Proof of Theorem 64b

The theorem to be proved is

P0 $\leq$ 0

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

(H) $[[\neg (P0) \leq (0)]]$

Special cases of the hypothesis and previous results:

0:   $\neg\ P0 \leq 0$ from   H

1:   $P0 = 0$ from   <u>16</u>

2:   $0 \leq 0$ from   <u>60</u>;0

Equality substitutions:

3:   $\neg\ P0 = 0$ $\vee$ $P0 \leq 0$ $\vee$ $\neg\ 0 \leq 0$

Inferences:

4:   $\neg\ P0 = 0$ $\vee$ $\neg\ 0 \leq 0$ by
    0: $\neg\ P0 \leq 0$
    3: $\neg\ P0 = 0$ $\vee$ $P0 \leq 0$ $\vee$ $\neg\ 0 \leq 0$

5:   $\neg\ 0 \leq 0$ by
    1: $P0 = 0$
    4: $\neg\ P0 = 0$ $\vee$ $\neg\ 0 \leq 0$

6:   QEA by
    2: $0 \leq 0$
    5: $\neg\ 0 \leq 0$