SER 502 – Team 11 | Spring19

Bharat Goel
Madhukar Raj
Palak Chugh
Yuti Desai

Language Design

- Name of the Language– BUMPY
- Operators and Constructs:
  - Operators: +,-,*,/,%,<,>,<=,>=, ~=, :=:, = ,and, or,
  - Arithmetic Operator: +,-,*,/,%
  - Assignment Operator: =
  - Comparison Operator: <,>,<=,>=, ~=, :=:
  - Boolean Operator : and, or
  - Primitive types: bool, var
  - Decision Constructs: incase do otherwise endcase
  - Iterative Constructs: when repeat endrepeat

Grammar

Program → Comment Block
Comment → @ Words @ | null
Words → Words Words | Identifier | Number
Block → start Declaration Process end
Declaration → Declaration ; Declaration | var Identifier | bool Identifier
Process → Process ; Process | AssignValue | Control | Iterate
AssignValue → Identifier = Expression | Identifier is Boolexp
Control → incase Condition do Process otherwise Process endcase
Iterate → when Condition repeat Process endrepeat
Condition → Boolexp and Boolexp | Boolexp or Boolexp | ~Boolexp | Boolexp
Boolexp → Expression :=: Expression |Expression ~= Expression| Expression <= Expression| Expression >= Expression|Expression < Expression| Expression > Expression | yes | no

Expression → E + E | E - E | E * E | E / E | E % E | Identifier | Number
Identifier → Identifier Identifier | [a...z]
Number → Digit |Number Number | Number.Digit
Digit → [0..9]

Features

- Parsing technique: We are using Top- down parsing technique, our parser constructs the parse tree from the start and then tries to convert it the start symbol into input.

- Data structures used by the parser and interpreter: List

- Interpreter: Our interpreter is based on Reduction machine.

- Programing language used for implementation: Prolog