Formation rules for Types

$$\frac{}{X \vdash X} \qquad \frac{}{\Gamma \vdash I} \qquad \frac{\Gamma \vdash T_1 \qquad \Gamma \vdash T_2}{\Gamma \vdash T_1 \oplus T_2} \qquad \frac{\Gamma \vdash T_1 \qquad \Gamma \vdash T_2}{\Gamma \vdash T_1 \otimes T_2} \qquad \frac{\Gamma \vdash T}{\Gamma \vdash T^\star} \qquad \frac{X \vdash T}{\Gamma \vdash \mu\, X.T}$$

Formation rules for Values

$$\frac{}{\vdash e^{i\theta} : I} \qquad \frac{\vdash v_1 : T_1 \qquad \vdash v_2 : T_2}{\vdash v_1 \times v_2 : T_1 \otimes T_2} \qquad \frac{\vdash v : T_1}{\vdash \mathit{inl}\ v : T_1 \oplus T_2} \qquad \frac{\vdash v : T_2}{\vdash \mathit{inr}\ v : T_1 \oplus T_2} \qquad \frac{\vdash v : T}{\vdash \overline{v} : T^\star} \qquad \frac{\vdash v : T[\mu\, X.T/X]}{\vdash \mathit{fold}\ v : \mu\, X.T}$$

$$\frac{\vdash v_1 : T \qquad \vdash v_2 : T}{\vdash v_1 + v_2 : T} \qquad \frac{\vdash v_1 : T^\star \qquad \vdash v_2 : T}{\vdash v_1, v_2 : T^\star \otimes T} \qquad \frac{\vdash v_1 : T_1 \qquad \vdash v_2 : T_1^\star \otimes T_2}{\vdash v_1\ v_2 : T_2} \qquad \frac{\vdash v_1 : T_1^\star \otimes T_2 \qquad \vdash v_2 : T_2^\star \otimes T_3}{\vdash v_1 \fatsemi v_2 : T_1^\star \otimes T_3}$$

Typing rules for Terms

$$\frac{x : T \in \Gamma}{\Gamma \vdash x : T}$$

$$\frac{\vdash v : T}{\Gamma \vdash \mathit{measure}\ v : T}$$

$$\frac{\Gamma \vdash t : T_1 \oplus T_2 \qquad \Gamma, x : T_1 \vdash u_1 : T \qquad \Gamma, y : T_2 \vdash u_2 : T}{\Gamma \vdash \mathit{case}\ t\ \mathit{of}\ \mathit{inl}\ x\ \mathit{to}\ u_1\ \mathit{inr}\ y\ \mathit{to}\ u_2 : T}$$

$$\frac{\Gamma \vdash t : T_1 \otimes T_2}{\Gamma \vdash \mathit{fst}\ t : T_1}$$

$$\frac{\Gamma \vdash t : T_1 \otimes T_2}{\Gamma \vdash \mathit{fst}\ t : T_2}$$

$$\frac{\Gamma \vdash t : T \qquad \Gamma, x : T \vdash u : U}{\Gamma \vdash \mathit{let}\ x\ \mathit{be}\ t\ \mathit{in}\ u : U}$$

$$\frac{\Gamma, x : T \vdash t : T \qquad \Gamma, x : T \vdash u : U}{\Gamma \vdash \mathit{rec}\ x\ \mathit{be}\ t\ \mathit{in}\ u : U}$$