

# Unstable-Funcons-beta: Indexing \*

The P<sub>L</sub>anCompS Project

Indexing.cbs | PLAIN | PRETTY

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## Value indexing

[ *Entity* value-index  
  *Funcon* initialise-index  
  *Funcon* allocate-index  
  *Funcon* lookup-index ]

The following funcons support indexing of values by natural numbers. They could be enhanced to ensure that each value has at most one index, and to allow finding the index of a value.

*Entity*  $\langle \_, \text{value-index}(\_ : \text{ground-values}^*) \rangle \longrightarrow$   
           $\langle \_, \text{value-index}(\_ : \text{ground-values}^*) \rangle$

*Funcon* initialise-index :  $\Rightarrow$  null-type  
  *Rule*  $\langle \text{initialise-index}, \text{value-index}(\_) \rangle \longrightarrow \langle \text{null-value}, \text{value-index}(\_) \rangle$

*Funcon* allocate-index( $\_ : \text{ground-values}$ ) :  $\Rightarrow$  natural-numbers  
  *Rule*  $\langle \text{allocate-index}(V : \text{ground-values}), \text{value-index}(V^*) \rangle \longrightarrow$   
           $\langle \text{length}(V^*, V), \text{value-index}(V^*, V) \rangle$

*Funcon* lookup-index( $\_ : \text{natural-numbers}$ ) :  $\Rightarrow$  ground-values  
  *Rule*  $\langle \text{lookup-index}(N : \text{natural-numbers}), \text{value-index}(V^*) \rangle \longrightarrow$   
           $\langle \text{index}(N, V^*), \text{value-index}(V^*) \rangle$

*Assert* lookup-index(allocate-index( $V : \text{ground-values}$ ))  $\longrightarrow V$

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\*Suggestions for improvement: [plancomps@gmail.com](mailto:plancomps@gmail.com).  
Reports of issues: <https://github.com/plancomps/CBS-beta/issues>.