Logotipo

Descripción generada automáticamente

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Language Processors

Year 2022 - 2023

first practice

Recursive Descent Parser

# Design a grammar that represents the previously defined arithmetic expressions.

We designed the following grammar:

Where S is the axiom, N is the nonterminal for the numbers, E is the nonterminal for expressions, P stands for “parameter”, O stands for “operator” and C is the nonterminal that allows us to handle multiple expressions in one line and stands for “continue”. The terminal “n” stands for the newline character, “\n”.

# Determine if it is necessary to transform the above grammar so that it meets the LL(1) conditions.

The grammar defined in the previous section meets all LL(1) conditions. Here is the corresponding LL(1) parse table generated by JFLAP:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | ( | ) | + | 9 | n | $ |
| C | S |  |  | S |  |  |
| E | (OPP) |  |  |  |  |  |
| N |  |  |  | 9 |  |  |
| O |  |  | + |  |  |  |
| P | E |  |  | N |  |  |
| S | EnC |  |  | Nn |  |  |

Where + and 9 are stand-ins for any operator and number, respectively.