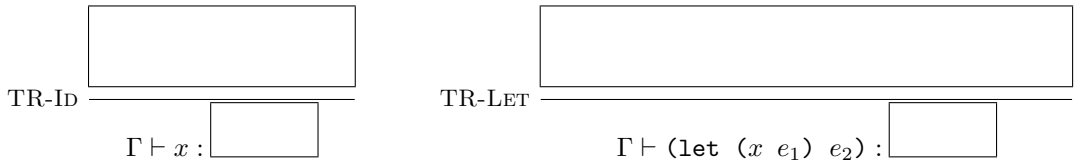
$$
\begin{array}{rcl@{\qquad}rcl}
e & := & n \mid \texttt{true} \mid \texttt{false} & n & := & \text{number literals} \\
 & \mid & \texttt{(let (}x\ e\texttt{)}\ e\texttt{)} & x & := & \text{variable names} \\
 & \mid & \texttt{(+}\ e\ e\texttt{)} \mid \texttt{(<}\ e\ e\texttt{)} & \tau & := & \mathsf{Num} \mid \mathsf{Bool} \\
 & \mid & \texttt{(if}\ e\ e\ e\texttt{)} & \Gamma & := & \{x : \tau, \cdots\}
\end{array}
$$

$$\text{TR-Num}\ \frac{}{n : \mathsf{Num}} \qquad \text{TR-True}\ \frac{}{\texttt{true} : \mathsf{Num}} \qquad \text{TR-False}\ \frac{}{\texttt{true} : \mathsf{Num}}$$

$$\text{TR-Plus}\ \frac{\square}{\texttt{(+}\ e_1\ e_2\texttt{)} : \square} \qquad \text{TR-Less}\ \frac{\square}{\texttt{(<}\ e_1\ e_2\texttt{)} : \square}$$



$$\text{TR-IfA}\ \frac{\Gamma \vdash e_1 : \tau_1 \qquad \Gamma \vdash e_2 : \tau_2 \qquad \Gamma \vdash e_3 : \tau_3}{\Gamma \vdash (\texttt{if}\ e_1\ e_2\ e_3) : \tau_1}$$

$$\text{TR-IfB}\ \frac{\Gamma \vdash e_1 : \mathsf{Bool} \qquad \Gamma \vdash e_2 : \tau_2 \qquad \Gamma \vdash e_3 : \tau_3}{\Gamma \vdash (\texttt{if}\ e_1\ e_2\ e_3) : \tau_2}$$

$$\text{TR-IfC}\ \frac{\Gamma \vdash e_1 : \mathsf{Bool} \qquad \Gamma \vdash e_2 : \tau_2 \qquad \Gamma \vdash e_3 : \tau_3}{\Gamma \vdash (\texttt{if}\ e_1\ e_2\ e_3) : \tau_3}$$

$$\text{TR-IfD}\ \frac{\Gamma \vdash e_1 : \tau_1 \qquad \Gamma \vdash e_2 : \tau_2 \qquad \Gamma \vdash e_3 : \tau_3}{\Gamma \vdash (\texttt{if}\ e_1\ e_2\ e_3) : \tau_2}$$

TR-IfE: None of the above