26. Moore 1939: A proof of the external world

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Claim: The square of every odd number also odd.

$1^2 = 1$
$3^2 = 9$
$5^2 = 25$
$7^2 = 49$

P1 e is even iff $e = 2m$ for some integer m.

P2 o is odd iff $o = e + 1$ for some even e.

Proof. Suppose n is odd, so $n = 1 + e$, so $n = 1 + 2m$.
Then $n^2 = (1 + 2m)^2$, which in turn equals: $1 + 4m + 4m^2$
$= 1 + 4(m + m^2)$
$= 1 + 2 \cdot 2(m + m^2)$.
Now, $2(m + m^2)$ is an integer, so $2 \cdot 2(m + m^2)$ is even.
Thus $1 + 2 \cdot 2(m + m^2)$ is odd, so n^2 is odd. □

Conditions on genuine proof?:

To secure knowledge of a conclusion.

1) The premises differ from the conclusion.
2) We know the premises.
3) The argument is valid.

So they are true.

Hence, by (2), it's sound.

Claim: I have hands that can touch opposite walls simultaneously.

Proof...

Claim: There is an external world.

P3 Here is a hand, and here is another.

P4 If there are hands, then there is an external world.

C Therefore, there is an external world.

Moore's proof meets conditions (1)–(3).

Q: What, if anything, is the difference between our mathematical proof and Moore's?