

values $v$	$::=$	$x$ $()$ $n$ $\text{Left } v \mid \text{Right } v$ $(v_1, v_2)$ $\text{fun } x \mapsto c$ $\text{handler } (\text{ret } x \mapsto c_r; h)$	variable unit integer sum constructors pair function handler
computations $c$	$::=$	$\text{ret } v$ $v_1 \ v_2$ $\text{match } v \text{ with } \text{Left } x \mapsto c_1 \mid \text{Right } x \mapsto c_2$ $\text{match } v \text{ with } (x, y) \mapsto c$ $op(v; y.c)$ $\text{let rec } f \ x = c_1 \text{ in } c_2$ $\text{do } x \leftarrow c_1 \text{ in } c_2$ $\text{with } v \text{ handle } c$	returned value application sum match product match operation call recursive function sequencing handling
operation clauses $h$	$::=$	$\emptyset \mid h \cup \{op(x; k) \mapsto c_{op}\}$	

Figure 1: *EEFF* Term Syntax

(value) type $A, B$	$::=$	$\mathbf{unit}$	unit type
		$\mathbf{int}$	int type
		$\mathbf{empty}$	empty type
		$A + B$	sum type
		$A \times B$	product type
		$A \rightarrow \underline{C}$	function type
		$\underline{C} \Rightarrow \underline{D}$	handler type
computation type $\underline{C}, \underline{D}$	$::=$	$A! \Sigma / \mathcal{E}$	
signature $\Sigma$	$::=$	$\emptyset \mid \Sigma \cup \{op : A \rightarrow B\}$	
value context $\Gamma$	$::=$	$\varepsilon \mid \Gamma, x : A$	
template context $Z$	$::=$	$\varepsilon \mid Z, z : A \rightarrow *$	
template $T$	$::=$	$z \ v$	applied variable
		$\mathbf{match} \ v \ \mathbf{with} \ \mathbf{Left} \ x \mapsto T_1 \mid \mathbf{Right} \ x \mapsto T_2$	sum match
		$\mathbf{match} \ v \ \mathbf{with} \ (x, y) \mapsto T$	product match
		$\mathbf{let} \ x = v \ \mathbf{in} \ T$	value bind
		$op(v; y.T)$	operation call
(effect) theory $\mathcal{E}$	$::=$	$\emptyset \mid \mathcal{E} \cup \{\Gamma; Z \vdash T_1 \sim T_2\}$	

Figure 2: *EEFF* Type Syntax