formula_and_falsifiable_lemma THM

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⊢  ∀a:Assignment, q,r:Formula. a |≠ q⌈∧⌉r ⟺ a |≠ q ∨ a |≠ r
| by UnivCD THEN Analyze 0
|    THEN
|    Unfolds [‘formula_sat‘;‘formula_falsifiable‘] 0
|    THEN
|    Rewrite (HigherC valuation_unrollC) 0
|
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| 1. a : Assignment
| 2. q : Formula
| 3. r : Formula
| ⊢  (q under a)  ∧_3 (r under a)  = 3_0 ⇒
| |  (q under a)  = 3_0 ∨ (r under a)  = 3_0
| | by GenConcl ((q under a)  = n) THEN GenConcl ((r under a)  = m)
| |
| 4. n : ℕ_3
| 5. (q under a)  = n
| 6. m : ℕ_3
| 7. (r under a)  = m
| ⊢  n ∧_3 m = 3_0 ⇒ n = 3_0 ∨ m = 3_0
| | by Thin -3 THEN Thin -1 THEN Repeat (ThreeInd -1) THEN AbReduce 0
| |
| |\
| | 4. 3_0 = 3_0
| | ⊢  3_0 = 3_0 ∨ 3_0 = 3_0  by Choose [1]
| |
| |\
| | 4. 3_0 = 3_0
| | ⊢  3_1 = 3_0 ∨ 3_0 = 3_0  by Choose [2]
| |
| |\
| | 4. 3_0 = 3_0
| | ⊢  3_2 = 3_0 ∨ 3_0 = 3_0  by Choose [2]
| |
| |\
| | 4. 3_0 = 3_0
| | ⊢  3_0 = 3_0 ∨ 3_1 = 3_0  by Choose [1]
| |
| |\
| | 4. 3_1 = 3_0
| | ⊢  3_1 = 3_0 ∨ 3_1 = 3_0  by ThreeNEQ -1
| |
| |\
| | 4. 3_1 = 3_0
| | ⊢  3_2 = 3_0 ∨ 3_1 = 3_0  by ThreeNEQ -1
| |
| |\
| | 4. 3_0 = 3_0
| | ⊢  3_0 = 3_0 ∨ 3_2 = 3_0  by Choose [1]
| |
| |\
| | 4. 3_1 = 3_0
| | ⊢  3_1 = 3_0 ∨ 3_2 = 3_0  by ThreeNEQ -1
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| .\
| . 4. 3₂ = 3₀
| . ⊢  3₂ = 3₀ ∨ 3₂ = 3₀  by ThreeNEQ -1
|
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. 1. a : Assignment
. 2. q : Formula
. 3. r : Formula
. ⊢  ((q under a)  ∧₃ (r under a)  = 3₀) ⇐ ((q under a)  = 3₀
. |  ∨ (r under a)  = 3₀)
. | by GenConcl ((q under a)  = n) THEN GenConcl ((r under a)  = m)
. |
. 4. n : ℕ₃
. 5. (q under a)  = n
. 6. m : ℕ₃
. 7. (r under a)  = m
. ⊢  (n ∧₃ m = 3₀) ⇐ (n = 3₀ ∨ m = 3₀)
. | by Thin -3 THEN Thin -1 THEN Repeat (ThreeInd -1) THEN AbReduce 0
. |    THEN
. |    Analyze 0
. |    THEN
. |    Analyze -1
. |
. |\
. | 4. 3₂ = 3₀
. | ⊢  3₁ = 3₀  by ThreeNEQ -1
. |
. .\
. . 4. 3₂ = 3₀
. . ⊢  3₁ = 3₀  by ThreeNEQ -1
END
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