```
set_function  THM

⊢  ∀R:(S→T→Prop).
|  (∀s:S. Dec(∃t:T. R(s,t))) ⇒
|  (∃f:({s:S| ∃t:T. R(s,t) }→T). ∀s:{s:S| ∃t:T. R(s,t) }. R(s,f(s)))
| by UnivCD
|
1. S : Type
2. T : Type
3. R : S→T→Prop
4. ∀s:S. Dec(∃t:T. R(s,t))
⊢  ∃f:({s:S| ∃t:T. R(s,t) }→T). ∀s:{s:S| ∃t:T. R(s,t) }. R(s,f(s))
| by Inst
|    Thm* ∀Q:(A→B→Prop).
|         (∀x:A. ∃y:B. Q(x,y)) ⇒ (∃f:(A→B). ∀x:A. Q(x,f(x)))
|    {ax_choice}
|    [{s:S| ∃t:T. R(s,t) };T;λ2x,y. R(x,y)]
|
|\
| .....antecedent .....
| ⊢  ∀x:{s:S| ∃t:T. R(s,t) }. ∃y:T. R(x,y)
|   by Analyze 0 THEN Analyze 5 THEN Unhide
|
.\
. 5. ∃f:({s:S| ∃t:T. R(s,t) }→T). ∀x:{s:S| ∃t:T. R(s,t) }. R(x,f(x))
. ⊢   by Auto
END
```