$$\frac{}{\Vdash \emptyset}\ (\mathsf{empty}) \qquad \frac{\Vdash \Gamma}{\Gamma \vdash \mathbb{U}_i : \mathbb{U}_{i+1}}\ (\mathsf{univ}) \qquad \frac{\Gamma \vdash A : \mathbb{U}_i}{\Gamma \vdash A : \mathbb{U}_{i+1}}\ (\mathsf{hier})$$

$$\frac{\Gamma \vdash A : \mathbb{U}_i}{\Vdash \Gamma, x : A}\ (\mathsf{ext}) \qquad \frac{\Vdash \Gamma, x : A}{\Gamma, x : A \vdash x : A}\ (\mathsf{var})$$

$$\frac{\Gamma \vdash A : \mathbb{U}_i \qquad \Gamma, x : A \vdash B : \mathbb{U}_i}{\Gamma \vdash \Pi(x : A).\, B : \mathbb{U}_i}\ (\Pi)$$

$$\frac{\Gamma, x : A \vdash e : B}{\Gamma \vdash \lambda x.\, e : \Pi(x : A).\, B}\ (\Pi_{\mathsf{i}}) \qquad \frac{\Gamma \vdash e_1 : \Pi(x : A).\, B \qquad \Gamma \vdash e_2 : A}{\Gamma \vdash e_1 \mathbin{@} e_2 : B[e_1/x]}\ (\Pi_{\mathsf{e}})$$

$$\frac{\Gamma \vdash A : \mathbb{U}_i \qquad \Gamma, x : A \vdash B : \mathbb{U}_i}{\Gamma \vdash \Sigma(x : A).\, B : \mathbb{U}_i}\ (\Sigma)$$

$$\frac{\Gamma \vdash e_1 : A \qquad \Gamma \vdash e_2 : B[e_1/x]}{\Gamma \vdash (e_1, e_2) : \Sigma(x : A).\, B}\ (\Sigma_{\mathsf{i}}) \qquad \frac{\Gamma \vdash e_1 : \Sigma(x : A).\, B \qquad \Gamma, x : A, y : B \vdash e_2 : C[(x, y)/z]}{\Gamma \vdash \mathsf{let}\ (x, y) = e_1\ \mathsf{in}\ e_2 : C[e_1/z]}\ (\Sigma_{\mathsf{e}})$$

$$\frac{\Vdash \Gamma}{\Gamma \vdash \top : \mathbb{U}_i}\ (\top) \qquad \frac{}{\vdash \mathsf{unit} : \top}\ (\top_{\mathsf{i}})$$

$$\frac{\Gamma, x : A \vdash e : A}{\Gamma \vdash \mathsf{rec}\, x.\, e : A}\ (\mathsf{rec})$$

A type A is relevant if $\vdash e : A \to A \otimes A$ is derivable for some e.

A type A is affine if $\vdash e : A \to \top$ is derivable for some e.

A term e is a well-typed closed proper term if (1) $\vdash e : A$ is derivable for some type A, and (2) for any variable x in e, if it occurs more than once, then the type of x is relevant. If it doesn't occur, then the type of x is affine. (3) All the free variables in a recursion-term ($\mathsf{rec}\, x.\, e$) must be relevant.