More Universes (working title)
Extend Agda's Universe Hierachy to ε_0

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Abstract.

1 Terms

1.1 Syntax

$$
\begin{aligned}
::=& \\
|\quad& \mathrm{x} \\
|\quad& \lambda(\mathrm{x} : t_1) \to t_2 \\
|\quad& t_1\ t_2 \\
|\quad& \forall(x : t_1) \to t_2 \\
|\quad& t_1 \equiv t_2 \\
|\quad& \mathrm{refl} \\
|\quad& 0 \\
|\quad& \omega \uparrow t_1 +_{\{t\}} t_2 \\
|\quad& \lambda^{\ell}(\mathrm{x} : t_1) \to t_2 \\
|\quad& t_{1\{t\}} t_2 \\
|\quad& \forall^{\ell}(\ell : t_1) \to t_2 \\
|\quad& \mathrm{suc}\ t \\
|\quad& t_1 \sqcup t_2 \\
|\quad& \mathrm{Set}[t] \\
|\quad& \mathrm{Set}[\varepsilon_0 + i]\ \text{for all } i \in \mathbb{N} \\
|\quad& \mathrm{Level}
\end{aligned}
$$

1.2 Typing