```
beq_neq  THM

⊢  ∀p,q:𝔹. p =_b q = false_2 ⟺ ¬p = q
  by (((Unfold ‘beq‘ 0 THEN GenRepD) THEN (BoolCases 1)
       THEN
       (BoolCases 1)
       THEN
       (Try (Reduce 0))
       THEN
       (Try (Reduce -1)))
      THEN
      Inst Thm* ¬true_2 = false_2    {btrue_neq_bfalse} []
      THEN
      Try (Analyze 1)
      THEN
      Analyze 0)
     THEN
     (Analyze 2)
END
```