$$x : \forall \overline{a}.\, A \in \Gamma \ \frac{}{\Gamma \vdash x : A[\overline{B}/\overline{a}]} \ \text{(TVar)}$$

$$\frac{\Gamma \vdash M : B \to A \quad \Gamma \vdash N : B}{\Gamma \vdash MN : A} \ \text{(TApp)}$$

$$x \notin \text{dom}\ \Gamma \ \frac{\Gamma \cup \{x : B\} \vdash M : A}{\Gamma \vdash \lambda x.\, M : B \to A} \ \text{(TAbs)}$$

Lemma
Suppose M is a term, Γ an environment and A a type. Then:

(Subterm Closure) *If $\Gamma \vdash M : A$ is derivable and N is a subterm of M then there is some $\Gamma' \supseteq \Gamma$ and some A' such that $\Gamma' \vdash N : A'$.*

(Relevance-1) *If $\Gamma \vdash M : A$, then $\mathsf{FV}(M) \subseteq \mathrm{dom}(\Gamma)$*

(Relevance-2) *If $\Gamma \vdash M : A$, then*
$$\{x : \forall \overline{b}.\, B \mid x : \forall \overline{b}.\, B \in \Gamma \wedge x \in \mathsf{FV}(M)\} \vdash M : A$$

(Weakening) *If $\Gamma \vdash M : A$ and $\Gamma \subseteq \Gamma'$ then $\Gamma' \vdash M : A$.*

Theorem (Subject Reduction)
If $\Gamma \vdash M : A$ and $M \rightarrow_\beta N$ then $\Gamma \vdash N : A$

Lemma
If $\Gamma, x : B \vdash M : A$ and $\Gamma \vdash N : B$ then $\Gamma \vdash M[N/x] : A$.