

Exercise 3

1 Lambda Calculus

1.1 Adding determiner *no* and ditransitive verbs

Show how the semantic representations can be calculated for (1)–(3) via lambda calculus. Sentence (2) contains the determiner *no*; you will have to define the appropriate lexical entry for *no* as a λ -expression. Also, note that (3) involves a ditransitive verb; you will need to modify your syntactic rules and define the meaning of *send* as a λ -expression.

- (1) Dina hates Peter.
- (2) A Konstanzer loves no fool.
- (3) Dina sent Peter a cactus.

1.2 Prolog Implementation

- Use the file `experiment3.pl` as basis for this exercise. Change the program so that sentences (2)–(3) will also work. What changes did you have to make?
- Make sure that you use the file `betaConversion.pl` in order to convert the lambda expressions. Hand in the results (after checking that you have indeed arrived at the right semantic expression). Alternatively, you can also do beta-conversion directly with `experiment3.pl` by typing the following into Prolog: `s(X,[...],[]), betaConvert(X,C)`. This will show you the basic formula along with the beta conversion.