

CSE130 Discussion

Midterm Prep

2021-10-29

Agenda

- Lambda Calculus Reminder
- Haskell

Lambda Calculus

Tips:

1. Function application is LEFT associative!
2. Function abstraction is RIGHT associative!

$$\backslash f \rightarrow f (\backslash x \rightarrow x) (\backslash g \rightarrow g)$$

Lambda Calc

Check the box next to **each** term that contains **exactly one** redex (i.e. there is one and only one way to apply a beta step to this term).

(A) $(\lambda x. \rightarrow x) (\lambda x. \rightarrow x)$ ☐

(B) $\lambda x. \rightarrow x (\lambda x. \rightarrow x)$ ☐

(C) $f (\lambda x. \rightarrow x) (\lambda x. \rightarrow x)$ ☐

(D) $(\lambda x. \rightarrow x) f (\lambda x. \rightarrow x)$ ☐

(E) $(\lambda f. x \rightarrow f (f x)) y z$ ☐

Which are valid reductions?

$(\lambda x \rightarrow x) (\lambda y \rightarrow \text{apple } y) (\lambda z \rightarrow z)$

(A) $=_b> (\lambda x \rightarrow x) (\text{apple } (\lambda z \rightarrow z))$ ☐

(B) $=_b> (\lambda y \rightarrow \text{apple } y) (\lambda z \rightarrow z)$ ☐

(C) $=_a> (\lambda z \rightarrow z) (\lambda y \rightarrow \text{apple } y) (\lambda z \rightarrow z)$ ☐

(D) $=_a> (\lambda x \rightarrow x) (\lambda y \rightarrow \text{orange } y) (\lambda z \rightarrow z)$ ☐

(E) $=_{\sim}> \text{apple } (\lambda z \rightarrow z)$ ☐

Haskell

Go through an exam question live

Midterm FA19 Part II