TRANSLATION

1. Type Translation

$$\boxed{\tau^+ = \tau}$$

$$\text{unit}^+ = \textbf{unit}$$
$$\text{bool}^+ = \textbf{bool}$$
$$(\tau \to \tau')^+ = \tau^+ \to \mathbf{E}^\circ \tau'^+$$

$$\boxed{\tau^{\div} = \mathbf{E}^\circ \tau^+}$$

2. Term Translation

$$\boxed{\Gamma \vdash e : \tau \rightsquigarrow \mathbf{e}}, \text{ where } \mathbf{\Gamma} \vdash_{\mathbf{e}} \mathbf{e} : \tau^{\div} \text{ or } \mathbf{\Gamma} \vdash_{\mathbf{e}} \mathbf{e} : \mathbf{E}^\circ \tau^+$$

$$\overline{\Gamma \vdash () : \text{unit} \rightsquigarrow ()} \qquad \overline{\Gamma \vdash \text{true} : \text{bool} \rightsquigarrow \textbf{true}} \qquad \overline{\Gamma \vdash \text{false} : \text{bool} \rightsquigarrow \textbf{false}}$$

$$\frac{\Gamma \vdash e_0 : \text{bool} \rightsquigarrow e_0^+ \quad \Gamma \vdash e_1 : \tau \rightsquigarrow e_1^+ \quad \Gamma \vdash e_2 : \tau \rightsquigarrow e_2^+}{\Gamma \vdash \text{if } e_0 \ e_1 \ e_2 : \tau \rightsquigarrow \textbf{if } e_0^+ \ e_1^+ \ e_2^+}$$

$$\frac{\Gamma, x : \tau \vdash e : \tau' \rightsquigarrow e^+}{\Gamma \vdash \lambda x{:}\tau.\, e : \tau \to \tau' \rightsquigarrow \lambda \mathbf{x} : \tau^+.\, e^+}$$

$$\frac{\Gamma \vdash e_1 : \tau \to \tau' \rightsquigarrow e_1^+ \quad \Gamma \vdash e_2 : \tau \rightsquigarrow e_2^+}{\Gamma \vdash e_1 \ e_2 : \tau' \rightsquigarrow e_1^+ \ e_2^+}$$

3. Context Translation

$$\boxed{\Gamma, x : \tau \rightsquigarrow \mathbf{\Gamma}, \mathbf{x} : \tau^+}$$

$$\overline{\cdot \rightsquigarrow \cdot} \qquad \overline{\Gamma, x : \tau \rightsquigarrow \Gamma^+, \mathbf{x} : \tau^+}$$

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