

Inference at * 2
of proof for Lemma decidable-filter:

1. T : Type
 2. T List
 3. u : T
 4. v : T List
 5. $\forall P: (\{x:T \mid (x \in v)\} \rightarrow \mathbb{P}).$
 $(\forall x \in v. \text{Dec}(P(x))) \Rightarrow (\exists L': T \text{ List}. (L' \subseteq v \ \& \ (\forall x:T. (x \in L') \iff ((x \in v) \ \& \ P(x))))))$
 6. $P : \{x:T \mid (x \in [u / v])\} \rightarrow \mathbb{P}$
 7. $\forall x \in [u / v]. \text{Dec}(P(x))$
- $\vdash \exists L': T \text{ List}. (L' \subseteq [u / v] \ \& \ (\forall x:T. (x \in L') \iff ((x \in [u / v]) \ \& \ P(x))))$
by ((InstHyp [P] (-3))
CollapseTHEN (MaAuto.)).

1:wf..... NILNIL

$\vdash P \in \{x:T \mid (x \in v)\} \rightarrow \mathbb{P}$

2:antecedent..... NILNIL

$\vdash \forall x \in v. \text{Dec}(P(x))$

3:

8. $\exists L': T \text{ List}. (L' \subseteq v \ \& \ (\forall x:T. (x \in L') \iff ((x \in v) \ \& \ P(x))))$

$\vdash \exists L': T \text{ List}. (L' \subseteq [u / v] \ \& \ (\forall x:T. (x \in L') \iff ((x \in [u / v]) \ \& \ P(x))))$

.