Unconscious Juggling of Mental Objects

Preface 2 of the book “Fluid Concepts and Creative Analogies” construe the “Unconscious Juggling of Mental Objects. In this preface Hofstadter’s expressed one of his beloved interests which is solving anagrams. Then he further discloses that during his college years solving Jumbo puzzles was a task that captivated his attention. Timing himself with others to solve these puzzles and then contemplating how long it took, to gloom or put together the right letters to form meaningful words was a concept that intrigued him. First analyzing the letters at a conscious level and then waiting until mental objects and meaningful words started falling from the sky at the unconscious level.

The process of glomming consists of analyzing the word and determining if there is a sub-word present to form a different word with the same letters. Then, perceiving if another meaningful word could be formed. When articulating his analogy to virtual objects Hofstadter gives an example of a ball in a video game. Thereupon, he illustrates that the ball is not a physical object nor a group of fixed pixels, but rather something abstract that has its own identity and attributes and it floats in a virtual world but it is utterly different from pixels. He then proceeds and states that there is a difference between such a virtual video object and the “stuff” that it resides on and then he continues explaining that he would argue that the same distinction and relationship holds between the mental letters and the neural hardware that they are part of.

Moreover, Hofstadter asks, "Why work so hard to model such a frivolous and atypical cognitive activity?" He then answers that such mental juggling is very important and that this mental activity has nothing intrinsic to do with such anagrams. When the activity reaches expert level, and it is highly automatized and very rapid, it has something in common with the deep processes of reorganization and

interpretation that provides creative thought. Parallel processing is present on expert minds, but there is something totally different on novice's mind activity.

The brute-force program takes a totally disparate solution to the Jumbo program that Hofstadter coded. It uses an unexpurgated dictionary and a mathematical approach which make the program faster than then Jumbo. However, he then claims that such programs have nothing to do with "Cognitive models" and for that reason alone he is not interested. I find interesting that he is more interested with how the human mind works, instead of how to improve the efficiency of glomming words using his program (Jumbo).

The Hearsay II project uses the idea of parallel architecture in which bottom-up and top-down processing can coexist. Knowledge sources(KS) at the beginning appeared to be telepathic because they would just know if conditions were met and then execute some actions. Furthermore, preconditions make the process of checking if conditions are met possible. Additionally, Hofstadter claims that the "fateful footnote" was one of the most memorable paragraphs that he read in the field of AI. He was very perplexed since the paragraph was a footnote and a somewhat apologetic one. Conversely, it contained one of the most important principles in the design of parallel systems. He adapted this principle on his research and named it "parallel terraced scan".

The parallel terraced scan is a process by which conditions have preconditions associated with them and if they are met proceed to execute the task. Furthermore, he gives an example of a sorority during "rush" and how possible candidates undergo many different preconditions and conditions narrowing the number of candidates to pledged and join. Likewise, when someone is applying to universities he must meet the preconditions which is to have a Highschool diploma, one might get multiple replies then if he meets the conditions imposed by the university then he is admitted. Hofstadter talks about reading words and that is multi-level glomming process. Many different examples are provided such as the word

“weeknight” and how it can be broken down into multiple chunks or tokens such as “week” and “nights”. An illustration of this could be the word “amazing” which can be broken down into “a”, “maz”, and “zing” depending on the perception of the beholder.