Regole di inferenza

Semantica big-step

$$\textbf{B-Num}\ \frac{-}{\langle n, s\rangle \Downarrow n}$$

$$\textbf{B-Loc}\ \frac{-}{\langle l, s\rangle \Downarrow s(l)}$$

$$\textbf{B-Skip}\ \frac{-}{\langle skip, s\rangle \Downarrow s}$$

$$\textbf{B-Add}\ \frac{\langle E_1, s\rangle \Downarrow n_1 \quad \langle E_2, s\rangle \Downarrow n_2}{\langle E_1 + E_2\rangle \Downarrow n_3}\ n_3 = add(n_1, n_2)$$

$$\textbf{B-Assign}\ \frac{\langle E, s\rangle \Downarrow n}{\langle l := e, s\rangle \Downarrow s[l \mapsto n]}$$

$$\textbf{B-Assign.s}\ \frac{\langle E, s\rangle \Downarrow n}{\langle l := e, s\rangle \Downarrow \langle skip, s[l \mapsto n]\rangle}$$

$$\textbf{B-Seq}\ \frac{\langle C_1, s\rangle \Downarrow s_1 \quad \langle C_2, s_1\rangle \Downarrow s'}{\langle C_1; C_2, s\rangle \Downarrow s'}$$

$$\textbf{B-Seq.s}\ \frac{\langle C_1, s\rangle \Downarrow \langle skip, s_1\rangle \quad \langle C_2, s_1\rangle \Downarrow \langle r, s'\rangle}{\langle C_1; C_2, s\rangle \Downarrow \langle r, s'\rangle}$$

$$\textbf{B-If.T}\ \frac{\langle B, s\rangle \Downarrow true \quad \langle C_1, s\rangle \Downarrow s'}{\langle \text{if } B \text{ then } C_1 \text{ else } C_2, s\rangle \Downarrow \langle r, s\rangle}$$

$$\textbf{B-If.T}\ \frac{\langle B, s\rangle \Downarrow false \quad \langle C_2, s\rangle \Downarrow s'}{\langle \text{if } B \text{ then } C_1 \text{ else } C_2, s\rangle \Downarrow \langle r, s\rangle}$$

Semantica small-step

$$\textbf{S-Left}\frac{E_1 \twoheadrightarrow E_1'}{E_1 + E_2 \twoheadrightarrow E_1' + E_2}$$

$$\textbf{S-N.Right}\frac{E_2 \twoheadrightarrow E_2'}{n_1 + E_2 \twoheadrightarrow n_1 + E_2'}$$

$$\textbf{S-Add}\frac{-}{n_1 + n_2 \twoheadrightarrow n_3} n_3 = add(n_1, n_2)$$

$$\textbf{S-Left}\frac{E_1 \twoheadrightarrow_{ch} E_1'}{E_1 + E_2 \twoheadrightarrow_{ch} E_1' + E_2}$$

$$\textbf{S-Right}\frac{E_2 \twoheadrightarrow_{ch} E_2'}{E_1 + E_2 \twoheadrightarrow_{ch} E_1 + E_2'}$$

$$\textbf{op+}\frac{-}{\langle n_1 + n_2, s\rangle \twoheadrightarrow \langle n, s\rangle} n = add(n_1, n_2)$$

$$\textbf{op-geq}\frac{-}{\langle n_1 \geq n_2, s\rangle \twoheadrightarrow \langle b, s\rangle} b = geq(n_1, n_2)$$

$$\textbf{op1}\frac{\langle e_1, s\rangle \twoheadrightarrow \langle e_1', s'\rangle}{\langle e_1 + e_2, s\rangle \twoheadrightarrow \langle e_1' + e_2, s'\rangle}$$

$$\textbf{op2}\frac{\langle e_2, s\rangle \twoheadrightarrow \langle e_2', s'\rangle}{\langle v + e_2, s\rangle \twoheadrightarrow \langle v + e_2', s\rangle}$$

$$\textbf{op1}\frac{\langle e_2, s\rangle \twoheadrightarrow \langle e_2', s'\rangle}{\langle e_1 + e_2, s\rangle \twoheadrightarrow \langle e_1 + e_2', s'\rangle}$$

$$\textbf{op2}\frac{\langle e_1, s\rangle \twoheadrightarrow \langle e_1', s'\rangle}{\langle e_1 + v, s\rangle \twoheadrightarrow \langle e_1' + v', s'\rangle}$$