Somayya Upal. submissions from undergrad, spring 2023. PS336 Cognitive Psychology @ BU.

Every week, PS336 asks us to submit two questions or thoughts about what we've been learning. This is a selective compilation of my answers, which I enjoyed doing greatly. You can see over time my comfort level increase and my authenticity of thought increase.

1. I'm curious how H.M.'s time perception was affected by his lack of long term memory storage. Time perception tasks requires working memory, as we have to note the "start" and "end" in order to percieve passage of time. Because H.M.'s short, working memory still worked, his immediate time perception may have been unaltered, but what about time perception over his whole life/identity? Like the feeling of "aging"?

2. The section of the article on if H.M. has a sense of self was my favorite part. Isn't it reducing to associate Self completely with memory? Or is it reflective of how even small behaviors (thereby constituting what we experience as Self) are a result of past experience/genetic memory?

2. Does the level of automacy depend on how linguisticaly-dependent the abstract concept is? We've seen in studies how reading is very automatic, often faster and less error-prone like in the Stroop test, so maybe lack of linguistic structure, like mathematics, a field which relies on an alternative foundation, requires more processing, almost akin to a period of conversion for the material, while linguistic-based applications require less time because they are already in the linguistic unit we understand more readily.

2. If information is stored in distributed and weighted forms, would existential concepts (like "God", subjective reality, or consciousness), which reference large percentages (if not all) of one's data, encompass close to the entire PDP model of an individual?

1. I'm obsessed with hyperphantasia and aphantasia, so was very excited to read this article and learn more. During our unit on Baddeley's working memory model I wrote in the margins of my notes, "does someone with aphantasia not have a visuospatial sketch pad?", or at least not as tangible/explicit of one? After reading the second article, there must be a subconscious sketch pad which has separate functionality from the conscious sketch pad, so perhaps in the working memory model, it isn't effected for those with aphantasia (unless maybe there is severe damage to connections).

2. I met this girl while volunteering once who has aphantasia (we were talking about organic chemistry and it makes her studying difficult). Part of my research involves dream sensory perception, so I asked her about hers and she said they were not visual at all, instead like "audiobooks". Do others with aphantasia also have dreams with less vivid visual perception?

1. I once went down a mini research spiral on speed-reading and the three categories of mental reading: sub-vocalization, auditory, and visual reading. Each one has a significant speed difference (in order, 250, 450, and 700 words per minute on average). In class we emphasized the automatic nature of reading (can't really look at a sentence and not read it); these categories bring more nuance to that automatic reflex. I'd love to learn more about the cognitive differences behind each one. From what I gather, they seem to have different internal sensory recreations, where sub-vocalization is sounding/speaking the words, auditory is hearing the words (which brings up a really cool distinction when compared to the last category, because obviously the words must've also been spoken internally to be heard, right?), and visual is based on simply seeing.

Although I read at an auditory level, I can feel the difference of visual reading from when I read the whole Quran in Arabic when I was 5, but never learned to actually speak or understand Arabic. When I'd read, I'd fix my eyes *ahead* of each letter (which was easier because they were purely symbolic). When I researched about learning how to visually read, they emphasized placing your eyes on the word one

ahead and basically use your memory to maintain the last one you're presently understanding (or speaking out loud in my case).

1. I wonder if the aversion to probabilistic insurance is psychologically why our healthcare system has evolved to have such a "cure" emphasis rather than graded "healing" concepts, as curing implies binary health status (diseased or healthy). It may be why preventative medicine has been unsuccessful, as preventative behavioral changes (like lifestyle, nutrition, etc) have no guaranteed elimination of disease risk, thus are undervalued in our decision-making.

Would love to expand on this.

2. I wonder how decision-making creates foundations of self-perceived precognition, as the brain models or predicts in dreams/"visions" what the future may hold (and when it aligns with reality, the individual may recognize this overlap and label it as precognition). I guess you can get into what decision even entails: is the subconscious modelling aspect of our pattern-seeking brain an entity which can "decide"? I think if it is making a choice in what to display for the individual (in dreamscape, intrusive visions, etc) it shares at least rudimentary traits of decision-making. I had a participant in my research study who was about to face a wind-storm. That night, she logged a dream about seeing tornados tear apart her town, and specifically seeing the metal trims on her house tear off. 12 hours later, in her daily survey, she noted the real metal trims blew off her house. She interpreted this mystically, but secularly, it's likely her brain was processing and modelling what it expected to come the next day. Some internal decisions were occurring as to the probabilistic chance of what damage may happen, and it seemed to have made the correct decision. Sorry this was kind of abstract. (Also, a lot of the time intrusive thoughts/dreams are not necessarily aiming to be Self-perceived probabistically accurate, as they are often surreal and seemingly gibberish, so sometimes it's just the brain processing in ways not even interpretable to Self. Who knows.)

1. Identity protective reasoning may explain that interesting fact Professor pointed out during class: how visual illusions are seen as interesting, memory illusions eerie, but judgement/decision illusions are offensive. Visual perception seems to be the least correlative to this abstract of "identity" we assign in our minds, while judgement/decision constitutes a foundational element of our abstract of Self. This makes sense because autonomy is the verb-form of experienced Self (I could argue phenomenology is as well, and even more foundational, but most people don't pay heavy attention to it). Visual perception is least correlative because that has been normalized; we recognize visual errors, hallucinations, visions, etc, very regularly so we understand that our visual perception can disagree with us (where "disagreement" is occurring because our perception is going against what we, as the autonomous object, intended for ("truth")). For decision-making, however, that analysis of autonomy becomes almost meta because we have an intention of acting conscious while making a conscious decision, so an illusion there reveals a possibility of pseudo-conscious autonomy.

Also one more tangent on that, I am really interested in the intersection of mental illness and identity for this very reason. I'd argue that recognition of a mental illness creates a liminal space of Self with fragmentation, where one associates some of their actions with the abstract, intangible illness and some of their actions as their own. There is a split in motivation and autonomy, which can be frightening as an individual, whose construct of philosophical Self is largely based in autonomy. It's... existentially humbling.

2. The news article suggests that time of attention is a key part to detecting false news. Is the capitalistically-motivated commodification and reduction of our attention spans then only aiding the absorption of false news?

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Feb 2024 : Perception discussion submitted questions

“I hadn't heard of the end-stopped neurons in my basic neuro classes. I've learned a lot about the biochemical process of visual perception at the retina from my biochemistry class at the medical campus last semester, but learning from a psychological perspective is really interesting in comparison. End-stopped neurons seem to require simple line recognition- because how else can corners be observed besides several angled lines merging. It raises the question of the "order" of these neurons (end-stopped and simple) to one another. Is it hierarchical or is it temporal? Because if it is spatially hierarchical, then end-stopped neurons are really comprised of other neurons (so not single-celled). If it is temporal, then there is some element of the higher processing is occuring, the greater the delay. I wonder if as life has become more complex consciously, we've become more distant from "true reality" (if such exists).”