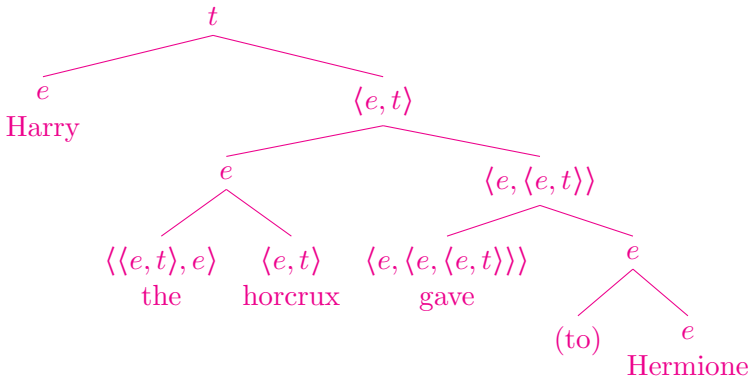
1 More practice

Give the full lambda computation of the sentence *Harry gave the horcrux to Hermione*, assuming the logical form in the tree below. Annotate the tree with types, show the lexical entries, and show the step-by-step computation.



$[\![\text{Harry}]\!] = a$

$[\![\text{Hermione}]\!] = e$

$[\![\text{give}]\!] = \lambda x[\lambda y[\lambda z[\text{GIVE}(z, y, x)]]]$

$[\![\text{horcrux}]\!] = \lambda x[\text{HORCRUX}(x)]$

$[\![\text{the}]\!] = \lambda f_{\langle e,t\rangle}[\iota y[f(y)]]$

$[\![\text{Harry the horcrux gave (to) Hermione}]\!]$

1. $[\![\text{the horcrux}]\!]$
   - (a) $= [\![\text{the}]\!]([\![\text{horcrux}]\!])$
   - (b) $= \lambda f_{\langle e,t\rangle}[\iota y[f(y)]]([\![\text{horcrux}]\!])$
   - (c) $= \iota y[[\![\text{horcrux}]\!](y)]$
   - (d) $= \iota y[\lambda x[\text{HORCRUX}(x)](y)]$
   - (e) $= \iota y[\text{HORCRUX}(y)]$
   - (f) $= o$
2. $[\![\text{gave (to) Hermione}]\!]$
   - (a) $= [\![\text{give (to) Hermione}]\!]$
   - (b) $= [\![\text{give}]\!]([\![\text{Hermione}]\!])$
   - (c) $= [\![\text{give}]\!](e)$
   - (d) $= \lambda x[\lambda y[\lambda z[\text{GIVE}(z, y, x)]]](e)$
   - (e) $= \lambda y[\lambda z[\text{GIVE}(z, y, e)]]$

3. ⟦the horcrux gave (to) Hermione⟧
   (a) = ⟦the horcrux give (to) Hermione⟧
   (b) = ⟦give (to) Hermione⟧(⟦the horcrux⟧)
   (c) = ⟦give (to) Hermione⟧(o)
   (d) = $\lambda y[\lambda z[\text{GIVE}(z, y, e)]](o)$
   (e) = $\lambda z[\text{GIVE}(z, o, e)]$
4. ⟦Harry the horcrux gave (to) Hermione⟧
   (a) = ⟦Harry the horcrux give (to) Hermione⟧
   (b) = ⟦the horcrux give (to) Hermione⟧(⟦Harry⟧)
   (c) = ⟦the horcrux give (to) Hermione⟧(a)
   (d) = $\lambda z[\text{GIVE}(z, o, e)](a)$
   (e) = T iff $\text{GIVE}(a, o, e)$