufficient attention.
- Blocking – This is where one memory actively interferes with the retrieval of another memory.
- Misattribution – This is where the memory itself recalls properly but with source metadata corruption.
- Suggestibility – This is where external suggestions contaminate the memory.
- Bias – This is where current feelings and beliefs distort the recall of the past.
- Persistence – This is where the memory recall system gets stuck involuntarily recalling disturbing information. In extreme situations, this can lead to post-traumatic stress disorder or phobias. (Daniel Schacter's "The Seven Sins of Memory: How The Mind Forgets And Remembers" via Wikipedia)

Other Failure Modes

- Cognitive Dissonance – This where beliefs get changed to resolve a discrepancy between two strong memories.
- “The Mandela Effect” or collective false memories – False memories can be transmitted among a large group of people like a virus.
  - Example 1: Fiona Broome, who reported having vivid and detailed memories of news coverage of South African anti-apartheid leader Nelson Mandela dying in prison in the 1980s, despite Mandela actually dying in 2013, decades after his release and after serving as President of South Africa from 1994 to 1999. Broome reported that hundreds of other people had written about having the same memory of Mandela's death.
  - Example 2: A 2010 study that examined people familiar with the clock at Bologna Centrale railway station, which was damaged in a bombing in August 1980. In the study, 92% of respondents falsely remembered the clock had remained stopped since the bombing, when, in fact, the clock was repaired shortly after the attack. Years later, the clock was again stopped and set to the time of the explosion, in observance and commemoration of the bombing. (“False Memory” via Wikipedia)

Additional Resources

- https://en.wikipedia.org/wiki/Video_compression_picture_types
- https://en.wikipedia.org/wiki/Fuzzy-trace_theory
- https://en.wikipedia.org/wiki/Gestalt_psychology
- https://en.wikipedia.org/wiki/State-dependent_memory
- https://en.wikipedia.org/wiki/Dunning%E2%80%93Kruger_effect
- https://en.wikipedia.org/wiki/The_Seven_Sins_of_Memory
- https://en.wikipedia.org/wiki/Cognitive_dissonance
- https://en.wikipedia.org/wiki/False_memory
- https://www.science.org/doi/10.1126/science.adt7570

The End

- TLDW Version: Memory is a very complicated topic and is subject a number of failure modes.

- Q&A Session To Follow.