

Analysis of GPS, A Program that Simulates Human Thought

By Eli Hermann

Summary of the Paper:

In this paper the researchers present a human subject with a logic problem and ask them to verbally solve the problem out loud. The researchers record these responses, study them, and try to create a program that mimics the behavior of the subject. Their theory is that if you do this with enough subjects, all of the parts that are idiosyncratic to the individual will be shown in the difference between these programs, and the parts that are essentially human will be the remainder. The general structure of the program is as follows: input the overarching goal, "transform object A into object B", in order to find the difference, D , between objects A and B, and finally, use the relevant operator Q to transform A and repeat until A is equivalent to B. The end product of the paper is a list of agreements and disagreements between their program and the reasoning applied by the subject followed.

Things that I liked:

I think their general philosophy is good. The idea of creating mimicry programs, and then comparing them to find what is essential to human problem solving. It seemed like a non-trivial assumption that there is some universal core of human problem solving, but two thoughts made me feel better about that. First, that the assumption would be justified if some core was found, especially cross culturally. Second, the degree of abstraction that their general form reaches seems pretty applicable, especially when stated in the three major steps as I state in the summary.

Things that I was unsure of:

I wondered if lingual differences could make a significant difference in the problem solving strategies. For instance, would we eventually find not one general problem solving strategy, but several? I've heard that the Chinese language is easier to do mental math with just by its structure. So maybe we'd find cultural problem solving techniques. At which point, separating culture from biology might be the problem which might also be difficult. Definitely worth investigating.

Inspiration that I found in the paper:

I wondered about how a cattle rancher would solve a problem versus how a professional mathematician would solve it. I'm sure that there are some structural similarities between common cattle ranching problems that might express themselves in the cattle ranchers and not in the mathematicians. And while the broadest idea was to find the core of human problem solving, investigation into the idiosyncronicity could be very interesting as well. I love the idea

that lessons learned in one domain could be beneficially applied to another by investigation into structural or topographical similarities between the two domains.