Inference at $*$ 1 1 1
of proof for Lemma equiv_rel_functionality_wrt_iff:

1. T : Type
2. T' : Type
3. E : $T \rightarrow T \rightarrow \mathbb{P}$
4. E' : $T' \rightarrow T' \rightarrow \mathbb{P}$
5. $T = T'$
6. $\forall x, y{:}T.\ E(x,y) \iff E'(x,y)$

$\vdash ((\forall a{:}T.\ E'(a,a))$
$\quad \&\ (\forall a, b{:}T.\ E'(a,b) \Rightarrow E'(b,a))$
$\quad \&\ (\forall a, b, c{:}T.\ E'(a,b) \Rightarrow E'(b,c) \Rightarrow E'(a,c)))$
$\quad \iff ((\forall a{:}T'.\ E'(a,a))$
$\qquad \&\ (\forall a, b{:}T'.\ E'(a,b) \Rightarrow E'(b,a))$
$\qquad \&\ (\forall a, b, c{:}T'.\ E'(a,b) \Rightarrow E'(b,c) \Rightarrow E'(a,c)))$

by AssertLemma ‘equiv_rel_iff‘ []

1:

7. EquivRel($\mathbb{P}$;A,B.$A \iff B$)

$\vdash ((\forall a{:}T.\ E'(a,a))$
$\quad \&\ (\forall a, b{:}T.\ E'(a,b) \Rightarrow E'(b,a))$
$\quad \&\ (\forall a, b, c{:}T.\ E'(a,b) \Rightarrow E'(b,c) \Rightarrow E'(a,c)))$
$\quad \iff ((\forall a{:}T'.\ E'(a,a))$
$\qquad \&\ (\forall a, b{:}T'.\ E'(a,b) \Rightarrow E'(b,a))$
$\qquad \&\ (\forall a, b, c{:}T'.\ E'(a,b) \Rightarrow E'(b,c) \Rightarrow E'(a,c)))$

.