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msg_eq_equiv  THM

⊢  ∀M:MessageStruct. EquivRel(|M|)(_1 =(M) _2)
| by D 0 THENA Auto THEN
InstLemma ‘eq_dequiv_equiv‘ [cEQ(M)
|    ] THENA Auto
THEN Unfolds ‘‘equiv_rel msg_eq‘‘ 0 THEN

|    Unfolds ‘‘refl sym trans‘‘ 0 THEN Reduce 0 THEN Auto

|    THEN All (RW assert_pushdownC) THEN Auto

|    THEN Try (Complete UseEquiv)
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| 1. M : MessageStruct
| 2. EquivRel(|cEQ(M)|)(_1 =(cEQ(M)) _2)
| 3. a : |M|
| ⊢  sender(M)(a) =1 sender(M)(a)  by EqLblReflexive 0
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| 1. M : MessageStruct
| 2. EquivRel(|cEQ(M)|)(_1 =(cEQ(M)) _2)
| 3. a : |M|
| 4. b : |M|
| 5. (content(M)(a)) =(cEQ(M)) (content(M)(b))
| 6. sender(M)(a) =1 sender(M)(b)
| 7. uid(M)(a) = uid(M)(b)
| ⊢  sender(M)(b) =1 sender(M)(a)
|   by EqLblFwd THEN HypSubst’ (-1) 0 THEN EqLblReflexive 0
|
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| 1. M : MessageStruct
| 2. EquivRel(|cEQ(M)|)(_1 =(cEQ(M)) _2)
| 3. a : |M|
| 4. b : |M|
| 5. c : |M|
| 6. (content(M)(a)) =(cEQ(M)) (content(M)(b))
| 7. sender(M)(a) =1 sender(M)(b)
| 8. uid(M)(a) = uid(M)(b)
| 9. (content(M)(b)) =(cEQ(M)) (content(M)(c))
| 10. sender(M)(b) =1 sender(M)(c)
| 11. uid(M)(b) = uid(M)(c)
| ⊢  (content(M)(a)) =(cEQ(M)) (content(M)(c))
|   by UseTrans content(M)(b) THEN Auto
|
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. 1. M : MessageStruct
. 2. EquivRel(|cEQ(M)|)(_1 =(cEQ(M)) _2)
. 3. a : |M|
. 4. b : |M|
. 5. c : |M|
. 6. (content(M)(a)) =(cEQ(M)) (content(M)(b))
. 7. sender(M)(a) =1 sender(M)(b)
. 8. uid(M)(a) = uid(M)(b)
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. 9. (content(M)(b)) =(cEQ(M)) (content(M)(c))
. 10. sender(M)(b) =1 sender(M)(c)
. 11. uid(M)(b) = uid(M)(c)
. ⊢  sender(M)(a) =1 sender(M)(c)
.   by AssertBY sender(M)(a) = sender(M)(c) (EqLblFwd THEN Auto)
.
.      THEN HypSubst' (-1) 0 THEN EqLblReflexive 0
END
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