

# Funcons-beta: Tuples \*

The P<sub>LAN</sub>CompS Project

Tuples.cbs | PLAIN | PRETTY

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## Tuples

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

```
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  $\text{values}^*$ .

The values of type  $\text{tuples}(T_1, \dots, T_n)$  are of the form  $\text{tuple}(V_1, \dots, V_n)$  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( $_ : \text{tuples}(\text{values}^*), _ : \text{tuples}(\text{values}^*)$ ) :  $\Rightarrow(\text{tuples}(\text{values}, \text{values}))^*$ 
```

$\text{tuple-zip}(TV_1, TV_2)$  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( $V_2^+ : T_2^+$ ))  $\rightsquigarrow$  ( )
```

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