Hazel PHI: 10-modules

how to read

800000	kinds	800080	signatures
008000	types (constructors)	008080	modules
000080	terms		

syntax

kind	κ	$::=$	$\mathtt{Type}$	kind of types
		$\mid$	$\mathtt{S}(\tau)$	singleton kind
		$\mid$	$\mathtt{KHole}$	kind hole
		$\mid$	$\Pi_{t::\kappa_1}.\kappa_2$	dependent function kind
		$\mid$	$\Sigma_{t::\kappa_1}.\kappa_2$	dependent product kind
internal HTyp	τ	$::=$	t	type variable
		$\mid$	bse	base type
		$\mid$	$\lambda t :: \kappa.\tau$	type function
		$\mid$	$\tau_1\ \tau_2$	type application
		$\mid$	$\tau_1 \oplus \tau_2$	type binop
		$\mid$	$\langle \tau_1, \tau_2 \rangle$	type pair
		$\mid$	$\pi_1\ \tau$	type projection
		$\mid$	$\pi_2\ \tau$	type projection
		$\mid$	$\{lab_1 \hookrightarrow \tau_1, \ldots\ lab_n \hookrightarrow \tau_n\}$	labelled product type (record)
		$\mid$	$mod.lab$	module type projection
		$\mid$	$(\!\|\|\!)$	empty type hole
		$\mid$	$(\!\|\tau\|\!)$	nonempty type hole
base type	bse	$::=$	$\mathtt{Int}$	
		$\mid$	$\mathtt{Float}$	
		$\mid$	$\mathtt{Bool}$	
HTyp BinOp	$\oplus$	$::=$	$\times$	
		$\mid$	$+$	
		$\mid$	$\rightarrow$	
internal expression	δ	$::=$	x	
		$\mid$	$\mathtt{signature}\ s = sig\ \mathtt{in}\ \delta$	
		$\mid$	$\mathtt{module}\ m = mod\ \mathtt{in}\ \delta$	
		$\mid$	$\mathtt{module}\ m :: s = mod\ \mathtt{in}\ \delta$	
		$\mid$	$mod.lab$	module term projection
		$\mid$	$elided$	
signature	sig	$::=$	s	signature variable
		$\mid$	$\{sdecs\}$	structure signature
		$\mid$	$\Pi_{m::sig_1}.sig_2$	functor signature
module	mod	$::=$	m	module variable
		$\mid$	$\{sbnds\}$	structure
		$\mid$	$\lambda m :: sig.mod$	functor
		$\mid$	$mod_1\ \ mod_2$	functor application
		$\mid$	$mod.lab$	submodule projection
signature declarations	$sdecs$	$::=$	ϵ	
		$\mid$	$sdec, sdecs$	
signature declaration	$sdec$	$::=$	$\mathtt{type}\ lab$	
		$\mid$	$\mathtt{type}\ lab = \tau$	
		$\mid$	$\mathtt{val}\ lab : \tau$	
		$\mid$	$\mathtt{module}\ lab :: sig$	
structure bindings	$sbnds$	$::=$	ϵ	
		$\mid$	$sbnd, sbnds$	
structure binding	$sbnd$	$::=$	$\mathtt{type}\ \mathtt{t} = \tau$	