Inference at $*$ 1 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. $\forall x, y{:}T.\ E(x,y) \iff E'(x,y)$
7. EquivRel($\mathbb{P}$;A,B.$A \iff B$)

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

by RepUnfolds “equiv_rel refl“ 7

1:

7. $(\forall a{:}\mathbb{P}.\ a \iff a)$ & Sym($\mathbb{P}$;A,B.$A \iff B$) & Trans($\mathbb{P}$;A,B.$A \iff B$)

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

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