Small-step evaluation rules for the $L23_\tau$ internal language

Corrections: The boxed rules for conditionals have been corrected; Z and SZ were exchanged in the t_1 position.

$$\frac{t_1 \to t_1'}{\mathtt{S}t_1 \to \mathtt{S}t_1'} \qquad \frac{}{[\mathtt{Z} + t_2] \to t_2} \qquad \frac{}{[\mathtt{S}v_1 + t_2] \to [v_1 + \mathtt{S}t_2]} \qquad \frac{t_1 \to t_1'}{[t_1 + t_2] \to [t_1' + t_2]}$$

$$\frac{}{[\mathtt{Z} - v_2] \to \mathtt{Z}} \qquad \frac{}{[v_1 - \mathtt{Z}] \to v_1} \qquad \frac{}{[\mathtt{S}v_1 - \mathtt{S}v_2] \to [v_1 - v_2]}$$

$$\frac{t_1 \to t_1'}{[t_1 - t_2] \to [t_1' - t_2]} \qquad \frac{t_2 \to t_2'}{[v_1 - t_2] \to [v_1 - t_2']}$$

$$\frac{}{[\mathtt{Z} < \mathtt{Z}] \to \mathtt{Z}} \qquad \frac{}{[\mathtt{Z} < \mathtt{S}v_2] \to \mathtt{SZ}} \qquad \frac{}{[v_1 < \mathtt{Z}] \to \mathtt{Z}} \qquad \frac{}{[\mathtt{S}v_1 < \mathtt{S}v_2] \to [v_1 < v_2]}$$

$$\frac{t_1 \to t_1'}{[t_1 < t_2] \to [t_1' < t_2]} \qquad \frac{t_2 \to t_2'}{[v_1 < t_2] \to [v_1 < t_2']}$$

$$\frac{}{[\mathtt{Z} == \mathtt{Z}] \to \mathtt{SZ}} \qquad \frac{}{[\mathtt{Z} == \mathtt{S}v_2] \to \mathtt{Z}} \qquad \frac{}{[\mathtt{S}v_1 == \mathtt{Z}] \to \mathtt{Z}} \qquad \frac{}{[\mathtt{S}v_1 == \mathtt{S}v_2] \to [v_1 == v_2]}$$

$$\frac{}{[(v_1, v_2) == (v_3, v_4)] \to [[v_1 == v_3] ? [v_2 == v_4] : \mathtt{Z}]}$$

$$\frac{t_1 \to t_1'}{[t_1 == t_2] \to [t_1' == t_2]} \qquad \frac{t_2 \to t_2'}{[v_1 == t_2] \to [v_1 == t_2']}$$

$$\boxed{\frac{}{[\mathtt{SZ}\ ?\ t_2 : t_3] \to t_2}} \qquad \boxed{\frac{}{[\mathtt{Z}\ ?\ t_2 : t_3] \to t_3}} \qquad \frac{t_1 \to t_1'}{[t_1\ ?\ t_2 : t_3] \to [t_1'\ ?\ t_2 : t_3]}$$

$$\frac{t_1 \to t_1'}{(t_1, t_2) \to (t_1', t_2)} \qquad \frac{t_2 \to t_2'}{(v_1, t_2) \to (v_1, t_2')}$$

$$\frac{t_1 \to t_1'}{\mathtt{1}\#t_1 \to \mathtt{1}\#t_1'} \qquad \frac{t_1 \to t_1'}{\mathtt{2}\#t_1 \to \mathtt{2}\#t_1'} \qquad \frac{}{\mathtt{1}\#(v_1, v_2) \to v_1} \qquad \frac{}{\mathtt{2}\#(v_1, v_2) \to v_2}$$