Type theory

1. e is a type
2. t is a type
3. if a and b are types, then $\langle a, b \rangle$ is a type

- $D_e = A$
- $D_t = \{0, 1\}$
- $D_{\langle a,b \rangle}$ = the set of mappings from D_a to D_b.

Meaningful expressions

For a, b types :

- variables and individual constants of type a belong to ME_a.
- if $\alpha \in ME_{\langle a,b \rangle}$ and $\beta \in ME_a$ then $(\alpha)\beta \in ME_b$.
- if u is a variable of type a and $\alpha \in ME_b$, then $\lambda u.\alpha \in ME_{\langle a,b \rangle}$.
- if φ and ψ are in ME_t, then the following expressions are also in ME_t : $\neg\varphi$, $(\varphi \wedge \psi)$, $(\varphi \vee \psi)$, $(\varphi \rightarrow \psi)$.
- if φ is in ME_t and u is a type a variable, then $\forall u\varphi$ and $\exists u\varphi$ are in ME_t.