

COMP 3610/6361

30/08/2023

$\langle l_2 := 0;$

while  $(!l_1 < 1) \text{ do}$

$l_2 := !l_2 + !l_1;$

$l_1 := !l_1 + (-1);$

$\{l_1 \mapsto 3, l_2 \mapsto 0\} \rangle \rightarrow ?$

$$\langle l := n, s \rangle \rightarrow \langle \text{skip}, s + \{l \mapsto n\} \rangle$$

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small step

$$\langle u_1 + u_2, s \rangle \rightarrow \langle u_1, s \rangle \quad \text{if } u_1 + u_2 = s$$

$$\langle E_1, s \rangle \rightarrow \langle E_1', s' \rangle$$

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$$\langle E_1 + E_2, s \rangle \rightarrow \langle E_1' + E_2, s \rangle$$

big step

omit all intermediate  
step

$$\langle E_1, s \rangle \Downarrow \langle n_1, s' \rangle \quad \langle E_2, s' \rangle \Downarrow \langle n_2, s'' \rangle$$

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$$\langle E_1 + E_2, s \rangle \Downarrow \langle n, s'' \rangle$$

left to right evaluation

$$! n = n_1 + n_2$$

IMP with bexp/axp

$$\langle l := a, s \rangle \Rightarrow s + \{l \mapsto \text{aval } a\}$$

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Sequential

$$\langle E_1, s \rangle \Rightarrow s' \quad \langle E_2, s' \rangle \Rightarrow s''$$

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$$\langle E_1; E_2, s \rangle \Rightarrow s''$$