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sfa_doc_sexpr_cases_wf  THM

⊢  ∀A:Type, C:(Sexpr(A)→Type), s:Sexpr(A),
|   f:(s1,s2:Sexpr(A)→C(Cons(s1;s2))), g:(x:A→C(Inj(x))).
|  (Case of s :  Inj(x) → g(x) ; Cons(s1;s2) → f(s1,s2)) ∈ C(s)
| by Def of
|    Sexpr(A) |
|    Cons(<sexpr>;<sexpr>) |
|    Inj(<sexpr atom>) |
|    Case of <sexpr>
|      Inj([var]) → <atom case>
|      Cons([var];[var]) → <cons case>
|    THEN
|    UnivCD
|
|\
| 1. A : Type
| 2. C : rec(T.(T×T)+A)→Type
| 3. s : rec(T.(T×T)+A)
| 4. f : s1,s2:rec(T.(T×T)+A)→C(inl(<s1,s2>))
| 5. g : x:A→C(inr(x))
| ⊢  InjCase(s; s1s2. s1s2/s1,s2. f(s1,s2); x. g(x)) ∈ C(s)
| | by Analyze-3 THEN Analyze-1 THENL [Analyze-1;Id]
| |    THEN
| |    Reduce Concl
| |
| |\
| | 6. x1 : rec(T.(T×T)+A)
| | 7. x2 : rec(T.(T×T)+A)
| | ⊢  f(x1,x2) ∈ C(inl(<x1,x2>))  by Auto
| |
| .\
| . 6. y : A
| . ⊢  g(y) ∈ C(inr(y))  by Auto
|
|\
| 1. A : Type
| 2. C : rec(T.(T×T)+A)→Type
| 3. rec(T.(T×T)+A)
| 4. s1,s2:rec(T.(T×T)+A)→C(inl(<s1,s2>))
| 5. x : A
| ⊢  inr(x) ∈ rec(T.(T×T)+A)  by Analyze
|
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. 1. A : Type
. 2. rec(T.(T×T)+A)→Type
. 3. rec(T.(T×T)+A)
. 4. s1 : rec(T.(T×T)+A)
. 5. s2 : rec(T.(T×T)+A)
. ⊢  inl(<s1,s2>) ∈ rec(T.(T×T)+A)  by Analyze
END
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