

35.2.3 Big Step Operational Semantics

Search Array Index 1

$$\frac{\langle e_1, m \rangle \rightarrow \langle e'_1, m' \rangle}{\langle e_1[e_2], m \rangle \rightarrow \langle e'_1[e_2], m' \rangle}$$

Search Array Index 2

$$\frac{\langle e_2, m \rangle \rightarrow \langle e'_2, m' \rangle}{\langle a_1[e_2], m \rangle \rightarrow \langle a_1[e'_2], m' \rangle}$$

DoCreate (small step)

DoArray / ArrayCreate

$a \notin \text{Dom}(m)$

$\langle [\bar{v}], m \rangle \rightarrow \langle a, m[a \mapsto [\bar{v}]] \rangle$

DoArrayIndex (small step)

Do ArrayIndex

$$\frac{m(a) = [\bar{v}] \quad [\bar{v}][n] = V_i}{\langle a[n], m \rangle \rightarrow \langle V_i, m' \rangle}$$

DoArrayIndexAssignment (small step)

DoArrayIndexAssignment

$m(a) = [\dots, v', \dots]$

index n

$\langle a[n] = v, m \rangle \longrightarrow \langle v, m[a \mapsto [\dots, v, \dots]] \rangle$

DoCreate (Big Step)

DoArray/create Array (Big step semantics)

$$\frac{\forall i \langle e_i, m \rangle \Downarrow v_i \quad a \notin \text{Dom}(m)}{\langle [\bar{v}], m \rangle \Downarrow \langle a, m[a \mapsto [\bar{v}]] \rangle}$$

DoArrayIndex (Big Step)

DoArrayIndex (Big Step)

$$m(a) = [\bar{v}] \quad [\bar{v}][n] = V$$

$$\langle a[n], m \rangle \Downarrow \langle V, m' \rangle$$

DoArrayIndexAssignment (Big Step)

$$\begin{array}{c} \text{Do Array Index Assignment} \\ m(a) = [\dots, v', \dots] \quad \langle e, m \rangle \Downarrow V \\ \hline \langle a[h] = V, m \rangle \longrightarrow \langle V, m[a \mapsto [\dots, v, \dots]] \rangle \end{array}$$

index n