Chapter 5 (draft): Data Grammar

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1 Grammar

path var,				fomalize?
x_p				
pattern,				
$patc$	$::=$	x		y
	$\mid$	$\left(d\overline{patc} :: x_p\right)$		
cast expressions,				
a, b, A, B, L	$::=$	x		y
	$\mid$	$a :: L$	cast	ym
	$\mid$	$\star$		ym
	$\mid$	$(x : A) \to B$		y
	$\mid$	$\mathsf{fun}\, f\, x \Rightarrow b$		y
	$\mid$	$b\, a$		y
	$\mid$	D_Δ	type cons.	
	$\mid$	d_Δ	data cons.	
	$\mid$	$\mathsf{case}\, \overline{a},\, \left\{\overline{\mid \overline{patc} \Rightarrow b}\right\} \overline{patc'_\ell}$	data elim.	
	$\mid$	$!_L$	force blame	
	$\mid$	$\{\overline{a},\}_L$	connected expressions	ym
	$\mid$	$a \sim^L_{\ell,o} b$	assertion	y (without ℓ)m
	$\mid$	x_p		
	$\mid$	$Arg\ L$		y
	$\mid$	$Bod_a\ L$		y
	$\mid$	$App_a\ L$		y
	$\mid$	$TCon_i\ L$		
	$\mid$	$DCon_i\ L$		
observations,				
o	$::=$	.		
	$\mid$	$o.Arg$		
	$\mid$	$o.App_a$		
	$\mid$	$o.Bod_a$	application	
	$\mid$	$o.TCon_i$	type cons. arg.	
	$\mid$	$o.DCon_i$	data cons. arg.	
	$\mid$	$inEx_{\overline{patc}}[\overline{a}]$	in-exhaustive pattern match	
contexts,				
Γ	$::=$	.		y
	$\mid$	$x : A$		y
	$\mid$	$x_p : A \approx B$		
	$\mid$	$\Gamma, \mathsf{data}\, D\ :\ \Delta \to \star\ \left\{\overline{\mid d\ :\ \Theta \to D\overline{a}}\right\}$	data definition	
	$\mid$	$\Gamma, \mathsf{data}\, D\ :\ \Delta \to \star$	abstract data	

2 Judgment Forms

Main judgnemts	
$\Gamma \vdash a \sqsupseteq a' : A'$	a has endpoint a' at type A'
Γ **Empty**	type context only contains data defs
$a \rightsquigarrow b$	a steps to b
a **Val**	value
a **Blame**$_{\ell,o}$	a contains condtrediction is observable at o induced at source locartion ℓ
Derived Judgment	
$\Gamma \vdash a : A$	$\Gamma \vdash a \sqsupseteq a : A$, type
Internal judgnements	
$\Gamma \vdash a \equiv a' : A$	definitional equivelence
$\overline{a} \rightsquigarrow \overline{b}$	a steps to b
$\overline{a}$ **Val**	values