Genesis-OpenMind

Robert McIntyre

February 24, 2011

Vision

The Genesis system is an effort to understand and process stories the way humans do: by reasoning through analogy, finding high level plot elements, and extrapolating from rules learned in previous stories. Although every part of Genesis is rudimentary right now, it has shown promise; it can already find instances of revenge and other plot level events in simple stories. Genesis uses a set of rules expressed in normal English as a basis for its explanations of the events behind the stories it reads. For example, it might have a rule of the form "If xx harms yy, then yy may become angry at xx." After reading this rule, Genesis can find instances of anger in the stories it reads and offer up the explanation that that person was hurt and that that hurt was the source of their anger. Up until now, Genesis has used around 10-30 hard-coded rules relating to the particular story it is about to read. I hope to greatly extend the number of rules that Genesis knows (by several thousand) by incorporating the wealth of knowledge contained in the Indoor Common Sense Database (`http://openmind.hri-us.com/`) .

The Indoor Common Sense website has been collecting simple commonsense rules and statements concerning all things related to indoor situations since August 2003.[1]It focuses on on collecting commonsense information about "human desires, objects and their locations, and causality." A typical database entry might be something along the lines of: `{:vp1 are angry, :vp2 are mistreated}` which means that if a person is mistreated then they might become angry. I hope to take these database entries and transform them into a form that Genesis can use as rules in its understanding of stories. An example:

1. Start with entry from :people table – {:vp1 are angry, :vp2 are mistreated}
2. Convert to English using START output – "If xx is mistreated then xx may become angry"
3. Read the sentence back in as a common sense rule.

START is a parser written by Boris Katz that can both parse English sentences and also generate sentences given a programmatic description of the sentence

to be generated. I will use this parser to convert the database entries into the form of rules which will then be read by Genesis.

Since the Indoor Commonsense Database has almost one hundred thousand entries, I anticipate that I should be able to get around five to ten thousand rules which are useful to Genesis. Since up until now we have only dealt with around thirty rules, increasing the amount by two orders of magnitude will no doubt expose the weaker parts of Genesis' architecture. Shoring up these deficiencies so that Genesis can process stories in a timely manner will be the other part of my contribution to the project.

When Genesis has the knowledge of the Indoor Commonsense Database, I expect it to be able to find more and better plot units in the stories it processes. When asked to explain why a particular event in the story unfolded the way it did, Genesis should be able to use its new commonsense rules to come up with more plausible explanations than it can right now.

References

[1] Rakesh Gupta and Mykel J. Kochenderfer. Common Sense Data Acquisition for Indoor Mobile Robots. In *Nineteenth National Conference on Artificial Intelligence*, 2004.