# Design (Q2)

## Design-Grammar

First approach was to map out the non-terminal rules with extreme specificity (i.e. S -> NP VPpast, VPpast -> Vpast inf\_clause, inf\_clause -> toinf VPpresent, etc). This was done to get an understanding of the features that would be needed. Then I grouped them together to simplify the grammar (i.e. S -> NP VP, VP -> V inf\_clause). After that it was a matter of looking over the starter code and figuring out how to implement it with the rules and which new subtypes/features needed to be added.

## Design-Lexica

For nouns the lexicon contains both singular and plural forms. While for verbs only present and past tense are accounted for. Verbs were given features to keep track of their thematic roles (i.e., who their agent, theme, experiencer, and beneficiary are (where applicable)).

# Limitations

The current grammar cannot handle present tense (“students sleep”) and as such it can also not handle all subject-verb agreements (i.e. “the student sleeps”). It also cannot accept a sentence that ends on “persuade” due to the fact that sentences cannot end on promise. (i.e. “Students promised to prefer the teacher” is usually grammatical, but “Students promised to promise the teacher” is not)

# Testing Strategy

## S

1. Ensure that S -> NP VP, where VP must start with a V in past tense. (i.e. “the student promised to sleep” vs \*”the student promise to sleep”).

## NP

1. Determiners can take any noun while singular nouns must be preceded by a determiner

## VP

1. Testing for the proper number of thematic roles (i.e. \*”students preferred the teacher”

## Inf\_clause

1. Inf\_to must be followed by a present tense verb (i.e. “students promised to sleep” vs \*”students promised to slept”)