

CS 3723: Programming Languages

Feb 17, 2012

You Name:

1. which of the following correctly distinguishes bound and free variables in a lambda calculus expression?
 - (a) Bound variables are declared (using the λ operator) within the expression, while free variables are never declared in the expression.
 - (b) Bound variables are given values by function calls within the expression, while free variables are never given a value in the expression.
2. which of the following are equivalent to the lambda calculus expression $x (\lambda x. \lambda y. x y) z h$?
 - (a) $x ((\lambda x. \lambda y. x y) (z h))$
 - (b) $((x (\lambda x. \lambda y. x y)) z) h$
 - (c) $x (\lambda x. (\lambda y. x) y) z h$
 - (d) $x (\lambda x. \lambda y. (x y)) z h$
 - (e) $x (\lambda w. \lambda y. w y) z h$
 - (f) $x (\lambda w. \lambda z. w z) z h$
 - (g) $x (\lambda x. \lambda y. x y) w h$