

Funcons-beta: Generating *

The P_LanCompS Project

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Generating

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

Meta-variables $T <: \text{values}$

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 $\text{fresh-atom} : \Rightarrow \text{atoms}$

`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>.