

## Chapter II-3

### Natural Language Processor/Parser

Once we have our “bag of words”, what do we do with them? Somehow we must attach meaning to this collection of words. This is where Natural Language Processing (NLP) comes into play.

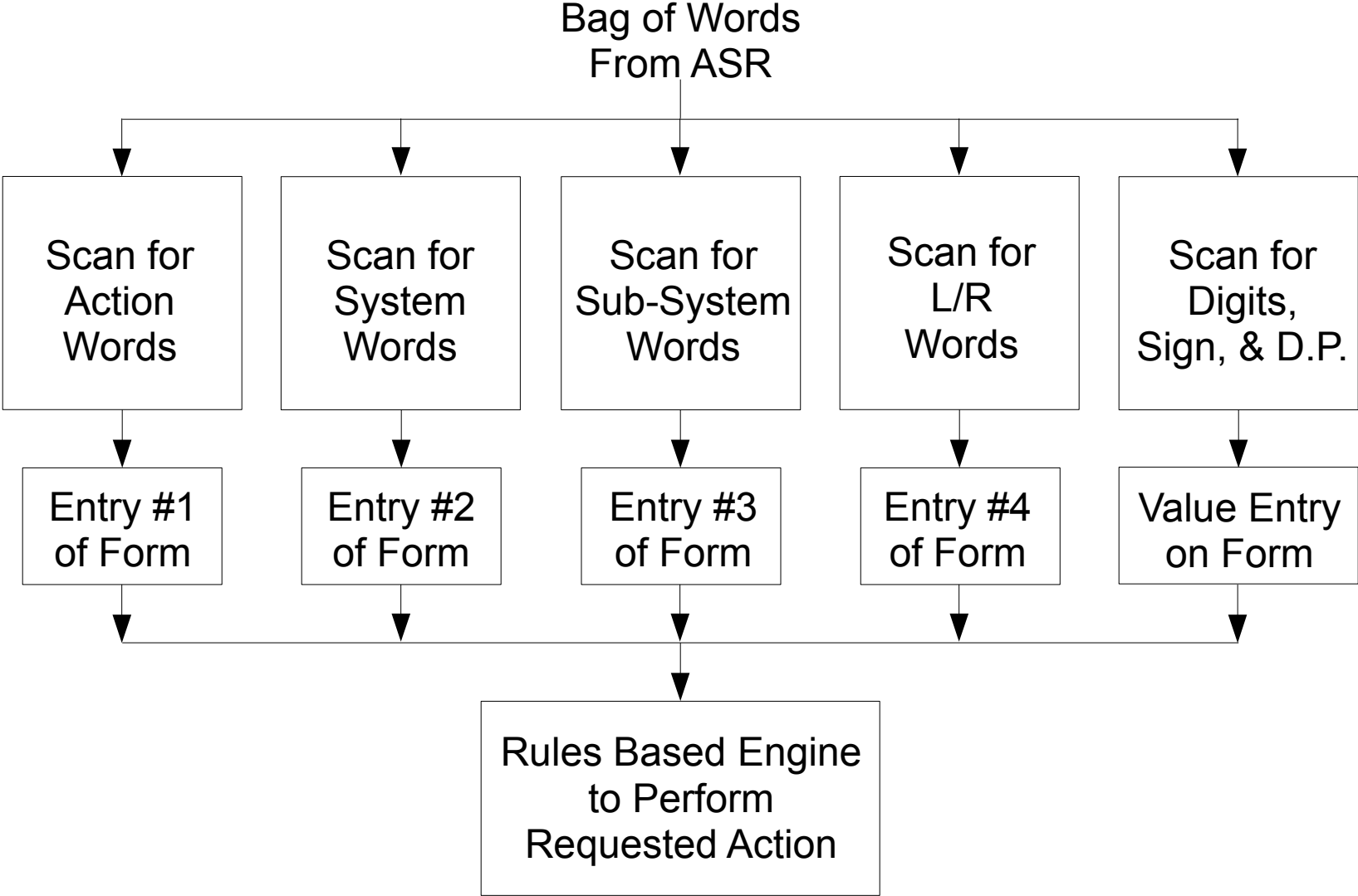
While there are very sophisticated NLP programs as witnessed by Watson's performance on Jeopardy, for the relatively simple conversational agent used in our system, a form filling parser is a good starting point.

The form filling parser simply accepts collection of words and distributes them into places on a form. The form has an action entry, an object, object modifier entries, and a numerical entry. For example, the command “SET COMM ONE TO 123.45” has the action word “SET”, the object word “COMM”, the object modifier “ONE”, and the numerical value “123.45”. The parser does this by comparing each word in turn against a stored list of action words, a stored list of object words, etc. If a word is not in one of the stored lists, it is ignored. Figure 13.1 illustrates this process.

Once the parser completes its task, the form is sent to a routine that performs the action. This routine is a set of rules that first examines the action word (SET, SAY, etc) and then branches to other rules that examines the object word and its modifiers. In the example above, the program follows the branches to the routine that parses the numbers and sets the Comm1 radio to 123.45 MHz.

It may be a tedious process to write a form filling parser code, but it works well. It is also extensible. Adding other commands or requests is straightforward.

For example, we might add a command to display a charts. Here we could use the action word “SHOW”, the chart name “DENVER”, and the chart type “SECTIONAL”. Paper sectional charts generally have a north and a south side. In that case, the additional modifier “NORTH” or “SOUTH” might be added.



Simple Form Filling Parser

Figure II-3.1

