Frank Richter:
Grammatikformalismen für die Computerlinguistik

Aufgabenblatt 8

Exercise 1. [4 points]
Sketch the lexical entries of *advised* and *believed* and justify them using the data in (1) and (2).

(1) a. She advised me to be smart.

     b. * She advised it to be late.

(2) a. She believed me to be smart.

     b. She believed it to be late.

Exercise 2. [4 + 2 points]
In (124) on page 143 of their book Pollard and Sag give us the following information about their idea of the lexical entry of the auxiliary verb *to*:

$$
\begin{bmatrix}
word \\
\text{PHON} \quad \langle \text{to} \rangle \\
\text{SS LOC}
\begin{bmatrix}
\text{CAT}
\begin{bmatrix}
\text{HEAD}
\begin{bmatrix}
\text{VFORM} & inf \\
\text{AUX} & plus
\end{bmatrix} \\
\text{SUBCAT} \ \langle \boxed{2}, \ \text{VP}\big[base, \text{SUBCAT} \langle \boxed{2} \rangle \big] {:} \boxed{1} \rangle
\end{bmatrix} \\
\text{CONT} \quad \boxed{1}
\end{bmatrix}
\end{bmatrix}
$$

With the lexical entry for the infinitival auxiliary *to* they intend to license sentences such as the one shown in (3a). However, if we only consider the principles of grammar as Pollard and Sag list them in their appendix, the principles and the lexical entry above also license (3b) as a saturated verbal projection of English.

(3) a. John seems to run.

     b. * To John run.

1. Draw an AVM with the tree description notation for (3a) and (3b) which indicates the constituent structure the grammar assigns to the two expressions. Mention the following facts about the two expressions in your description: Number of the ID Schema by which each phrase is licensed; elements on the SUBCAT lists of each sign, and identities with elements on other SUBCAT lists; identities caused by the SUBCATEGORIZATION PRINCIPLE and the HEAD FEATURE PRINCIPLE.

2. How can the grammar be changed in order to exclude the expression in (3b)? You may want to consider what Pollard and Sag say on page 41 about inverted structures in English. Any other simple solution compatible with the major facts of English grammar is also welcome. Please keep your modification small and simple.

Exercise 3. [4 points]
Download the TRALE grammar consisting of the files `signature` and `theory.pl` discussed in the Subsection *Fragment I – The Core Fragment* of Chapter *Grammar Implementation* (it is available from the separate *TRALE Grammars* page of the seminar web page;[1] there it is simply called *Fragment I*), and put them in a new directory on your computer account. Start TRALE with the graphical interface GRiSU from that directory, and compile the grammar. If you do not know how to do that, look it up in the TRALE manual.

Take a look at the specifications in the file `theory.pl`. You do not have to understand exactly how this grammar works to be able to easily guess which words are available in this grammar and which sentences are licensed by it. Take a few words to form and parse at least five different sentences. Save three of your parse results and hand them in. Use this opportunity to play with GRiSU and get somewhat familiar with its functions.

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[1] `www.sfs.uni-tuebingen.de/~fr/teaching/ss04/grammars.html`