```
remove_wf  THM

⊢  ∀T:Type, eq:(T→T→𝔹), x:T, L:T List. remove(eq;x;L) ∈ T List
| by UnivCD
|
1. T : Type
2. eq : T→T→𝔹
3. x : T
4. L : T List
⊢  remove(eq;x;L) ∈ T List  by ListInd 4
|
|\
| ⊢  remove(eq;x;nil) ∈ T List  by Rewrite (HigherC remove_unrollC) 0
| |
| ⊢  nil ∈ T List  by Auto
|
.\
. 5. u : T
. 6. v : T List
. 7. remove(eq;x;v) ∈ T List
. ⊢  remove(eq;x;(u.v)) ∈ T List
. | by Rewrite (HigherC remove_unrollC) 0
. |
. ⊢  if eq(x,u)→ v else u.remove(eq;x;v) fi ∈ T List
. | by GenConcl (eq(x,u) = b)
. |
. 8. b : 𝔹
. 9. eq(x,u) = b
. ⊢  if b→ v else u.remove(eq;x;v) fi ∈ T List
. | by BoolInd 8 THEN Rewrite (HigherC ifthenelse_evalC) 0
. |
. |\
. | 8. eq(x,u) = true₂
. | ⊢  v ∈ T List  by Trivial
. |
. .\
. . 8. eq(x,u) = false₂
. . ⊢  u.remove(eq;x;v) ∈ T List  by Auto
END
```