

# Unstable-Funcons-beta: Indexing

The PPlanCompS Project

Unstable-Funcons-beta/Computations/Normal/Indexing/Indexing.cbs\*

## 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*  $\text{initialise-index} : \Rightarrow \text{null-type}$

*Rule*  $\langle \text{initialise-index}, \text{value-index}(-) \rangle \longrightarrow \langle \text{null-value}, \text{value-index}(-) \rangle$

*Funcon*  $\text{allocate-index}(- : \text{ground-values}) : \Rightarrow \text{natural-numbers}$

*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*  $\text{lookup-index}(- : \text{natural-numbers}) : \Rightarrow \text{ground-values}$

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

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