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list_rank_append_homomorphism  THM

⊢  ∀M,N:Formula List. ρ(M @ N) = ρ(M)+ρ(N) ∈ ℕ  by Analyze 0
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1. M : Formula List
⊢  ∀N:Formula List. ρ(M @ N) = ρ(M)+ρ(N)  by ListInd 1
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| ⊢  ∀N:Formula List. ρ(nil @ N) = ρ(nil)+ρ(N)  by AbReduce 0
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| ⊢  ∀N:Formula List. ρ(N) = 0+ρ(N)  by UnivCD
| |
| 2. N : Formula List
| ⊢  ρ(N) = 0+ρ(N)  by GenConcl (ρ(N) = n)
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. 2. u : Formula
. 3. v : Formula List
. 4. ∀N:Formula List. ρ(v @ N) = ρ(v)+ρ(N)
. ⊢  ∀N:Formula List. ρ((u.v) @ N) = ρ(u.v)+ρ(N)  by Analyze 0
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. 5. N : Formula List
. ⊢  ρ((u.v) @ N) = ρ(u.v)+ρ(N)  by With N (Analyze -2)
. |
. 4. N : Formula List
. 5. ρ(v @ N) = ρ(v)+ρ(N)
. ⊢   by AbReduce 0
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. ⊢  ρ(u)+ρ(v @ N) = ρ(u)+ρ(v)+ρ(N)  by HypSubst -1 0
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. |\
. | ⊢  ρ(u)+ρ(v)+ρ(N) = ρ(u)+ρ(v)+ρ(N)
. |   by GenConcl (ρ(u) = n) THEN GenConcl (ρ(v) = m)
. |      THEN
. |      GenConcl (ρ(N) = r)
. |
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. . .....wf .....
. . 6. z : ℕ
. . ⊢  ρ(u)+z = ρ(u)+ρ(v)+ρ(N) ∈ Prop
. .   by GenConcl (ρ(u) = n) THEN GenConcl (ρ(v) = m)
. .      THEN
. .      GenConcl (ρ(N) = r)
END
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