[rotate] $$\frac{x \rhd \mathit{real64}(\_) \quad y \rhd \mathit{real64}(\_) \quad z \rhd \mathit{real64}(\_) \quad \langle\, E_1, \sigma \,\rangle \to \langle\, V_1, \sigma \,\rangle}{\langle\, \mathsf{rotate}(E_1\ x\ y\ z), \sigma \,\rangle \to \langle\, \mathit{user}(\mathit{string}(\texttt{rotate})\ V_1\ x\ y\ z), \sigma \,\rangle}$$

[ne] $$\frac{n_1 \rhd \mathit{int32}(\_) \quad n_2 \rhd \mathit{int32}(\_)}{\langle\, \mathsf{ne}(n_1\ n_2), \sigma \,\rangle \to \langle\, \mathit{ne}(n_1\ n_2), \sigma \,\rangle}$$

[neRight] $$\frac{n \rhd \mathit{int32}(\_) \quad \langle\, E_2, \sigma \,\rangle \to \langle\, I_2, \sigma' \,\rangle}{\langle\, \mathsf{ne}(n\ E_2), \sigma \,\rangle \to \langle\, \mathsf{ne}(n\ I_2), \sigma' \,\rangle}$$

[neLeft] $$\frac{\langle\, E_1, \sigma \,\rangle \to \langle\, I_1, \sigma' \,\rangle}{\langle\, \mathsf{ne}(E_1\ E_2), \sigma \,\rangle \to \langle\, \mathsf{ne}(I_1\ E_2), \sigma' \,\rangle}$$

[scale] $$\frac{x \rhd \mathit{real64}(\_) \quad y \rhd \mathit{real64}(\_) \quad z \rhd \mathit{real64}(\_) \quad \langle\, E_1, \sigma \,\rangle \to \langle\, V_1, \sigma \,\rangle}{\langle\, \mathsf{scale}(E_1\ x\ y\ z), \sigma \,\rangle \to \langle\, \mathit{user}(\mathit{string}(\texttt{scale})\ V_1\ x\ y\ z), \sigma \,\rangle}$$

[subInt] $$\frac{n_1 \rhd \mathit{int32}(\_) \quad n_2 \rhd \mathit{int32}(\_)}{\langle\, \mathsf{sub}(n_1\ n_2), \sigma \,\rangle \to \langle\, \mathit{sub}(n_1\ n_2), \sigma \,\rangle}$$

[subReal] $$\frac{n_1 \rhd \mathit{real64}(\_) \quad n_2 \rhd \mathit{real64}(\_)}{\langle\, \mathsf{sub}(n_1\ n_2), \sigma \,\rangle \to \langle\, \mathit{sub}(n_1\ n_2), \sigma \,\rangle}$$

[subRightInt] $$\frac{n \rhd \mathit{int32}(\_) \quad \langle\, E_2, \sigma \,\rangle \to \langle\, I_2, \sigma' \,\rangle}{\langle\, \mathsf{sub}(n\ E_2), \sigma \,\rangle \to \langle\, \mathsf{sub}(n\ I_2), \sigma' \,\rangle}$$

[subRightReal] $$\frac{n \rhd \mathit{real64}(\_) \quad \langle\, E_2, \sigma \,\rangle \to \langle\, I_2, \sigma' \,\rangle}{\langle\, \mathsf{sub}(n\ E_2), \sigma \,\rangle \to \langle\, \mathsf{sub}(n\ I_2), \sigma' \,\rangle}$$

[subLeft] $$\frac{\langle\, E_1, \sigma \,\rangle \to \langle\, I_1, \sigma' \,\rangle}{\langle\, \mathsf{sub}(E_1\ E_2), \sigma \,\rangle \to \langle\, \mathsf{sub}(I_1\ E_2), \sigma' \,\rangle}$$

[initialise] $$\langle\, \mathsf{init}, \sigma \,\rangle \to \langle\, \mathit{user}(\mathit{string}(\texttt{init})\ \_\_\ \_\_), \sigma \,\rangle$$

[paint] $$\langle\, \mathsf{paint}, \sigma \,\rangle \to \langle\, \mathit{user}(\mathit{string}(\texttt{paint})\ \_\_\ \_\_), \sigma \,\rangle$$

[clear] $$\langle\, \mathsf{clear}, \sigma \,\rangle \to \langle\, \mathit{user}(\mathit{string}(\texttt{clear})\ \_\_\ \_\_), \sigma \,\rangle$$

