Frank Richter:
Grammatikformalismen für die Computerlinguistik

Aufgabenblatt 10

The questions in these exercises are all about the *Core Fragment*, which is specified and implemented in TRALE in Section 3.2.1 of *A Web-based Course in Grammar Formalisms and Parsing*.

Exercise 1. [5 points]

Take the sentence *Peter likes Mary*, which is licensed by the grammar specified Section 3.2.1.1.

First indicate the syntactic tree structure which the principles of the grammar determine for this sentence. Second, for each principle of the grammar indicate what it contributes to the properties of the sentence *Peter likes Mary* as we find it in the denotation of the grammar. Do not forget to indicate those principles which do not have any effect on the properties of the sentence.

Please note that this is a question about the HPSG specification of the grammar, not about its implementation in TRALE.

Exercise 2. [1 point]

Why does the system answer the query `rec[you,walk]` with `no`?

Exercise 3. [2 points]

The functional (or non lexical) preposition *to* has a very small lexical entry. In AVM syntax it is simply

$$\begin{bmatrix} \text{PHON} \ \langle to \rangle \\ \\ \text{SYNS LOC CAT HEAD} \ \begin{bmatrix} prep \\ \text{PFORM} \ \ to \end{bmatrix} \end{bmatrix},$$

and its TRALE counterpart is a direct translation of this description into TRALE's notation for lexical entries. If you query TRALE for *to* with `lex to`, however, you get a much more precise description of functional *to* in the denotation of our grammar for an answer (besides a description of lexical *to*, which we ignore here).

Name the parts of the grammar which the compiler used to infer the more precise description of non lexical `to`, which it apparently has internally available at run time for the purposes of parsing.

Exercise 4. [2 points]

Why do the `append` relation and the APPEND PRINCIPLE not occur in the implementation of our core grammar specification, although we obviously need it in a complete theoretical specification of our core fragment of English?