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Grammar Development in Constraint-Based Grammar Formalisms

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Exercise Sheet 2

In preparation for the following two exercises please create a subdirectory `sample-grammars/ex2.1-2` under one of your directories. Copy the files `theory` and `signature` from `sample-grammars/ex1.2` to your subdirectory `sample-grammars/ex2.1-2`.

1. On the ConTroll Reference Card you find the syntax for the abbreviatory notation with the `--->` for specifying lexical entries.

   In the file `theory` of your subdirectory `sample-grammars/ex2.1-2`, please replace the implication for the type *word* by the new abbreviatory notation for specifying lexical entries.

   Using the modified grammar that you created for the exercise above, please do the following:

   (a) Extend the grammar so that it licenses sentences with first-person, singular pronouns also for transitive verbs, such as *I love her*.

   (b) Extend the grammar so that it licenses sentences with ditransitive verbs such as *give* in sentences such as *she gives her milk*. For object NPs you can restrict yourselves to the use of pronouns, mass nouns or determinerless plural NPs.

2. Below you find different ConTroll-descriptions of lists. For each description please specify

   - the corresponding directed acyclic graph (DAG). The DAG should contain all relevant types and attributes,
   - any equivalent abbreviatory notations (i.e. using bar-notation and comma-notation for lists).

Please note: Two of the descriptions are not well-formed. Which ones are they?

(a) `[a|[b,c]]`

(b) `[a,[b,c]]`

(c) `[a,[b|[]]]`

(d) `[a,[b,[]]]`

(e) `[_,a,_|_]`

(f) `[_,a,_,_]`

(g) `[a,_|b]`

(h) `[a,_,b]`

(i) `([_],[a])`

(j) `([_],[a|[]])`

(k) `([_],[a,[]])`

(l) `[[a|X],X]`

(m) `[[a|X]|X]`

(n) `[[[X]|X],X]`

(o) `[[[X]|X],(X,[])]`