

2000 Paper 6 Question 10

Foundations of Functional Programming

Give as simple a set of rules as you can for transforming lambda calculus to a form where there are no bound variables mentioned, but where there are many instances of the three standard combinator constants **S**, **K** and **I**. [6 marks]

Describe tree-rewrites suitable for reducing expressions written in terms of combinators. [6 marks]

Explain how you might deal with the issue of keeping track of the values of bound variables if you were to interpret lambda calculus directly. [8 marks]