1 Types

- Boolean type: Bool,
- Raw bit fields: Raw(n) with $n \geqslant 2$,
- Signed bit fields: Signed(n) with $n \geqslant 2$,
- Unsigned bit fields: Unsigned(n) with $n \geqslant 2$,
- User defined: κ.

2 General operations

$$\frac{\Gamma \vdash e_1 : \tau_1 \quad \ldots \quad \Gamma \vdash e_n : \tau_n}{\Gamma \vdash (e_1, \ldots, e_n) : (\tau_1, \ldots, \tau_n)} \text{ tuple } (n \geqslant 2)$$

$$\frac{\Gamma \vdash e_1 : \tau_1 \quad \ldots \quad \Gamma \vdash e_n : \tau_n}{\Gamma \vdash (e_1, \ldots, e_n) : (\tau_1, \ldots, \tau_n)} \text{ tuple } (n \geqslant 2)$$

3 Boolean operations

$$\frac{}{\Gamma \vdash \texttt{true} : \text{Bool}} \text{ true} \qquad \frac{}{\Gamma \vdash \texttt{false} : \text{Bool}} \text{ false}$$

$$\frac{\Gamma \vdash e : \text{Bool} \quad \Gamma \vdash e' : \text{Bool}}{\Gamma \vdash e \ \texttt{and} \ e' : \text{Bool}} \text{ band} \qquad \frac{\Gamma \vdash e : \text{Bool} \quad \Gamma \vdash e' : \text{Bool}}{\Gamma \vdash e \ \texttt{or} \ e' : \text{Bool}} \text{ bor}$$

$$\frac{\Gamma \vdash e : \text{Bool} \quad \Gamma \vdash e' : \text{Bool}}{\Gamma \vdash e \ \texttt{xor} \ e' : \text{Bool}} \text{ bxor}$$