```
decbl_iff_some_bool  THM

⊢  Dec(P) ⟺ (∃b:𝔹. b ⟺ P)  by GenUnivCD
|
|\
| 1. P : Prop
| 2. Dec(P)
| ⊢  ∃b:𝔹. b ⟺ P  by Decide: P
| |
| |\
| | 3. P
| | ⊢  ∃b:𝔹. b ⟺ P  by Witness: true₂
| | |
| | 4. P
| | ⊢  true₂  by Inst: Thm*  true₂    {assert_of_tt}
| |
| .\
| . 3. ¬P
| . ⊢  ∃b:𝔹. b ⟺ P  by Witness: false₂
| . |
| . 4. false₂
| . ⊢  P  by Inst: Thm*  ¬false₂    {assert_of_ff}
|
.\
. 1. P : Prop
. 2. ∃b:𝔹. b ⟺ P
. ⊢  Dec(P)  by Analyze-1
. |
. 2. b : 𝔹
. 3. b ⟺ P
. ⊢  Dec(P)  by Rewrite by b ⟺ P
END
```