German University in Cairo
Department of Computer Science
Assoc. Prof. Haythem O. Ismail

Compilers, Spring Term 2020
Assignment 1
Due on March 5th, by 23:59

In this assignment, you will need to do some (simple) research and read about *definite clause grammars* [1]. Using Prolog, write a parser for a definite clause grammar of *English-Light*. English-Light is a fragment of English (i.e., English-Light does not include any ungrammatical English sentences) which accounts to structures as those appearing in the following examples.

a) The young boy who worked for the old man pushed and stored a big box in the large empty room after school.

b) The old woman and the old man gave the poor young man whom they liked a white envelope in the shed behind the building.

c) Every boy quickly climbed some big tree while every girl secretly watched some boy.

d) Some brilliant students and many professors watched and admired talented lecturers and appreciated bright scientists and researchers.

Your lexicon should include all the words appearing in the examples above, at least twenty nouns, at least twenty verbs (with the past tense inflection), at least twenty adjectives, at least ten adverbs, at least ten prepositions, and at least ten determiners.

Your grammar should contain *no ε-rules* and should have the symbol s as its start variable.

A successful parse should result in building a parse tree for the input; make sure your parser generates such a tree. We linearly represent a parse tree as follows:

a) l, where l is the label of a leaf.

b) $p(l1, l2, \ldots, ln)$, where p is a label of a parent node and li is the ith sub-tree thereof, where left-to-right order is assumed.

Submission Guidelines

- This is an *individual* assignment. You are required to submit a single .pl using the following form `https://forms.gle/mkNhhySrKTuq9p3z6`. The name of the file should be *only* your ID (Example: 37-1234.pl).

- The soundness and completeness of your grammar will be auto-tested. You need to make sure that queries are of the following format `s(T,[the,boy,pushed,a,box],[]).` run correctly.

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[1] Check out `https://en.wikipedia.org/wiki/Definite_clause_grammar` as a starting point.