

Funcons-beta: Datatypes *

The PPlanCompS Project

Datatypes.cbs | PLAIN | PRETTY

Datatypes

```
[ Type  datatype-values
  Funcon datatype-value
  Funcon datatype-value-id
  Funcon datatype-value-elements ]
```

A datatype value consists of an identifier and a sequence of values.

'Datatype $T ::= \dots$ ' declares the type T to refer to a fresh value constructor in **types**, and asserts $T <: \text{datatype-values}$.

Each constructor funcon ' $F(_ : T_1, \\dots, _ : T_n)$ ' of the datatype declaration generates values in T of the form **datatype-value**("F", $V_1, \\dots, V_n$) from $V_1 : T_1, \\dots, V_n : T_n$.

Note that a computation X cannot be directly included in datatype values: it is necessary to encapsulate it in **abstraction**(X).

'Datatype T ', followed by declarations of constructor funcons for ' T ', allows specification of GADTs.

Built-in Type **datatype-values**

Built-in Funcon **datatype-value**($_ : \text{identifiers}, _ : \text{values}^*$) : **datatype-values**

Funcon **datatype-value-id**($_ : \text{datatype-values}$) : $\Rightarrow \text{identifiers}$

Rule **datatype-value-id**(**datatype-value**($I : \text{identifiers}, _ : \text{values}^*$)) $\rightsquigarrow I$

Funcon **datatype-value-elements**($_ : \text{datatype-values}$) : $\Rightarrow \text{values}^*$

Rule **datatype-value-elements**(**datatype-value**($_ : \text{identifiers}, V^* : \text{values}^*$)) $\rightsquigarrow V^*$

*Suggestions for improvement: plancomps@gmail.com.
Reports of issues: <https://github.com/plancomps/CBS-beta/issues>.