Proof of Theorem 80

The theorem to be proved is
\[ \neg [x < y \ \& \ y \leq x] \]

Suppose the theorem does not hold. Then, with the variables held fixed,

\[ (H) \quad [(x) < (y)] \ \& \ [(y) \leq (x)] \]

Special cases of the hypothesis and previous results:

0: \( x < y \) from H:x:y
1: \( y \leq x \) from H:x:y
2: \( \neg x < y \ \vee \ \neg y \leq x \) from 78:x:y

Inferences:

3: \( \neg y \leq x \) by
   0: \( x < y \)
   2: \( \neg x < y \ \vee \ \neg y \leq x \)
4: QEA by
   1: \( y \leq x \)
   3: \( \neg y \leq x \)