

Assignment 02:

Write a program to implement the CFG and parse the sentence provided by user

Note: The last date of submission is 08-May-2019

Problem Statement:

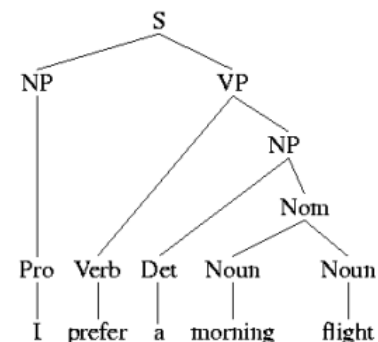
In this assignment you will implement parser for the English language statements. List of terminals against any given Non-terminals can be retrieved from the corpus given in URL.

Grammar:

Noun → *flight* | *breeze* | *trip* | *morning* | ...
Verb → *is* | *prefer* | *like* | *need* | *want* | *fly* ...
Adjective → *cheapest* | *non-stop* | *first* | *latest* | *other* | *direct* | ...
Pronoun → *me* | *I* | *you* | *it* | ...
Proper-Noun → *Alaska* | *Baltimore* | *Los Angeles* | *Chicago* | *United* | *American* | ...
Determiner → *the* | *a* | *an* | *this* | *these* | *that* | ...
Preposition → *from* | *to* | *on* | *near* | ...
Conjunction → *and* | *or* | *but* | ...

The lexicon for L_0

$S \rightarrow NP VP$	I + want a morning flight
$NP \rightarrow Pronoun$	I
<i>Proper-Noun</i>	Los Angeles
<i>Det Nominal</i>	a + flight
$Nominal \rightarrow Noun Nominal$	morning + flight
<i>Noun</i>	flights
$VP \rightarrow Verb$	do
<i>Verb NP</i>	want + a flight
<i>Verb NP PP</i>	leave + Boston + in the morning
<i>Verb PP</i>	leaving + on Thursday
$PP \rightarrow Preposition NP$	from + Los Angeles



The grammar for L_0

List of Corpus:

Nouns: <http://www.desiquintans.com/downloads/nounlist/nounlist.txt>

Verbs: <https://www.talkenglish.com/vocabulary/top-1000-verbs.aspx>

Prepositions: <https://www.thefreedictionary.com/List-of-prepositions.htm>

Pronouns: <http://www.esldesk.com/vocabulary/pronouns>

Adjectives: <https://www.paperrater.com/page/lists-of-adjectives>

Determiners: <https://www.ef.com/wwen/english-resources/english-grammar/determiners/>

Conjunctions: <http://www.marshall.k12.il.us/data/webcontent/245/file/realname/files/List-of-Conjunctions.pdf>

Sample Input / Output:

Valid Input:

I prefer a morning flight

Output:

S

NP VP

PRO VP

I VP

I VERB NP

I prefer NP

I prefer Det Nom

I prefer a Noun Nom

I prefer a morning Nom

I prefer a morning flight

In-Valid Input:

Student Cricket Play

Output:

Incorrect Structure

Requirements

Your program may be written in automated scanner generator like Flex, Jflex, Irony or you can write your own hand-written scanner on Python, R, C, C++, Java, or C#. (If you would like to use a different programming language, please discuss it with me.)

Submission Instruction

- This assignment must be attempt in the form of group.
- Group members comprises two or maximum three person.
- Each group should only submit one hard copy of solution containing your code together with the output of your program.
- Submit the deliverables as a zip bundle or as a tarball using the SLATE system.
- Marks will be given on the basis of individual viva.

1. Hand Out Date

Week-commencing Thursday April 25, 2019.

2. Hand In Date

Week-commencing Wednesday May 08, 2019.

Penalties

- Work submitted any later than this will receive a mark of zero.

Plagiarism

Very **severe penalties** will apply if you copy or otherwise reuse the work of others.

Note: The assignment may be subject to oral discussion.