(Strong) Abortion

$$(a_1)\quad \frac{\mathcal{C} = \{\} \quad \wedge \quad \langle \mathcal{E}, C_{\mathcal{S}}, \mathcal{S} \rangle \overset{c}{\twoheadrightarrow} \langle \mathcal{S}', \mathcal{A}, \mathcal{C} \rangle}{\langle \mathcal{E}, C_{\mathcal{S}}, \mathbf{abort}\ \mathcal{S}\ \mathbf{when}(\sigma) \rangle \overset{c}{\twoheadrightarrow} \langle \mathbf{nothing}, \mathcal{A}, \mathcal{C} \rangle}$$

$$(a_2)\quad \frac{\forall c \in \mathcal{C}.c \prec C_{\mathcal{S}} \quad \wedge \quad \mathcal{C} \neq \{\} \quad \wedge \quad \langle \mathcal{E}, C_{\mathcal{S}}, \mathcal{S} \rangle \overset{c}{\twoheadrightarrow} \langle \mathcal{S}', \mathcal{A}, \mathcal{C} \rangle}{\langle \mathcal{E}, C_{\mathcal{S}}, \mathbf{abort}\ \mathcal{S}\ \mathbf{when}(\sigma) \rangle \overset{c}{\twoheadrightarrow} \langle \mathbf{abort}\ \mathcal{S}'\ \mathbf{when}(\sigma), \mathcal{A}, \mathcal{C} \rangle}$$

$$(a_2)\quad \frac{\forall c \in \mathcal{C}.c \succeq C_{\mathcal{S}} \quad \wedge \quad \mathcal{C} \neq \{\} \quad \wedge \quad \langle \mathcal{E}, C_{\mathcal{S}}, \mathcal{S} \rangle \overset{c}{\twoheadrightarrow} \langle \mathcal{S}', \mathcal{A}, \mathcal{C} \rangle}{\langle \mathcal{E}, C_{\mathcal{S}}, \mathbf{abort}\ \mathcal{S}\ \mathbf{when}(\sigma) \rangle \overset{c}{\twoheadrightarrow} \langle \mathbf{immediate\ abort}\ \mathcal{S}'\ \mathbf{when}(\sigma), \mathcal{A}, \mathcal{C} \rangle}$$

$$(a_3)\quad \frac{[\![\sigma]\!]_{\mathcal{E}} = \mathsf{true}}{\langle \mathcal{E}, C_{\mathcal{S}}, \mathbf{immediate\ abort}\ \mathcal{S}\ \mathbf{when}(\sigma) \rangle \overset{c}{\twoheadrightarrow} \langle \mathbf{nothing}, \{\}, \{\} \rangle}$$

$$(a_4)\quad \frac{[\![\sigma]\!]_{\mathcal{E}} = \mathsf{false} \quad \wedge \quad \mathcal{C} \neq \{\} \quad \wedge \quad \langle \mathcal{E}, C_{\mathcal{S}}, \mathcal{S} \rangle \overset{c}{\twoheadrightarrow} \langle \mathcal{S}', \mathcal{A}, \mathcal{C} \rangle}{\left\langle \mathcal{E}, C_{\mathcal{S}}, \begin{array}{l} \mathbf{immediate\ abort} \\ \quad \mathcal{S} \\ \mathbf{when}(\sigma) \end{array} \right\rangle \overset{c}{\twoheadrightarrow} \left\langle \begin{array}{l} \mathbf{immediate\ abort} \\ \quad \mathcal{S}' \\ \mathbf{when}(\sigma) \end{array} , \mathcal{A}, \mathcal{C} \right\rangle}$$

$$(a_5)\quad \frac{[\![\sigma]\!]_{\mathcal{E}} = \mathsf{false} \quad \wedge \quad \mathcal{C} = \{\} \quad \wedge \quad \langle \mathcal{E}, C_{\mathcal{S}}, \mathcal{S} \rangle \overset{c}{\twoheadrightarrow} \langle \mathcal{S}', \mathcal{A}, \mathcal{C} \rangle}{\langle \mathcal{E}, C_{\mathcal{S}}, \mathbf{immediate\ abort}\ \mathcal{S}\ \mathbf{when}(\sigma) \rangle \overset{c}{\twoheadrightarrow} \langle \mathbf{nothing}, \mathcal{A}, \mathcal{C} \rangle}$$