```
paren_wf  THM

⊢  ∀T:Type, s:(T+T) List. paren(T;s) ∈ Prop
| by InductionOnLength THEN (RecUnfold `paren` 0) THEN EasyHyp
|
1. T : Type
2. ℕ
3. s : (T+T) List
4. ∀s1:(T+T) List. ||s1||<||s|| ⇒ paren(T;s1) ∈ Prop
5. t : T
6. s' : (T+T) List
7. s = ([inl(t)] @ s' @ [inr(t)])
⊢  paren(T;s') ∈ Type  by BackThruSomeHyp
|
1. T : Type
2. ℕ
3. s : (T+T) List
4. ∀s1:(T+T) List. ||s1||<||s|| ⇒ paren(T;s1) ∈ Prop
5. t : T
6. s' : (T+T) List
7. s = ([inl(t)] @ s' @ [inr(t)])
⊢  ||s'||<||s||
  by (HypSubst -1 0)
     THEN
     (RWW
      Thm* ∀as,bs:T List. ||as @ bs|| = ||as||+||bs|| ∈ ℤ
      {length_append}
      0)
     THEN
     (Reduce 0)
END
```