

December 7, 2009

Programming Languages and Types

Group Exercise 8

G8.1 Church Numerals

Implement Church numerals in Haskell or Scheme and add the following functions:

1. functions that translate ordinary Haskell/Scheme natural numbers into their Church encoding and back
2. a function `exp` on Church numbers such that result of `exp a b` corresponds to a^b .

G8.2 Progress

Complete the proof of the progress theorem for Arithmetic Expressions from the slides.

G8.3 Preservation

Complete the proof of the preservation theorem for Arithmetic Expressions from the slides.