[addInt] $$\frac{n_1 \rhd \mathit{int32}(\_) \quad n_2 \rhd \mathit{int32}(\_)}{\langle\, \mathsf{add}(n_1\ n_2), \sigma \,\rangle \to \langle\, \mathit{add}(n_1\ n_2), \sigma \,\rangle}$$

[addReal] $$\frac{n_1 \rhd \mathit{real64}(\_) \quad n_2 \rhd \mathit{real64}(\_)}{\langle\, \mathsf{add}(n_1\ n_2), \sigma \,\rangle \to \langle\, \mathit{add}(n_1\ n_2), \sigma \,\rangle}$$

[addRightInt] $$\frac{n \rhd \mathit{int32}(\_) \quad \langle\, E_2, \sigma \,\rangle \to \langle\, I_2, \sigma' \,\rangle}{\langle\, \mathsf{add}(n\ E_2), \sigma \,\rangle \to \langle\, \mathsf{add}(n\ I_2), \sigma' \,\rangle}$$

[addRightReal] $$\frac{n \rhd \mathit{real64}(\_) \quad \langle\, E_2, \sigma \,\rangle \to \langle\, I_2, \sigma' \,\rangle}{\langle\, \mathsf{add}(n\ E_2), \sigma \,\rangle \to \langle\, \mathsf{add}(n\ I_2), \sigma' \,\rangle}$$

[addLeft] $$\frac{\langle\, E_1, \sigma \,\rangle \to \langle\, I_1, \sigma' \,\rangle}{\langle\, \mathsf{add}(E_1\ E_2), \sigma \,\rangle \to \langle\, \mathsf{add}(I_1\ E_2), \sigma' \,\rangle}$$

[mulInt] $$\frac{n_1 \rhd \mathit{int32}(\_) \quad n_2 \rhd \mathit{int32}(\_)}{\langle\, \mathsf{mul}(n_1\ n_2), \sigma \,\rangle \to \langle\, \mathit{mul}(n_1\ n_2), \sigma \,\rangle}$$

[mulReal] $$\frac{n_1 \rhd \mathit{real64}(\_) \quad n_2 \rhd \mathit{real64}(\_)}{\langle\, \mathsf{mul}(n_1\ n_2), \sigma \,\rangle \to \langle\, \mathit{mul}(n_1\ n_2), \sigma \,\rangle}$$

[mulRightInt] $$\frac{n \rhd \mathit{int32}(\_) \quad \langle\, E_2, \sigma \,\rangle \to \langle\, I_2, \sigma' \,\rangle}{\langle\, \mathsf{mul}(n\ E_2), \sigma \,\rangle \to \langle\, \mathsf{mul}(n\ I_2), \sigma' \,\rangle}$$

[mulRightReal] $$\frac{n \rhd \mathit{real64}(\_) \quad \langle\, E_2, \sigma \,\rangle \to \langle\, I_2, \sigma' \,\rangle}{\langle\, \mathsf{mul}(n\ E_2), \sigma \,\rangle \to \langle\, \mathsf{mul}(n\ I_2), \sigma' \,\rangle}$$

[mulLeft] $$\frac{\langle\, E_1, \sigma \,\rangle \to \langle\, I_1, \sigma' \,\rangle}{\langle\, \mathsf{mul}(E_1\ E_2), \sigma \,\rangle \to \langle\, \mathsf{mul}(I_1\ E_2), \sigma' \,\rangle}$$

[divInt] $$\frac{n_1 \rhd \mathit{int32}(\_) \quad n_2 \rhd \mathit{int32}(\_)}{\langle\, \mathsf{div}(n_1\ n_2), \sigma \,\rangle \to \langle\, \mathit{div}(n_1\ n_2), \sigma \,\rangle}$$

[divReal] $$\frac{n_1 \rhd \mathit{real64}(\_) \quad n_2 \rhd \mathit{real64}(\_)}{\langle\, \mathsf{div}(n_1\ n_2), \sigma \,\rangle \to \langle\, \mathit{div}(n_1\ n_2), \sigma \,\rangle}$$

[divRightInt] $$\frac{n \rhd \mathit{int32}(\_) \quad \langle\, E_2, \sigma \,\rangle \to \langle\, I_2, \sigma' \,\rangle}{\langle\, \mathsf{div}(n\ E_2), \sigma \,\rangle \to \langle\, \mathsf{div}(n\ I_2), \sigma' \,\rangle}$$

