```
sfa_doc_type_poly_swap  THM

⊢  ∀f:(∩C,D:Type. C×D→D×C), A,B:Type, a:A, b:B.
|  f(<a,b>) = <b,a> ∈ B×A  by Auto
|
1. f : ∩C,D:Type. C×D→D×C
2. A : Type
3. B : Type
4. a : A
5. b : B
⊢  f(<a,b>) = <b,a>
| by f ∈ (∩C,D:Type. C×D→D×C)  Asserted
|    THEN
|    Witness-1: {a:A} | {b:B}
|
6. f ∈ {a:A}×{b:B}→{b:B}×{a:A}
⊢  f(<a,b>) = <b,a> ∈ B×A
| by BackThru: ∀z:({b:B}×{a:A}). z = <b,a> ∈ B×A
|
|\
| 7. z : {b:B}×{a:A}
| ⊢  z = <b,a> ∈ B×A  by Analyze-1
| |
| 7. z1 : {b:B}
| 8. z2 : {a:A}
| ⊢  <z1,z2> = <b,a> ∈ B×A  by Analyze
| |
| |\
| | ⊢  z1 = b ∈ B  by Analyze7
| |
| .\
| . ⊢  z2 = a ∈ A  by Analyze8
|
|\
| ⊢  a ∈ {a:A}  by Analyze
|
.\
. ⊢  b ∈ {b:B}  by Analyze
END
```