

Inference at \* 2 0  
of proof for Lemma exists\_functionality\_wrt\_iff:

1.  $S : \text{Type}$
2.  $T : \text{Type}$
3.  $P : S \rightarrow \mathbb{P}$
4.  $Q : T \rightarrow \mathbb{P}$
5.  $S = T$
6.  $\forall x:S. P(x) \iff Q(x)$
7.  $\exists y:T. Q(y)$

 $\vdash \exists x:S. P(x)$   
by PERMUTE{1:n, 1:n, 2:n}

1: .....wf..... NILNIL

7.  $y : T$

8.  $Q(y)$

$\vdash y \in S$

2: .....wf..... NILNIL

7.  $y : T$

8.  $Q(y)$

9.  $x : S$

$\vdash P(x) \in \mathbb{P}$

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