

## Grammar

(Types?)	$y ::= x$
(Base types)	$A ::= \mathbb{1} \mid A_1 \oplus \dots \oplus A_n \mid A_1 \otimes \dots \otimes A_n \mid \mu X.A \mid X$
(Values)	$v ::= x \mid (v_1, \dots, v_n) \mid c \ v$
(Patterns)	$p ::= x \mid (p_1, \dots, p_n)$
(Expressions)	$e ::= v \mid \text{let } p_1 = \omega \ p_2 \text{ in } e$
(Isos)	$\omega ::= \{v_1 \leftrightarrow e_1 \mid \dots \mid v_n \leftrightarrow e_n\} \mid \text{fix } \phi.\omega \mid \lambda\psi.\omega \mid \phi \mid \omega_1 \ \omega_2$
(Terms)	$t ::= x \mid (t_1, \dots, t_n) \mid c \ t \mid \omega \ t \mid \text{let } p = t_1 \text{ in } t_2$

## Typing Rules - Terms

$$\begin{array}{c}
\frac{}{\Psi; \emptyset \vdash () : \mathbb{1}} \quad \frac{}{\Psi; x : A \vdash x : A} \quad \frac{\Psi; \Delta_1 \vdash t_1 : A_1 \quad \dots \quad \Psi; \Delta_n \vdash t_n : A_n}{\Psi; \Delta \vdash (t_1, \dots, t_n) : A_1 \otimes \dots \otimes A_n} \\
\\
\frac{\Psi \vdash_\omega \omega : A \leftrightarrow B \quad \Psi; \Delta \vdash t : A}{\Psi; \Delta \vdash \omega \ t : B} \\
\\
\frac{\Psi; \Delta_1 \vdash t_1 : A_1 \otimes \dots \otimes A_n \quad \Psi; \Delta_2 \vdash x_1 : A_1, \dots, x_n : A_n \vdash t_2 : B}{\Psi; \Delta_1, \Delta_2 \vdash \text{let } (x_1, \dots, x_n) = t_1 \text{ in } t_2 : B}
\end{array}$$

## Typing Rules - Isos