Massachusetts Institute of Technology

6.038 Artificial Intelligence in Practice

Problem Set 6B: Thursday, March 12, 1998
DUE: Tuesday, March 17, 1998

NB: For this assignment, we encourage (but do not require) you to work together in pairs and hand in a single solution per pair. You may keep the partners from PS 5, or switch as you prefer.

1 Background

In this problem set, we continue to explore how to add semantics to a grammar.

2 Files

We will be using the same parser as in PS 5. The parser can be loaded into MIT Scheme by loading `/mit/6.038/ps5/load.scm`. Since the grammar we will be using is much larger, you will want speed. If you have your own PC and are running Scheme under Windows, use the Scheme compiler to compile all the files (use `(cf ''file'')`). If you are running on Athena, and get frustrated at how slow things are running, you might want to consider using Scheme-to-C, especially since you won't be doing programming but mostly running the parser and changing the grammar.

If you are using Scheme-to-C, you can use the `load.sc` file to load the parser into sci. If you are running Scheme-to-C, we have also provided `/mit/6.038/bin/ps5-sci` which has the key files compiled in. If you are running on your own Linux machine, compile the files by doing:

```
scc -i -o ps5-sci useful.sc nmatch.sc nunify.sc nback.sc grules.sc
```

You will need to load the grammar file when you start `ps5-sci`.

The file `/mit/6.038/ps6/big-gram-sem.scm` has the sample grammar you are to work with.

3 Extending the grammar

The grammar we have given you handles a fair number of English constructions but has a very limited lexicon. Your mission is:

1. Add enough vocabulary to handle a substantial group of sentences in some domain. You might want to use the same domain you used in PS 5. Contrast your experience doing this with your experience starting from scratch.
2. Point out specific limitations of the existing grammar, both in syntax and in the semantics. Suggest specifically how you would extend/modify the grammar to handle these problems.
3. (Optional) Try implementing some of your suggestions.