[divRightReal] $$\frac{n \rhd \mathit{real64}(\_) \quad \langle\, E_2, \sigma \,\rangle \to \langle\, I_2, \sigma' \,\rangle}{\langle\, \mathsf{div}(n\ E_2), \sigma \,\rangle \to \langle\, \mathsf{div}(n\ I_2), \sigma' \,\rangle}$$

[divLeft] $$\frac{\langle\, E_1, \sigma \,\rangle \to \langle\, I_1, \sigma' \,\rangle}{\langle\, \mathsf{div}(E_1\ E_2), \sigma \,\rangle \to \langle\, \mathsf{div}(I_1\ E_2), \sigma' \,\rangle}$$

[sequenceDone] $$\langle\, \mathsf{seq}(\mathit{done}\ C), \sigma \,\rangle \to \langle\, C, \sigma \,\rangle$$

[sequence] $$\frac{\langle\, C_1, \sigma \,\rangle \to \langle\, C_1', \sigma' \,\rangle}{\langle\, \mathsf{seq}(C_1\ C_2), \sigma \,\rangle \to \langle\, \mathsf{seq}(C_1'\ C_2), \sigma' \,\rangle}$$

[variable] $$\frac{\mathit{get}(\sigma\ R) \rhd Z}{\langle\, \mathsf{deref}(R), \sigma \,\rangle \to \langle\, Z, \sigma \,\rangle}$$

[box] $$\frac{x \rhd \mathit{real64}(\_) \quad y \rhd \mathit{real64}(\_) \quad z \rhd \mathit{real64}(\_)}{\langle\, \mathsf{box}(x\ y\ z), \sigma \,\rangle \to \langle\, \mathit{user}(\mathit{string}(\mathsf{box})\ x\ y\ z), \sigma \,\rangle}$$

[cube] $$\frac{e \rhd \mathit{real64}(\_)}{\langle\, \mathsf{cube}(e), \sigma \,\rangle \to \langle\, \mathit{user}(\mathit{string}(\mathsf{cube})\ e), \sigma \,\rangle}$$

[cubeResolve] $$\frac{\langle\, E, \sigma \,\rangle \to \langle\, I, \sigma' \,\rangle}{\langle\, \mathsf{cube}(E), \sigma \,\rangle \to \langle\, \mathsf{cube}(I), \sigma' \,\rangle}$$

[ifTrue] $\langle\, \mathsf{if}(\mathit{bool}(\mathsf{True})\ C_1\ C_2), \sigma \,\rangle \to \langle\, C_1, \sigma \,\rangle$

[ifFalse] $\langle\, \mathsf{if}(\mathit{bool}(\mathsf{False})\ C_1\ C_2), \sigma \,\rangle \to \langle\, C_2, \sigma \,\rangle$

[ifResolve] $\dfrac{\langle\, E, \sigma \,\rangle \to \langle\, E', \sigma' \,\rangle}{\langle\, \mathsf{if}(E\ C_1\ C_2), \sigma \,\rangle \to \langle\, \mathsf{if}(E'\ C_1\ C_2), \sigma' \,\rangle}$

[sphere] $\dfrac{r \rhd \mathit{real64}(\_)}{\langle\, \mathsf{sphere}(r), \sigma \,\rangle \to \langle\, \mathit{user}(\mathit{string}(\texttt{sphere})\ r), \sigma \,\rangle}$

[cylinder] $\dfrac{r \rhd \mathit{real64}(\_) \quad h \rhd \mathit{real64}(\_)}{\langle\, \mathsf{cylinder}(r\ h), \sigma \,\rangle \to \langle\, \mathit{user}(\mathit{string}(\texttt{cylinder})\ r\ h), \sigma \,\rangle}$

[while] $\langle\, \mathsf{while}(E\ C), \sigma \,\rangle \to \langle\, \mathsf{if}(E\ \mathsf{seq}(C\ \mathsf{while}(E\ C))\ \mathit{done}), \sigma \,\rangle$

[cone] $\dfrac{r \rhd \mathit{real64}(\_) \quad h \rhd \mathit{real64}(\_)}{\langle\, \mathsf{cone}(r\ h), \sigma \,\rangle \to \langle\, \mathit{user}(\mathit{string}(\texttt{cone})\ r\ h), \sigma \,\rangle}$

[torus] $\dfrac{r \rhd \mathit{real64}(\_) \quad R \rhd \mathit{real64}(\_)}{\langle\, \mathsf{torus}(r\ R), \sigma \,\rangle \to \langle\, \mathit{user}(\mathit{string}(\texttt{torus})\ r\ R), \sigma \,\rangle}$

