

## decidable\_wellfound-bounded-exists<sup>11,40</sup>

$\forall T:\text{Type}, R:(T \rightarrow T \rightarrow \mathbb{P}), P:(T \rightarrow \mathbb{P}).$   
 $(\forall x, y:T. \text{Dec}(R(x,y)))$   
 $\Rightarrow (\forall x:T. \text{Dec}(P(x)))$   
 $\Rightarrow (\forall y:T. \exists L:T \text{ List}. (\forall x:T. (R(x,y) \Rightarrow (x \in L))))$   
 $\Rightarrow \text{WellFnd}\{i\}(T;x,y.R(x,y))$   
 $\Rightarrow (\forall y:T. \text{Dec}(\exists x:T. (R^+(x,y) \& P(x))))$