```
prop_to_bool_char_2  THM

⊢  ∀P:𝔹. (↓_b P) = P
| by Id THEN StrongAuto THEN Last BoolInd THEN Simp THEN StrongAuto
|
|\
| ⊢  (↓_b true_2) = true_2
| | by Unab [‘prop_to_bool‘] THEN Simp THEN StrongAuto
| |
| ⊢  InjCase(lem(true_2) ; true_2; false_2) = true_2
| | by GenDC (lem(true_2)) THEN StrongAuto
| |
| 1. true_2→Void
| ⊢  false_2 = true_2  by Analyze 1 THEN StrongAuto
| |
| .....antecedent .....
| 1. true_2→Void
| ⊢  true_2
|   by Unab [‘ifthenelse‘;‘assert‘;‘bfalse‘;‘btrue‘] THEN Reduce 0
|      THEN
|      StrongAuto
|
.\
. ⊢  (↓_b false_2) = false_2  by Unab [‘prop_to_bool‘] THEN StrongAuto
. |
. ⊢  InjCase(lem(false_2) ; true_2; false_2) = false_2
. | by GenDC (lem(false_2)) THEN StrongAuto
. |
. 1. false_2
. ⊢  true_2 = false_2
.   by Unab [‘ifthenelse‘;‘assert‘;‘bfalse‘;‘btrue‘] THEN Reduce 1
.      THEN
.      StrongAuto
END
```