Computer Science 3MI3 – 2020 Assignment 1: A language of expressions

Cynthia Liu

October 19, 2020

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1 Introduction

This is the documentation for Assignment 1 for COMPSCI3MI3 2020fall. It is about an expression language consisting of integer constants and seven prefix operators, like negation, absolute value, plus, times, minus, and exponent. Also, base on that, implementing variables and substitution, as well as boolean expressions. This Assignment is written in both Scala and Prolog.

2 Part one

2.1 Representation

The integer constants and operators are expressed in the new type `Expr`.

- The constructor Const take an `Int` as argument.

- The constructor Neg and Abs take an `Expr` as argument.
- The constructor Minus, Plus, Times and Exp take two `Expr` as arguments.

```
sealed trait Expr
case class Const[A](value:Int) extends Expr
case class Neg[A](value:Expr) extends Expr
case class Abs[A](value:Expr) extends Expr
case class Minus[A](value1:Expr, value2:Expr) extends Expr
case class Plus[A](Tvalue1:Expr, value2:Expr) extends Expr
case class Times[A](value1:Expr, value2:Expr) extends Expr
case class Exp[A](value1:Expr, value2:Expr) extends Expr
```

2.2 Interpreter

3 Part two

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4 Part three

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5 Part four

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