

## Grammar

(Constructor arm)	$c_{\text{arm}} ::= c \mid c \text{ of } A$
(Constructor declaration)	$c_{\text{dec}} ::= (\text{type } X = c_{\text{arm}} \mid \dots \mid c_{\text{arm}})$
(Base types)	$A, B ::= \text{unit} \mid A_1 \oplus \dots \oplus A_n \mid A_1 \otimes \dots \otimes A_n \mid \mu X. A \mid X$
(Isos)	$T ::= A \leftrightarrow B \mid T_1 \rightarrow T_2$
(Values)	$v ::= () \mid x \mid c \ v \mid (v_1, \dots, v_n)$
(Patterns)	$p ::= x \mid (p_1, \dots, p_n)$
(Expressions)	$e ::= v \mid \text{let } p_1 = \omega \ p_2 \text{ in } e$

## Typing Rules - Terms

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

## Typing Rules - Isos

$$\frac{}{\Psi; \phi : T \vdash () : \text{unit}} \quad \frac{}{\Psi; x : A \vdash x : A}$$