

Funcons-beta: Tuples

The P_{Plan}CompS Project

Funcons-beta/Values/Composite/Tuples/Tuples.cbs*

Tuples

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[ Datatype tuples
  Funcon tuple-elements
  Funcon tuple-zip ]
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Meta-variables $T_1, T_2 <: \text{values } T_1^+, T_2^+ <: \text{values } T^*, T_1^*, T_2^* <: \text{values } ^*$

Datatype `tuples(T^*) ::= tuple($_ : T^*$)`

T^* can be any sequence of types, including `()` and `values *`.

The values of type `tuples(T_1, \dots, T_n)` are of the form `tuple(V_1, \dots, V_n)` with $V_1 : T_1, \dots, V_n : T_n$.

Funcon `tuple-elements($_ : \text{tuples}(T^*)$) : $\Rightarrow(T^*)$`

Rule `tuple-elements(tuple($V^* : T^*$)) $\rightsquigarrow V^*$`

Funcon `tuple-zip($_ : \text{tuples}(\text{values } ^*), _ : \text{tuples}(\text{values } ^*)$) : $\Rightarrow(\text{tuples}(\text{values}, \text{values}))^*$`

`tuple-zip(TV_1, TV_2)` takes two tuples, and returns the sequence of pairs of their elements, provided that they have the same length. If they have different lengths, the last elements of the longer sequence are ignored.

Rule `tuple-zip(tuple($V_1 : T_1, V_1^* : T_1^*$), tuple($V_2 : T_2, V_2^* : T_2^*$)) \rightsquigarrow (tuple(V_1, V_2), tuple-zip(tuple(V_1^*)`

Rule `tuple-zip(tuple($()$), tuple($()$)) $\rightsquigarrow ()$`

Rule `tuple-zip(tuple($V_1^+ : T_1^+$), tuple($()$)) $\rightsquigarrow ()$`

Rule `tuple-zip(tuple($()$), tuple($V_2^+ : T_2^+$)) $\rightsquigarrow ()$`

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