```
all_quot_elim  THM

⊢  ∀E:(T→T→Prop).
|  (EquivRel x,y:T. E(x,y))
|  ⇒
|  (∀F:((x,y:T//E(x,y))→Prop).
|   (∀w:x,y:T//E(x,y). SqStable(F(w)))
|   ⇒
|   ((∀z:x,y:T//E(x,y). F(z)) ⟺ (∀z:T. F(z))))
| by Unfold ‘so_apply‘ 0
|
⊢  ∀T:Type, E:(T→T→Prop).
|  (EquivRel x,y:T. E(x,y))
|  ⇒
|  (∀F:((x,y:T//E(x,y))→Prop).
|   (∀w:x,y:T//E(x,y). SqStable(F(w)))
|   ⇒
|   ((∀z:x,y:T//E(x,y). F(z)) ⟺ (∀z:T. F(z))))  by GenUnivCD
|
|\
| 1. T : Type
| 2. E : T→T→Prop
| 3. EquivRel x,y:T. E(x,y)
| 4. F : (x,y:T//E(x,y))→Prop
| 5. ∀w:x,y:T//E(x,y). SqStable(F(w))
| 6. ∀z:x,y:T//E(x,y). F(z)
| 7. z : T
| ⊢  F(z)  by BackThru 6
|
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. 1. T : Type
. 2. E : T→T→Prop
. 3. EquivRel x,y:T. E(x,y)
. 4. F : (x,y:T//E(x,y))→Prop
. 5. ∀w:x,y:T//E(x,y). SqStable(F(w))
. 6. ∀z:T. F(z)
. 7. z : x,y:T//E(x,y)
. ⊢  F(z)  by Unfold ‘sq_stable‘ 5 THEN BackThru 5
. |
. 5. ∀w:x,y:T//E(x,y). ↓(F(w)) ⇒ F(w)
. 6. ∀z:T. F(z)
. 7. z : x,y:T//E(x,y)
. ⊢  ↓(F(z))  by UseEqWitness *
. |
. ⊢  * = *  by New [‘a’;‘b’] (Analyze 7)
. |
. 7. a : T
. 8. b : T
. 9. E(a,b)
. ⊢  * = *  by SquashEqTypeCD
. |
. ⊢  F(a)  by BackThru 6
END
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