$i$, $j$
*nat*, $k$
*floating_number*, $n$
*label*, $\alpha$

$$
\begin{array}{lll}
\textit{expression},\ e & ::= & \\
& \mid & k \\
& \mid & n \\
& \mid & \phi \\
& \mid & e :: e' \\
& \mid & e + e' \\
& \mid & \textbf{reshape}\ e\ \sigma
\end{array}
$$

$$
\begin{array}{lll}
\textit{type},\ \tau & ::= & \\
& \mid & \textbf{tensor}\ \sigma \\
& \mid & \textbf{float} \\
& \mid & \textbf{int}
\end{array}
$$

$$
\begin{array}{lll}
\textit{dimension},\ \delta & ::= & \\
& \mid & \alpha \\
& \mid & k
\end{array}
$$

$$
\begin{array}{lll}
\textit{shape},\ \sigma & ::= & \\
& \mid & . \\
& \mid & \delta, \sigma
\end{array}
$$

$\boxed{\tau \sqsubseteq \tau'}$

$$\frac{}{\textbf{int} \sqsubseteq \textbf{float}}\ \text{T\_SUB\_INT}$$

$$\frac{}{\textbf{float} \sqsubseteq \textbf{tensor}\,.}\ \text{T\_SUB\_NUM}$$

$$\frac{}{\textbf{tensor}\,\sigma \sqsubseteq \textbf{tensor}\,(1, \sigma)}\ \text{T\_BROADCAST1}$$

$$\frac{}{\textbf{tensor}\,(\sigma, 1, \sigma') \sqsubseteq \textbf{tensor}\,(\sigma, k, \sigma)}\ \text{T\_BROADCAST2}$$

$\boxed{e : \tau}$

$$\frac{}{k : \textbf{int}}\ \text{T\_NUM}$$

$$\frac{}{n : \textbf{float}}\ \text{T\_FLOAT}$$

$$\frac{}{\phi : \textbf{tensor}\,0}\ \text{T\_EMPTY}$$

$$\frac{\begin{array}{c} e : \textbf{tensor}\,\sigma \\ e' : \textbf{tensor}\,(\delta, \sigma) \end{array}}{e :: e' : \textbf{tensor}\,(\delta + 1, \sigma)}\ \text{T\_CONS}$$

$$\frac{\begin{array}{c} e : \tau \\ e' : \tau \end{array}}{e + e' : \tau}\ \text{T\_ADD}$$

$$\frac{e : \mathbf{tensor}\ \overline{\delta'_j}^{\,j} \qquad \prod_i \delta_i = \prod_j \delta'_j}{\mathbf{reshape}\ e\ \overline{\delta_i}^{\,i} : \mathbf{tensor}\ \overline{\delta_i}^{\,i}}\ \text{T\_RESHAPE}$$

$$\frac{e : \tau \qquad \tau \sqsubseteq \tau'}{e : \tau'}\ \text{T\_SUB}$$

```
Definition rules:         11 good    0 bad
Definition rule clauses:  19 good    0 bad
```