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ma-single-pre_wf  THM

⊢  ∀a:Id, T:Type, ds:x:Id fp-> Type, P:(State(ds)→T→Prop).
|  (with ds: ds action a:T precondition a(v) is P s v) ∈ MsgA
| by Auto THEN Unfold ‘ma-single-pre‘ 0 THEN Analyze THEN Reduce 0
|    THEN
|    Try (Complete (Auto THEN Using [‘B’,(λ2x. Type)] Auto))
|
.....subterm .....
1. a : Id
2. T : Type
3. ds : x:Id fp-> Type
4. P : State(ds)→T→Prop
⊢  a : P
|  ∈ a@0:Id fp-> State(ds)→ma-valtype(locl(a) : T; locl(a@0))→Prop
| by Repeat
|    (Unfolds
|     [‘ma-valtype‘;‘fpf‘;‘fpf-single‘;‘fpf-dom‘;‘fpf-cap‘;‘fpf-ap‘]
|     0
|     THEN
|     Reduce 0)
|    THEN
|    RepeatFor 3 (Analyze THEN Try (Complete Auto))
|
.....unproved Inclusion subgoal .....
1. a : Id
2. T : Type
3. ds : x:Id fp-> Type
4. State(ds)→T→Prop
5. x : {a@0:Id| (a@0 ∈ [a]) }
6. State(ds)
⊢  if eqof(KindDeq)(locl(a),locl(x)) ∨2 false2→ T else Top fi ⊆ T
| by SplitOnConclITE
|
1. a : Id
2. T : Type
3. ds : x:Id fp-> Type
4. State(ds)→T→Prop
5. x : {a@0:Id| (a@0 ∈ [a]) }
6. State(ds)
7. ¬eqof(KindDeq)(locl(a),locl(x))
8. true2
⊢  Top ⊆ T
| by Assert False THEN Analyze -4
|    THEN
|    RWO
|    Thm* ∀l:T List, a,x:T. (x ∈ [a / l]) ⟺ x = a ∨ (x ∈ l)
|    {cons_member}
|    -4
|    THEN
|    RWO Thm* ∀x:T. (x ∈ nil) ⟺ False    {nil_member} -4
|    THEN
|    Analyze -2
|
1. a : Id
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2. T : Type
3. ds : x:Id fp-> Type
4. State(ds)→T→Prop
5. x : Id
6. x = a ∨ False
7. State(ds)
8. true₂
⊢  eqof(KindDeq)(locl(a),locl(x))
| by RWO "deq_property<" 0 THEN SplitOrHyps
|
1. a : Id
2. T : Type
3. ds : x:Id fp-> Type
4. State(ds)→T→Prop
5. x : Id
6. x = a
7. State(ds)
8. true₂
⊢  locl(a) = locl(x)  by Analyze
END
```