# Typing rules in deeplang

deeplang-org

2021 年 10 月 10 日

$$ture : bool \ (\text{T-TRUE})$$

$$false : bool \ (\text{T-FALSE})$$

$$\frac{x : T \in \Gamma}{\Gamma \vdash x : T} \ (\text{T-VAR})$$

$$\frac{\Gamma, x : T_1 \vdash t_2 : T_2}{\Gamma \vdash \lambda x : T_1.t_2 : T_1 \to T_2} \ (\text{T-ABS})$$

$$\frac{\Gamma \vdash t_1 : T_{11} \to T_{12} \qquad \Gamma \vdash t_2 : T_{11}}{\Gamma \vdash t_1 \ t_2 : T_{12}} \ (\text{T-APP})$$

$$\frac{\Gamma \vdash t_1 : T_{11} \to T_{12} \qquad \Gamma \vdash t_2 : T_{11}}{\Gamma \vdash t_1 \ t_2 : T_{12}} \ (\text{T-APP})$$

$$\frac{\Gamma \vdash a : [T; N] \qquad \Gamma \vdash x : \texttt{int}}{\Gamma \vdash a[x] : T} \ (\text{T-Index})$$

$$\frac{\Gamma \vdash a : [T] \qquad \Gamma \vdash x : \texttt{int}}{\Gamma \vdash a[x] : T} \ (\text{T-Index})$$

$$\frac{\Gamma \vdash x_0 : T_0 \qquad \Gamma \vdash x_1 : T_1 \qquad \ldots}{\Gamma \vdash (x_0, x_1, \ldots) : (T_1, T_2, \ldots)} \ (\text{T-TUPLE})$$

$$\frac{\Gamma \vdash a : \texttt{bool} \qquad \Gamma \vdash b : \texttt{bool}}{\Gamma \vdash a \ \&\& \ b : \texttt{bool}} \ (\text{T-AND})$$

$$\frac{\Gamma \vdash a : \texttt{bool} \qquad \Gamma \vdash b : \texttt{bool}}{\Gamma \vdash a \parallel b : \texttt{bool}} \text{ (T-OR)}$$

$$\frac{\Gamma \vdash a : \texttt{bool}}{\Gamma \vdash !a : \texttt{bool}} \text{ (T-NOT)}$$

$$\frac{\Gamma \vdash a : \texttt{bool}}{\Gamma \vdash !a : \texttt{bool}} \text{ (T-NOT)}$$