

# disjointness

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The *disjointness* command is applicable to two names in a goal, where both names refer to elements or injections of a free type. It makes the disjointness constraint implied by the free type between the elements and injections available as an antecedent in the sub-goal.

Given the general form of a free type,

$$\begin{aligned} f_1 &::= h_{1,1} \dots h_{1,m_1} \mid g_{1,1} \langle\langle e_{1,1} \rangle\rangle \dots g_{1,n} \langle\langle e_{1,n} \rangle\rangle \\ &\& \dots \& \\ f_r &::= h_{r,1} \dots h_{r,m_r} \mid g_{r,1} \langle\langle e_{r,1} \rangle\rangle \dots g_{r,n_r} \langle\langle e_{r,n_r} \rangle\rangle \end{aligned}$$

the disjointness constraint for two elements is

$$\neg h_{i,j} = h_{i,k}$$

the disjointness constraint for an element and an injection is

$$\forall u : e_{i,k} \bullet \neg h_{i,j} = g_{i,k} \ u$$

the disjointness constraint for an injection and an element is

$$\forall u : e_{i,k} \bullet \neg g_{i,k} \ u = h_{i,j}$$

and the disjointness constraint for two injections is

$$\forall u : e_{i,j}; \ v : e_{i,k} \bullet \neg g_{i,j} \ u = g_{i,k} \ v$$

## 1. Tactic example

*“disjointness”*  $e_1$   $e_2$

This example applies the *disjointness* command to expressions  $e_1$  and  $e_2$ .

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