Funcons-beta: Tuples *

The PLanCompS Project

Tuples.cbs | PLAIN | PRETTY

Tuples

[*Datatype*   tuples
    Funcon   tuple-elements
    Funcon   tuple-zip]

Meta-variables $T_1, T_2 <:$ values
                 $T_1{}^+, T_2{}^+ <:$ values$^+$
                 $T^*, T_1{}^*, T_2{}^* <:$ values*

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

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

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

Funcon   tuple-elements(_ : tuples(T^*)) : $\Rightarrow(T^*)$
   Rule   tuple-elements(tuple($V^* : T^*$)) $\rightsquigarrow V^*$

Funcon   tuple-zip(_ : tuples(values*), _ : tuples(values*)) : $\Rightarrow$(tuples(values, 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($V_1{}^*$), tuple($V_2{}^*$)))
Rule   tuple-zip(tuple( ), tuple( )) $\rightsquigarrow$ ( )
Rule   tuple-zip(tuple($V_1{}^+ : T_1{}^+$), tuple( )) $\rightsquigarrow$ ( )
Rule   tuple-zip(tuple( ), tuple($V_2{}^+ : T_2{}^+$)) $\rightsquigarrow$ ( )