Aufgabe 1: Typsystem für L_{Tup}

$e_1, ..., e_n$ Expressions:

Tuple:

$$\frac{\Gamma \vdash e_1 : t_1 \quad ... \quad \Gamma \vdash e_n : t_n}{\Gamma \vdash (e_1, ..., e_n) : (t_1, ..., t_n)}$$

e Expressions:
i Compile time Constants:
$i \in [0, n-1]$

Subscript:

$$\frac{\Gamma \vdash e : (t_1, ..., t_n) \quad \Gamma \vdash i : int}{\Gamma \vdash e[i] : t_{(i+1)}}$$

e Expression:

Len:

$$\frac{\Gamma \vdash e : (t_1, ..., t_n)}{\Gamma \vdash len(e) : int}$$

e_1, e_2 Expressions:

is:

$$\frac{\Gamma \nvdash e_1 : unit \quad \Gamma \nvdash e_2 : unit}{\Gamma \vdash e_1 \; is \; e_2 : bool}$$