Funcons-beta: Generating *

The PLanCompS Project

`Generating.cbs` | PLAIN | PRETTY

Generating

[*Type* atoms
Entity used-atom-set
Funcon initialise-generating
Funcon fresh-atom
Funcon use-atom-not-in]

Meta-variables $T <:$ values

Built-in Type atoms

atoms is the type of values used as distinguishable tags. Notation for individual atoms is not provided.

Entity $\langle \_, \text{used-atom-set}(\_ : \text{sets}(\text{atoms}))\rangle \longrightarrow \langle \_, \text{used-atom-set}(\_ : \text{sets}(\text{atoms}))\rangle$

Built-in Funcon $\text{initialise-generating}(\_ : \Rightarrow T) : \Rightarrow T$

The initial value of the used-atom-set(SA) entity is unspecified. It could contains atoms that are reserved for internal use.

Funcon fresh-atom : ⇒ atoms

fresh-atom computes an atom distinct from all previously computed atoms.

Rule
$$\frac{\text{element-not-in}(\text{atoms}, SA) \rightsquigarrow A}{\langle \text{fresh-atom}, \text{used-atom-set}(SA)\rangle \longrightarrow \langle A, \text{used-atom-set}(\text{set-insert}(A, SA))\rangle}$$

Funcon $\text{use-atom-not-in}(\_ : \text{sets}(\text{atoms})) : \Rightarrow \text{atoms}$

use-atom-not-in(SA) computes an atom not in the set SA, and inserts it in the used-atom-set(SA') entity, in case it was not previously used.

Rule
$$\frac{\text{element-not-in}(\text{atoms}, SA) \rightsquigarrow A}{\langle \text{use-atom-not-in}(SA : \text{sets}(\text{atoms})), \text{used-atom-set}(SA')\rangle \longrightarrow \langle A, \text{used-atom-set}(\text{set-insert}(A, SA'))\rangle}$$

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