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formula_or_sat_lemma  THM

⊢  ∀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)  = 3₂ ⇒
| |  (q under a)  = 3₂ ∨ (r under a)  = 3₂
| | 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 = 3₂ ⇒ n = 3₂ ∨ m = 3₂
| | by Thin -3 THEN Thin -1 THEN Repeat (ThreeInd -1) THEN AbReduce 0
| |
| |\
| | 4. 3₀ = 3₂
| | ⊢  3₀ = 3₂ ∨ 3₀ = 3₂  by Choose [1]
| |
| |\
| | 4. 3₁ = 3₂
| | ⊢  3₁ = 3₂ ∨ 3₀ = 3₂  by ThreeNEQ -1
| |
| |\
| | 4. 3₂ = 3₂
| | ⊢  3₂ = 3₂ ∨ 3₀ = 3₂  by Choose [1]
| |
| |\
| | 4. 3₁ = 3₂
| | ⊢  3₀ = 3₂ ∨ 3₁ = 3₂  by ThreeNEQ -1
| |
| |\
| | 4. 3₁ = 3₂
| | ⊢  3₁ = 3₂ ∨ 3₁ = 3₂  by ThreeNEQ -1
| |
| |\
| | 4. 3₂ = 3₂
| | ⊢  3₂ = 3₂ ∨ 3₁ = 3₂  by Choose [1]
| |
| |\
| | 4. 3₂ = 3₂
| | ⊢  3₀ = 3₂ ∨ 3₂ = 3₂  by Choose [2]
| |
| |\
| | 4. 3₂ = 3₂
| | ⊢  3₁ = 3₂ ∨ 3₂ = 3₂  by Choose [2]
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| |
| .\
| . 4. 3₂ = 3₂
| . ⊢  3₂ = 3₂ ∨ 3₂ = 3₂  by Choose [1]
|
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. 1. a : Assignment
. 2. q : Formula
. 3. r : Formula
. ⊢  ((q under a)  ∨₃ (r under a)  = 3₂) ⇐ ((q under a)  = 3₂
. |  ∨ (r under a)  = 3₂)
. | 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 = 3₂) ⇐ (n = 3₂ ∨ m = 3₂)
. | by Thin -3 THEN Thin -1 THEN Repeat (ThreeInd -1) THEN AbReduce 0
. |    THEN
. |    Analyze 0
. |    THEN
. |    Analyze -1
. |
. |\
. | 4. 3₀ = 3₂
. | ⊢  3₁ = 3₂  by ThreeNEQ -1
. |
. .\
. . 4. 3₀ = 3₂
. . ⊢  3₁ = 3₂  by ThreeNEQ -1
END
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