Example of how formal symbol manipulation model applies to formal logic, and how ...

Experience, Belief

How Formal Symbol Manipulation model applies to Formal Logic, and how human cognition differs from Formal Logic but still fits in the Formal Symbol Manipulation

The structure of GOFAI has its roots on formal symbol manipulation model of computation which is in turn based on formal logic. Therefore, for one to have a clear understanding of GOFAI they must be familiar with the logic. Logic has two domains that include the realm of symbols, also known as syntactic the domain and a realm of reference also known as semantic domain and normally related to the external world. The structure can be characterised by two types of relationships that involve both syntactic and semantic domains (Butler-Bowdon, 2007). Semantics especially reference talks mostly on the link between mind and world. These are causal or mechanical relationship of inference and intentional relationship of semantics.

Thoughts as for the case of the human mind and computation as for computers also represent other forms of causal relationships. More relationships though not considered logic in nature also exist, for instance, those linking external world to the system are action and perception (Regier, 1996). The third structural component of logic is normative constraint. It is responsible for holding among the domains and relationships and also holds the mechanical accountable to the semantic. Normative constraint applies to either relationship.

Some areas in which human cognition differs from inference in formal logic include, but not limited to behaviourism, productivity and systematicity. Living things behave, and we can be described to be what we do. Psychology

is the science of what we do and not the science of mind. Behaviour can get its description without making reference to either mental occurrences or internal psychological processes. Behaviour mostly originates from external sources. On the contrary, behaviourism has problems such as; generalization fail if one cannot refer to what an individual wants, believes among others. The other problems are similarity of needs, desire, fears amongst others. It also leads to a sense that correct psychology must advert to mental states (Shastri, 1988). In essence, psychology ought to be a theory of mind thereby meaning that the reference should be made to mental occurrences and to internal psychological processes.

Mental states tend to elicit serious questions of what mental conditions are and how other people mental state can be described and much more. Mental states in most cases tend to take a common form α x's that β where α represents a person or subject, x is referred to as proportional attitude. It is the attitude that a person or subject takes towards the proposition and β is a proposition that β is the case. Getting an in-depth understanding of mental states as the propositional attitude is in most cases called folk psychology. Folk psychology can be defended as being uniquely strong way of explaining and envisaging behaviour. Treating mental states as propositional attitudes implies a lot of things some of which include; finite set of attitudes (these could be fear, beliefs, and intentions) (Crespi-Reghizzi, 2009). Unbound set of probable propositions and structured sentences are other implications of treating mental states as propositional attitudes (Müller, 2013). Productivity, this comes from the language and thought. The fact that humans can understand and construct sentences they have never heard or uttered

previously.

Systematicity of language and thought; the ability to generate and understand sentences containing constituent words and be able to understand other sentences making use of the related words. Ability to generate and understand thoughts having constituent components and also being able to understand more thoughts while making use of related concepts. Productivity and systematicity that is facts concerning thought and language and compositionality, a claim concerning languages and through language of thought about thought altogether constitute a powerful combination. Enables humans to have better understand of mental states thus allowing people to recognize likeness of meaning without identifying likeness of reference. As for digression, at times one is capable of hearing a phrase and construct even better mental picture of similar meaning as the phrase. As a result our minds gives us a grip on ideas of synonymy and translation.

Human cognition shows a complex of closely linked properties-encompassing systematic, productivity and compositionality-which a theory of cognitive architecture assumes at its risk. It is worth noting that any theories still in existence and in denial that cognition lacks the above-discussed properties get to be considered dead altogether. On the other, hand any theory that is considered compatible with cognition exhibiting those properties yet it cannot explain why it does so is doomed to be in serious trouble.

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