```
indep_fun_description  THM

⊢  (∀x:A. ∃!y:B. P(x,y)) ⇒ (∃f:(A→B). ∀x:A. P(x,f(x)))  by Auto
|
1. A : Type
2. B : Type
3. P : A→B→Prop
4. ∀x:A. ∃!y:B. P(x,y)
⊢  ∃f:(A→B). ∀x:A. P(x,f(x))
| by (4) Def of ∃!y:B. P(x,y)
|    THEN
|    FwdThru:
|    Thm*  (∀x:A. ∃y:B. Q(x,y)) ⇒ (∃f:(A→B). ∀x:A. Q(x,f(x)))
|        ax_choice_version2
|    on [ ∀x:A. ∃y:B. y is the B s.t. P(x,y) ]
|
4. ∀x:A. ∃y:B. y is the B s.t. P(x,y)
5. ∃f:(A→B). ∀x:A. f(x) is the y:B. P(x,y)
⊢  ∃f:(A→B). ∀x:A. P(x,f(x))  by SimilarTo: Hyp:-1
|
5. f : A→B
6. x : A
7. f(x) is the y:B. P(x,y)
⊢  P(x,f(x))  by (-1) Def
|
7. P(x,f(x)) & (∀y:B. P(x,y) ⇒ y = f(x))
⊢  P(x,f(x))  by Auto
END
```