```
permutable_implies_async  THM

⊢  ∀E:EventStruct, P:TraceProperty(E).
|  R_permutation(E) preserves P ⇒ asyncR(E) preserves P
| by Unfolds ``trace_property preserved_by R_permutation R_async`` 0

|    THEN Reduce 0
THEN Auto
THEN Using [`x',x
|    ] (BackThruSomeHyp THEN Auto)
|
|
1. E : EventStruct
2. P : (|E| List)→Prop
3. ∀x,y:|E| List. P(x) ⇒ (x swap adjacent[True] y) ⇒ P(y)
4. x : |E| List
5. y : |E| List
6. P(x)
7. x
   swap adjacent[¬loc(E)(x) = loc(E)(y)
   & ¬is-send(E)(x) & ¬is-send(E)(y)
     ∨ is-send(E)(x) & is-send(E)(y)] y
⊢  x swap adjacent[True] y
  by All (\h. Unfold `swap_adjacent` h THEN Reduce h)

     THEN ParallelOp (-1) THEN Auto
END
```