```
negnegelim_vs_bivalence  THM

⊢  (∀P:Prop. ¬¬P ⇒ P) ⟺ (∀P:Prop. P ∨ ¬P)  by Auto
|
|\
| 1. ∀P:Prop. ¬¬P ⇒ P
| 2. P : Prop
| ⊢  P ∨ ¬P  by BackThru: Hyp:-2
| |
| ⊢  ¬¬(P ∨ ¬P)  by Analyze
| |
| 3. ¬(P ∨ ¬P)
| ⊢  False  by ¬P & ¬¬P  Asserted
| |
| |\
| | ⊢  ¬P  by SimilarTo: Hyp:3
| | |
| | 3. P
| | ⊢  P ∨ ¬P  by Select: 1
| |
| .\
| . ⊢  ¬¬P  by SimilarTo: Hyp:3
| . |
| . 3. ¬P
| . ⊢  P ∨ ¬P  by Select: 2
|
.\
. 1. ∀P:Prop. P ∨ ¬P
. 2. P : Prop
. 3. ¬¬P
. ⊢  P  by Witness1: P
. |
. 4. P ∨ ¬P
. ⊢  P  by Analyze-1
. |
. |\
. | 4. P
. | ⊢  P  by Hypothesis
. |
. .\
. . 4. ¬P
. . ⊢  P  by Contradiction
END
```