[assignInt] $\dfrac{n \rhd \mathit{int32}(\_)}{\langle\, \mathsf{assign}(X\ n), \sigma \,\rangle \to \langle\, \mathit{done}, \mathit{put}(\sigma\ X\ n) \,\rangle}$

[assignReal] $\dfrac{n \rhd \mathit{real64}(\_)}{\langle\, \mathsf{assign}(X\ n), \sigma \,\rangle \to \langle\, \mathit{done}, \mathit{put}(\sigma\ X\ n) \,\rangle}$

[assignStr] $\dfrac{s \rhd \mathit{string}(\_)}{\langle\, \mathsf{assign}(X\ s), \sigma \,\rangle \to \langle\, \mathit{done}, \mathit{put}(\sigma\ X\ s) \,\rangle}$

[assignResolve] $\dfrac{\langle\, E, \sigma \,\rangle \to \langle\, I, \sigma' \,\rangle}{\langle\, \mathsf{assign}(X\ E), \sigma \,\rangle \to \langle\, \mathsf{assign}(X\ I), \sigma' \,\rangle}$

[tetrahedron] $\dfrac{e \rhd \mathit{real64}(\_)}{\langle\, \mathsf{tetrahedron}(e), \sigma \,\rangle \to \langle\, \mathit{user}(\mathit{string}(\texttt{tetrahedron})\ e), \sigma \,\rangle}$

[pyramid] $\dfrac{e \rhd \mathit{real64}(\_) \quad h \rhd \mathit{real64}(\_)}{\langle\, \mathsf{pyramid}(e\ h), \sigma \,\rangle \to \langle\, \mathit{user}(\mathit{string}(\texttt{pyramid})\ e\ h), \sigma \,\rangle}$

[translate] $\dfrac{Z \rhd \mathit{int32}(\_) \quad x \rhd \mathit{real64}(\_) \quad y \rhd \mathit{real64}(\_) \quad z \rhd \mathit{real64}(\_)}{\langle\, \mathsf{translate}(Z\ x\ y\ z), \sigma \,\rangle \to \langle\, \mathit{user}(\mathit{string}(\texttt{translate})\ Z\ x\ y\ z), \sigma \,\rangle}$

[translateResolve] $\dfrac{\langle\, E_1, \sigma \,\rangle \to \langle\, V_1, \sigma \,\rangle \quad \langle\, E_2, \sigma \,\rangle \to \langle\, V_2, \sigma \,\rangle \quad \langle\, E_3, \sigma \,\rangle \to \langle\, V_3, \sigma \,\rangle \quad \langle\, E_4, \sigma \,\rangle \to \langle\, V_4, \sigma \,\rangle}{\langle\, \mathsf{translate}(E_1\ E_2\ E_3\ E_4), \sigma \,\rangle \to \langle\, \mathsf{translate}(V_1\ V_2\ V_3\ V_4), \sigma \,\rangle}$

[gt] $\dfrac{n_1 \rhd \mathit{int32}(\_) \quad n_2 \rhd \mathit{int32}(\_)}{\langle\, \mathsf{gt}(n_1\ n_2), \sigma \,\rangle \to \langle\, \mathit{gt}(n_1\ n_2), \sigma \,\rangle}$

[gt] $$\frac{n_1 \rhd \mathit{real64}(\_) \quad n_2 \rhd \mathit{real64}(\_)}{\langle\, \mathsf{gt}(n_1\ n_2), \sigma \,\rangle \to \langle\, \mathit{gt}(n_1\ n_2), \sigma \,\rangle}$$

[gtRight] $$\frac{n \rhd \mathit{int32}(\_) \quad \langle\, E_2, \sigma \,\rangle \to \langle\, I_2, \sigma' \,\rangle}{\langle\, \mathsf{gt}(n\ E_2), \sigma \,\rangle \to \langle\, \mathsf{gt}(n\ I_2), \sigma' \,\rangle}$$

[gtRight] $$\frac{n \rhd \mathit{real64}(\_) \quad \langle\, E_2, \sigma \,\rangle \to \langle\, I_2, \sigma' \,\rangle}{\langle\, \mathsf{gt}(n\ E_2), \sigma \,\rangle \to \langle\, \mathsf{gt}(n\ I_2), \sigma' \,\rangle}$$

[gtLeft] $$\frac{\langle\, E_1, \sigma \,\rangle \to \langle\, I_1, \sigma' \,\rangle}{\langle\, \mathsf{gt}(E_1\ E_2), \sigma \,\rangle \to \langle\, \mathsf{gt}(I_1\ E_2), \sigma' \,\rangle}$$

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