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dfs-measure  THM

⊢  For any graph
   ∀the_obj:GraphObject(the_graph).
   ∃M:(Traversal→ℕ).
   (∀i:V, s:Traversal. M([inl(i) / s])≤M(s))
   & (∀i:V, s:Traversal.
      ¬member-paren(x,y.the_obj.eq(x,y);i;s) ⇒ M([inr(i) / s])<M(s))
  by (((RepeatFor 2 (Analyze 0))
       THEN
       (Inst Thm: graphobj_DASH_properties [the_graph;the_obj])
       THEN
       (Analyze -1)
       THEN
       (Analyze -1)
       THEN
       (InstConcl
        [λs.
         vertex-count(the_obj;i.¬2member-right-paren(x,y.the_obj.eq
                                                          (x
                                                          ,y);i;s))])
       THEN
       (Reduce 0)
       THEN
       (Try
        (BackThru
         Thm* For any graph
              ∀the_obj:GraphObject(the_graph), P,Q:(V→𝔹).
              (∀x:V. P(x) ⇒ Q(x))
              ⇒
              vertex-count(the_obj;x.P(x))≤vertex-count(the_obj;x....)
         {vertex_DASH_count_DASH_le}))
       THEN
       (Try
        (BackThru
         Thm* For any graph
              ∀the_obj:GraphObject(the_graph), P,Q:(V→𝔹).
              (∀x:V. P(x) ⇒ Q(x))
              ⇒
              (∃x:V. ¬P(x) & Q(x))
              ⇒
              vertex-count(the_obj;x.P(x))<vertex-count(the_obj;x....)
         {vertex_DASH_count_DASH_less}))
       THEN
       (RW assert_pushdownC 0))
      THEN
      (RW assert_pushdownC -1)
      THEN
      (RWO
       Thm* ∀E:(T→T→𝔹).
            (∀x,y:T. E(x,y) ⟺ x = y)
            ⇒
            (∀i:T, s:(T+T) List.
             member-right-paren(x,y.E(x,y);i;s) ⟺ (inr(i) ∈ s))
       {assert_DASH_member_DASH_right_DASH_paren}
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      0)
     THEN
     (Try
      (RWO
       Thm* ∀E:(T→T→𝔹).
             (∀x,y:T. E(x,y) ⟺ x = y)
             ⇒
             (∀i:T, s:(T+T) List.
              member-right-paren(x,y.E(x,y);i;s) ⟺ (inr(i) ∈ s))
       {assert_DASH_member_DASH_right_DASH_paren}
       -1))
     THEN
     (Try
      (RWO
       Thm* ∀E:(T→T→𝔹).
             (∀x,y:T. E(x,y) ⟺ x = y)
             ⇒
             (∀i:T, s:(T+T) List.
              member-paren(x,y.E(x,y);i;s)
              ⟺
              (inl(i) ∈ s) ∨ (inr(i) ∈ s))
       {assert_DASH_member_DASH_paren}
       -1)))
    THEN
    (Try (InstConcl [i]))
    THEN
    (ObviousFrom [-1])
END
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