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Development of Large Scale LFG Grammars:
Linguistics, Engineering and Resources

Templates and Functional Uncertainty

Begin with the grammar in:
`/space/projects/esslli99/grammars/english/english-wed.lfg`

A testfile can be found in:
`/space/projects/esslli99/grammars/english/testfile-wed`

> **Note:** You can parse the entire testfile at one time by using the command `parse-testfile testfile-wed`.
>
> If you add the parameter `1` as in
>
> `parse-testfile testfile-wed 1`
>
> then you can see the analyses one by one by clicking on the `Next Sentence` button in the upper right window.

1 Exercise 1 — Templates

Restructure the lexicon using (a hierarchy of) templates.
Using the handful of existing templates as a model, write more templates for the following (and use these names):

Name	Function
CASE	Case Assignment
PROPERNOUN	For Proper Nouns
NOUN-PL	For plural common nouns
DET	For Determiners
TENSE	Tense Marking
ASPECT	Aspect Marking
TRANS	For transitive verbs
INTRANS	For intransitive verbs
PREP	For prepositions
V-S-RAISING	For modals

The use of the templates is illustrated with the noun *girl* and the pronouns *he, she, it, them.*

If you want to write more templates or in order to try to organize things differently, you are most welcome to do so.

Note: In this exercise we have introduced the use of the variable `%stem`. This is a very useful device within XLE which allows you to make XLE do the work of figuring out the stem (based on the headword in the lexical entry you have written). This avoids cut-and-paste errors as in the *monkey* and *park* situation of the first exercise. However, it is really useful only in conjunction with a morphological analyzer that will return the "real" stems (*eat* as opposed to *eats*). This will be introduced at the end of the week.

2 Exercise 2 — Lexical Rules

- The grammar contains a pseudo-morphological analysis in order to demonstrate the lexical rule for passive (we will soon use a real morphological analysis).

  A template for passivizable stems is already in the TEMPLATE section, but you still have to fill in the rewrite rules that make up the core of the lexical rule for passive.

  First, write the rule that will suppress the subject, and make the object the subject.

  Then add an alternative where the underlying subject is realized as an oblique PP with *by.* (Constrain this disjunct appropriately.)

  The template should also work for ditransitive verbs. Add the template call to the appropriate lexical entries.

  - the girl was see -n
  - the girl was see -n by the boy
  - the girl was give -n a telescope

- Advanced Additional and Optional Exercise:

  Add a new lexical rule for dative shift. Make sure it interacts appropriately with the passive lexical rule (which one has to apply first, i.e., should be embedded in the other one?)

  - the telescope was give -n to the girl

3 Exercise 3 — Functional Uncertainty

Run the testfile and make sure you understand the treatment of topicalization via functional uncertainty (as was demonstrated in class).

Relative clauses are another candidate for treatment via functional uncertainty. At the moment, the relative pronoun can only be interpreted locally (i.e., without modals or embedded clauses).

Parse the two sentences in the testfile (repeated here) and make sure you understand the analysis of relative clauses.

(1) a. The boy who laughed saw a monkey.

b. The boy who she saw is sleeping.

Add a functional uncertainty analysis to cover the following data.

(2) a. The boy who should laugh is sleeping.

b. The banana which the monkey should eat is in the park.

c. The boy who she thinks she sees is in the park.

Optional: Add a treatment of relative pronouns in PPs.

(3) a. The monkey of whom she is thinking is in the park.

b. The monkey of whom she should think is in the park.

c. The monkey of whom she thinks that he is sleeping is in the park.

What should the f-structure under the TOPIC be when the PP is a relative phrase? (Recall that this phenomenon has been called "Pied Piping": the fronted relative pronoun is joined by the preposition, which can't be stranded.)

4 Exercise 4 — Constraining Equations

Make sure that you can't parse sentences like

(4) a. *The boy which is in the park is sleeping.

b. *The banana who the monkey should eat is in the park.

Hint: This will involve introducing a feature ANIM with the values + or -. Use constraining equations to make sure you get only the right analyses.