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path-tl  THM

⊢  For any graph
|  ∀p:V List. 1<||p|| ⇒ path(the_graph;p) ⇒ path(the_graph;tl(p))
| by Auto
|
1. the_graph : Graph
2. p : Vertices(the_graph) List
3. 1<||p||
4. path(the_graph;p)
⊢  path(the_graph;tl(p))
| by Assert
|    (||tl(p)|| = ||p||-1 & (∀i:ℕ(||p||-1). tl(p)[i] = p[(i+1)]))
|
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| .....assertion .....
| 1. the_graph : Graph
| 2. p : Vertices(the_graph) List
| 3. 1<||p||
| 4. path(the_graph;p)
| ⊢  ||tl(p)|| = ||p||-1 & (∀i:ℕ(||p||-1). tl(p)[i] = p[(i+1)])
| | by Auto
| |
| |\
| | 1. the_graph : Graph
| | 2. p : Vertices(the_graph) List
| | 3. 1<||p||
| | 4. path(the_graph;p)
| | ⊢  ||tl(p)|| = ||p||-1
| |   by RWO
| |      Thm* ∀l:A List. ||l||≥1 ⇒ ||tl(l)|| = ||l||-1 ∈ ℤ
| |      {length_tl}
| |      0
| |
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| . 1. the_graph : Graph
| . 2. p : Vertices(the_graph) List
| . 3. 1<||p||
| . 4. path(the_graph;p)
| . 5. i : ℕ(||p||-1)
| . ⊢  tl(p)[i] = p[(i+1)]
| .   by RWO
| .      Thm* ∀as:A List, n:ℕ(||as||-1). tl(as)[n] = as[(n+1)]
| .      {select_tl}
| .      0
|
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. 1. the_graph : Graph
. 2. p : Vertices(the_graph) List
. 3. 1<||p||
. 4. path(the_graph;p)
. 5. ||tl(p)|| = ||p||-1 & (∀i:ℕ(||p||-1). tl(p)[i] = p[(i+1)])
. ⊢  path(the_graph;tl(p))
. | by (MoveToConcl -1) THEN (GenConcl (tl(p) = q))
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. | 1. the_graph : Graph
. | 2. p : Vertices(the_graph) List
. | 3. 1<||p||
. | 4. path(the_graph;p)
. | 5. q : Vertices(the_graph) List
. | 6. tl(p) = q
. | 7. ||q|| = ||p||-1
. | 8. ∀i:ℕ(||p||-1). q[i] = p[(i+1)]
. | ⊢  path(the_graph;q)  by All (Unfold ‘path‘)
. | |
. | 1. the_graph : Graph
. | 2. p : Vertices(the_graph) List
. | 3. 1<||p||
. | 4. 0<||p||
. | 5. ∀i:ℕ(||p||-1). p[i]-the_graph->p[(i+1)]
. | 6. q : Vertices(the_graph) List
. | 7. tl(p) = q
. | 8. ||q|| = ||p||-1
. | 9. ∀i:ℕ(||p||-1). q[i] = p[(i+1)]
. | 10. i : ℕ(||q||-1)
. | ⊢  q[i]-the_graph->q[(i+1)]
. |   by (InstHyp [i+1] 5) THEN (NthHypEq -1) THEN Analyze
. |      THEN
. |      Obvious
. |
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. . 1. the_graph : Graph
. . 2. p : Vertices(the_graph) List
. . 3. 1<||p||
. . 4. path(the_graph;p)
. . 5. q : Vertices(the_graph) List
. . 6. tl(p) = q
. . 7. i : ℕ(||p||-1)
. . ⊢  i<||q||
. .   by (RevHypSubst -2 0)
. .      THEN
. .      (RWO
. .       Thm* ∀l:A List. ||l||≥1 ⇒ ||tl(l)|| = ||l||-1 ∈ ℤ
. .       {length_tl}
. .       0)
END
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