

Comp 3610

20/09/2023

$f = \text{let val } x : \text{int ref} = \text{ref } 0 \text{ in}$   
 $\quad \text{let val } y : \text{int ref} = \text{ref } 0 \text{ in}$   
 $\quad (\text{fn } z : \text{int ref} \Rightarrow \text{if } z = x \text{ then } y \text{ else } x)$   
 $\quad \text{end end}$

$t = \text{fn } h : (\text{int ref} \rightarrow \text{int ref}) \Rightarrow$   
 $\quad \text{let val } z : \text{int ref} = \text{ref } 0 \text{ in}$   
 $\quad h(hz) = h(z) \text{ end}$

$\langle t \ f, s \rangle \rightarrow^*$

evaluate  $h(z) \rightarrow x$   
 $h(z) \rightarrow y$

~~g~~ = let val x : int ref = ref 0 in  
 let val y : int ref = ref 0 in  
 (fun z : int ref => if z = ~~y~~ then y else x)  
 end end

t = fun h : (int ref -> int ref) =>  
 let val z : int ref = ref 0 in  
 h(h z) = h(z) end

$\langle t, \text{g} \rangle \rightarrow^*$

evaluate  $h(z) \rightarrow X$  ✓  
 $h(\text{z}) \rightarrow \text{z}$  ✗

$$1) E \underset{n}{\overset{T}{\simeq}} E$$

2) Symmetry

$$E_1 \underset{n}{\overset{T}{\simeq}} E_2 \Rightarrow E_2 \underset{n}{\overset{T}{\simeq}} E_1$$

$$\langle l := n, s \rangle \rightarrow \langle \underline{\text{skip}}, s' \rangle \not\Rightarrow$$

$$\langle E, s \rangle \rightarrow \langle E', s' \rangle$$

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$$\langle l := E, s \rangle \rightarrow \langle l := E', s' \rangle$$

$$l := 0; \gamma \approx \frac{\text{cut}}{\pi} \quad l := 1; 3 + !l$$

not the same

$$C[] = \_ + !l$$