

# Binary relations

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'utils require import

- Required module: utils

Given two types  $A$  and  $B$ , a binary relation between  $A$  and  $B$  can be described as a function that, when given two witnesses  $a$  and  $b$  produces a *Set0* which is inhabited iff  $a$  and  $b$  are related.

'Relation Type ? ? def ! !

Type 'A -> Relation ( A A ) 'r ->

'reflexive A 'a -> r ( a a ) ? def

'symmetric A 'x -> A 'y -> r ( x y ) 'rxy -> r ( y x ) ? ? ? def

'transitive A 'x -> A 'y -> A 'z -> r ( x y ) 'rxy -> r ( y z ) 'ryz -> r ( x z ) ? ? ? ?  
! !