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sfa_doc_sexpr_case_thm  THM

⊢  ∀A:Type, s:Sexpr(A).
|  (∃x:A. s = Inj(x)) ∨ (∃s1,s2:Sexpr(A). s = Cons(s1;s2))  by Auto
|
1. A : Type
2. s : Sexpr(A)
⊢  (∃x:A. s = Inj(x)) ∨ (∃s1,s2:Sexpr(A). s = Cons(s1;s2))
| by New:u Analyze-1
|
2. s : rec(T.(T×T)+A)
3. u : (Sexpr(A)×Sexpr(A))+A
4. s = u ∈ (Sexpr(A)×Sexpr(A))+A
⊢  (∃x:A. u = Inj(x) ∈ Sexpr(A))
|  ∨ (∃s1,s2:Sexpr(A). u = Cons(s1;s2) ∈ Sexpr(A))
| by New:v Analyze-2 THENL [Analyze-2;Id]
|    THEN
|    ←Def of Inj(<sexpr atom>) | Cons(<sexpr>;<sexpr>)
|
|\
| 3. v1 : Sexpr(A)
| 4. v2 : Sexpr(A)
| 5. s = inl(<v1,v2>) ∈ (Sexpr(A)×Sexpr(A))+A
| ⊢  (∃x:A. Cons(v1;v2) = Inj(x))
| |  ∨ (∃s1,s2:Sexpr(A). Cons(v1;v2) = Cons(s1;s2))  by Select: 2
| |
| ⊢  ∃s1,s2:Sexpr(A). Cons(v1;v2) = Cons(s1;s2)  by Witness: v1 | v2
|
.\
. 3. y : A
. 4. s = inr(y) ∈ (Sexpr(A)×Sexpr(A))+A
. ⊢  (∃x:A. Inj(y) = Inj(x)) ∨ (∃s1,s2:Sexpr(A). Inj(y) = Cons(s1;s2))
. | by Select: 1
. |
. ⊢  ∃x:A. Inj(y) = Inj(x)  by Witness: y
END
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