Übung 4

November 26, 1999

This week's exercise is also a grammar exercise. It involves extending the grammar in `movewh.pl` in various ways. So first go to your work directory and

```
unix prompt> cp ~cornell/movewh.pl .
```

Passive Movement. The question of how to treat passive constructions is an old one in generative grammar, and debate has often gotten rather heated. Roughly the two positions are something like the following. First, one can treat passive as similar to wh-extraction. That is, the subject of a passive construction is out of position (it is logically the object of the main verb) and there is a gap in object position. So the two sentences

(1) *Who did the villain pursue _ ?*

(2) *The villain was pursued _ .*

are alike in having a gap in object position, but unlike in the surface position of the displaced element.

Another school of thought treats passive as a primarily lexical operation. That is, the passive participle is not just the past participle borrowed for use in a syntactic passive construction. (After all, there are plenty of languages, like Latin for example, which have specifically passive verb forms.) There exists a separate passive form of the verb, even in English, which has a slightly different subcategorization frame from the other forms of the same verb, namely it is missing an NP argument.

All linguistic argumentation aside, our implementation of word forms as separate from lemmas makes this second solution awkward to implement, so we will (rather arbitrarily) decree that passive is a syntactic phenomenon, to be treated with the same gap-filling technology that we developed for handling Wh phrases (and auxiliary inversion).

Note that passive gaps are different from Wh gaps in one very important respect. In example (1), the gap filler (*who*) receives accusative case from the main verb `pursue`. But in example (2), the gap filler (*the villain*) receives nominative case. Also, we may have (if we had the necessary verbs in our lexicon) gaps of both types, simultaneously:

(3) *Who was the hero convinced _ that the villain was pursuing _ ?*

So these two observations, that the gaps require different information and that both can exist simultaneously, argue for adding a new gap channel to the relevant categories.

You must:

1. Figure out the right `gap`-structure to use for representing passive type gaps. (What information is needed at the gap site?)
2. Figure out which categories are affected.
   (a) Which categories will need to carry around the new gap channel?
   (b) Which rules can add a gap to the new channel?
   (c) Which rules will discharge the gap?
3. Modify `movewh.pl` and test it. (This means coming up with some example sentences.)

Extra stuff to try. If you have time, try recognizing sentences like

(4) *Who was entertained?*

(5) *Who did the villain think was being entertained?*

Do you get these for free, or will you need to add something?

If you have even more time, consider adding the verb `convince` to the lexicon. That means adding all the relevant verb forms to the definition of `word_form/3`, and creating a new kind of subcategorization feature. For example, you might use `np_sbar` or something like that. Then you will need to add one or more rules to the definition of `complement`. Now you should be able to recognize sentence (3).