

## strong-fun-connected-induction<sup>11,40</sup>

$\forall T:\text{Type}, f:(T \rightarrow T), R:(T \rightarrow T \rightarrow \mathbb{P}).$   
retraction( $T;f$ )  
 $\Rightarrow (\forall x:T. R(x,x))$   
 $\Rightarrow (\forall x, y, z:T.$   
     $(x = f(y))$   
     $\Rightarrow (\neg(x = y))$   
     $\Rightarrow y \text{ is } f^*(z)$   
     $\Rightarrow (\forall u:T. y \text{ is } f^*(u) \Rightarrow u \text{ is } f^*(z) \Rightarrow R(u,z))$   
     $\Rightarrow R(x,z))$   
 $\Rightarrow \{\forall x, y:T. x \text{ is } f^*(y) \Rightarrow R(x,y)\}$