```
bij_iff_1_1_corr_version2  THM

⊢  (∃f:(A→B). Bij(A; B; f)) ⟺ (A ∼ B)  by Def of A ∼ B
|
|\
| 1. A : Type
| 2. B : Type
| 3. ∃f:(A→B). Bij(A; B; f)
| ⊢  ∃f:(A→B), g:(B→A). InvFuns(A;B;f;g)  by SimilarTo Hyp:3
| |
| 3. f : A→B
| 4. Bij(A; B; f)
| ⊢  ∃g:(B→A). InvFuns(A;B;f;g)
|   by BackThru
|      Thm*  ∀f:(A→B). Bij(A; B; f) ⇒ (∃g:(B→A). InvFuns(A;B;f;g))
|      {bij_imp_exists_inv_version2}
|
.\
. 1. A : Type
. 2. B : Type
. 3. ∃f:(A→B), g:(B→A). InvFuns(A;B;f;g)
. ⊢  ∃f:(A→B). Bij(A; B; f)  by SimilarTo Hyp:3
. |
. 3. f : A→B
. 4. ∃g:(B→A). InvFuns(A;B;f;g)
. ⊢  Bij(A; B; f)  by Analyze4
. |
. 4. g : B→A
. 5. InvFuns(A;B;f;g)
. ⊢  Bij(A; B; f)
.   by UseSubst:[g] on
.      BackThru:
.      Thm*  InvFuns(A;B;f;g) ⇒ Bij(A; B; f)
.      {fun_with_inv2_is_bij}
END
```