```
sigma_to_union_wf  THM

⊢  ∀A,B:Type. sigma_to_union ∈ (i:ℕ2×if i=₂0→ A else B fi)→(A+B)
| by UnivCD THEN Def of sigma_to_union
|    THEN
|    Analyze THEN Analyze3 THEN Reduce Concl
|
1. A : Type
2. B : Type
3. i : ℕ2
4. e1 : if i=₂0→ A else B fi
⊢  if i=₂0→ inl(e1) else inr(e1) fi ∈ A+B  by IntSegElim 3
|
|\
| 5. i = 0 ∈ ℕ2
| ⊢  if i=₂0→ inl(e1) else inr(e1) fi ∈ A+B
| | by Subst4: Hyp:5 THEN Reduce 4
| |
| 4. e1 : A
| 5. i = 0 ∈ ℕ2
| ⊢  if i=₂0→ inl(e1) else inr(e1) fi ∈ A+B  by SplitITE Concl
|
.\
. 5. i = 1 ∈ ℕ2
. ⊢  if i=₂0→ inl(e1) else inr(e1) fi ∈ A+B
. | by Subst4: Hyp:5 THEN Reduce 4
. |
. 4. e1 : B
. 5. i = 1 ∈ ℕ2
. ⊢  if i=₂0→ inl(e1) else inr(e1) fi ∈ A+B  by SplitITE Concl
END
```