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

1. T : Type
2. E : $T \to T \to \mathbb{P}$
3. g : $x{:}T \to \forall y{:}T.\ (E(x,y)) \vee (\neg(E(x,y)))$
4. x : T
5. y : T
6. y_1 : $y{:}T \to (E(x,y)) \vee (\neg(E(x,y)))$
7. $y_1 = g(x)$
8. y_2 : $(E(x,y)) \vee (\neg(E(x,y)))$
9. $y_2 = y_1(y)$

$\vdash$ ($\uparrow$case $g(x,y)$ of inl(a) => tt | inr(b) => ff) $\iff$ $(E(x,y))$
by D 8

1:

8. x_1 : $E(x,y)$
9. (inl x_1) = $y_1(y)$

$\vdash$ ($\uparrow$case $g(x,y)$ of inl(a) => tt | inr(b) => ff) $\iff$ $(E(x,y))$

2:

8. y_3 : $\neg(E(x,y))$
9. (inr y_3) = $y_1(y)$

$\vdash$ ($\uparrow$case $g(x,y)$ of inl(a) => tt | inr(b) => ff) $\iff$ $(E(x,y))$

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