

What other types of problems can we solve using this method? In other words, the problem probably deals with a particular situation. Can we categorize what general category of problems this method can solve?

Conceptual Dependency

Conceptual dependency can be used in real-life situations that involve a series of actions. It can also be used in machine translation, as we can simplify sentences into general boilerplate examples and translate them back to a target language. Of course, we would lose some information, but it would definitely work. Similarly, conceptual dependency can be used to understand long chunks of text and summarize it.

Scripts

The script is a good method for describing a chain of events. It can also be used to reason about the causality of events. Therefore, when given a frame, scripts can be used to understand unclear information. Scripts could be useful for natural language processing as they can represent sentences well. Extending this, chatbots could also use scripts to determine what to say next.

Case-Based Reasoning

Case-based reasoning is best suited for problems with strict, logical relations between objects. For example, it could be used to find a probable diagnosis for a patient's symptoms. While the diagnosis proposed may not be correct, it will be the most logical answer based on previously known information (in this example, other diagnoses).

Since case-based reasoning eliminates unneeded data to find a solution, we could use it in a computer repair scenario. In this context, we would have a tree of possible issues with the computer, and we can process them to eliminate illogical causes until we find the culprit.

Assuming that this solution does not give us a fully autonomous artificial mind, what is holding us back?

Conceptual Dependency

Conceptual dependency requires everything to be encoded in the knowledge system. We cannot add new identifiers to our conceptual dependency database during the learning process, so this is a limitation of it. At the same time, conceptual dependency requires linguistic input, which limits it from analyzing multimodal input.

Scripts

In our context, scripts are unable to make logical decisions and instead allow for contextual understanding of a scene. Since we are unable to make branching decisions (or decisions as a whole), this prevents us from having anything similar to an artificial mind.

Case-Based Reasoning

Case-based reasoning is primarily held back by the strict relationship between previous examples and guesses. In many problems, answers do not always follow exact patterns and even outright contradict previous patterns. For example, a case-based reasoning system for determining a diagnosis from patient symptoms would entirely fail if the patient had new (or not yet seen) symptoms for a diagnosis. It would also fail if the diagnosis itself were novel. This method of reasoning relies heavily on a known world with consistent logical relations.

Can we restate this problem and/or add more tools to gain more ground in our search for the artificial mind? What small change will force us to develop a solution that is one step closer to a fully autonomous artificial mind?

Conceptual Dependency

If we were to give a conceptual dependency system the ability to reason, we could conclude a sentence. In its current form, we can process the sentence into unique parts and verbs, but concluding is not feasible. Similarly, if our conceptual dependency system could get different input types, it could be more generalized.

Scripts

We need a way to generate scripts on the fly. Scripts can only be used when the appropriate scripts are pre-programmed with expert knowledge. We also need to learn script structures when given a circumstance. For example, a new circumstance could be written as a sentence, which could be easily transformed into scripts.

Case-Based Reasoning

We need a way to better represent the information we observe. This could be done by ensuring that each item observed has many parameters, but a better method of representing observations would be necessary to continue developing this method of reasoning.