

On Moore's notion of proof

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Preprint: Forthcoming in the *Canadian Journal of Philosophy*

Abstract

Much has been said about Moore's proof of the external world, but the notion of proof that Moore employs has been largely overlooked. I suspect that most have either found nothing wrong with it, or they have thought it somehow irrelevant to whether the proof serves its anti-skeptical purpose. I show, however, that Moore's notion of proof is highly problematic. For instance, it trivializes in the sense that any known proposition is provable. This undermines Moore's proof as he conceives it since it introduces a skeptical regress that he goes at length to resist. I go on to consider various revisions of Moore's notion of proof and finally settle on one that I think is adequate for Moore's purposes and faithful to what he says concerning immediate knowledge.

1 Moore's proof

The following is a common reconstruction of G. E. Moore's proof of an external world which he took to be a response to Kant's declaration that it remains a scandal to philosophy that there can be no such proof:

1. I have hands;
2. If I have hands, then there is an external world;
3. Therefore, there is an external world.

Moore went on to claim that the above proof is 'a perfectly rigorous one; and that it is perhaps impossible to give a better or more rigorous proof of anything whatever' (Moore, 1939, 166). According to Moore (Moore, 1939, 166), a proof is rigorous iff:

4. The conjunction of premises is distinct from the conclusion;
5. The premises are known;
6. The conclusion logically follows from the premises.

I will call a rigorous proof simply a proof.

While each of the conditions should be self-explanatory, it might be useful to briefly remark on the second condition. If the premises of an argument are merely true but not known, we would not be guaranteed knowledge of the conclusion which is precisely what is needed

for the proof to serve its anti-skeptical purpose.¹ As I will argue below in §3, however, Moore needs a further condition on proof in order to ensure that the notion does not trivialize, and to block a skeptical regress argument that he himself goes at length to resist.

Moore attempts to locate possible dissatisfaction with his proof, viz., that while the conclusion has been proved, the premises have not. Indeed, Moore goes so far as to say that the premises are not *provable*, even if they are known:

How am I to prove now that 'Here's one hand, and here's another'? I do not believe I can do it. In order to do it, I should need to prove for one thing, as Descartes pointed out, that I am not now dreaming. But how can I prove that I am not? I have, no doubt, conclusive reasons for asserting that I am not now dreaming; I have conclusive evidence that I am awake: but that is a very different thing from being able to prove it. I could not tell you what all my evidence is; and I should require to do this at least, in order to give you a proof. (Moore, 1939, p. 169)

The reason Moore thinks he cannot prove that he has hands is that he thinks it would require proving the falsity of certain skeptical hypotheses which he cannot do because he cannot provide all his evidence for their falsity. It is unclear what Moore meant by this since his proof suggests that all the *relevant* evidence he needs for the conclusion that there is an external world is that he has hands, and he is perfectly able to provide this evidence. So why can he not similarly appeal to the fact that he is awake as evidence in a demonstration that he is not dreaming? Indeed, it is reasonable to think (and Moore suggests as much) that his evidence is not that he has hands, but that it seems to him or that he perceives that he has hands, and from this seeming or perception he comes to know that he has hands. Analogously, one might think that one now knows that one is awake because it seems to one or because one experiences that one is awake, so why shouldn't this constitute all the relevant evidence for proving that one is not now dreaming?²

Here a problem arises. If Moore cannot prove the anti-skeptical hypothesis that he is not dreaming, as he claims, then he cannot also know that he is awake, despite claiming that he has 'conclusive evidence' for this. For the following should constitute a perfectly fine proof according to Moore:

7. I am awake;
8. If I am awake, then I am not dreaming;
9. Therefore, I am not dreaming.³

¹Some, for instance Sosa (2007), take the target of Moore's proof to be idealism rather than skepticism. Evidence for this interpretation comes from what Moore himself says; see (Moore, 1957, 668–669). However, since Moore claims the premises to be known and since he knows the conclusion to logically follow, on reasonable assumptions it follows that he knows the conclusion, whence skepticism is refuted. See also (Weatherall, 2017, fn. 2) on the reconciliation of the skeptical interpretation of the proof with what Moore says in his reply to his critics.

²I am not assuming that the perception and dream cases are analogous, only that they are not obviously different in the sense that it may be that to experience that I am awake, I must be awake, just as to perceive that I have hands, I must have hands.

³It should be noted that the first premise and conclusion are distinct, as one can fail to be awake and yet fail to be dreaming.

Having conclusive evidence for being awake should surely suffice for knowledge, and if it suffices for knowledge, then the above does, contra Moore, constitute a proof that he is not dreaming. Thus, if Moore wishes to maintain that he cannot prove the conclusion, then he cannot at the same time maintain that he has conclusive evidence for the claim that he is awake, nor can he know it.⁴ What gives him conclusive evidence, then, for the claim that he has hands if, for all he knows, he might be a handless dreamer only dreaming it?

Moore's claim that he cannot prove that he is not dreaming introduces further problems. For if he cannot prove that then surely he cannot prove the harder-to-rule-out proposition that he is not a brain in a vat. And if he cannot prove that then he cannot know that he has hands after all, and so he would be forced to rescind his proof of an external world. For the following should constitute a perfectly fine proof according to Moore:

10. I have hands;
11. If I have hands, then I am not a brain in a vat;
12. Therefore, I am not a brain in a vat.

Thus, in order to maintain his proof of an external world, Moore must accept that he *can* after all prove that he is not a brain in a vat, that he is not dreaming, and so on, and that, consequently, he can after all *prove*, and not merely know, that he has hands.⁵

Would accepting *proof* (not mere knowledge) of these anti-skeptical hypotheses really be so bad for Moore? He would no longer have the reason he originally gave for not being able to prove that he has hands since a proof that he is not dreaming would now be available. On what grounds, then, *could* he deny proof of his having hands while maintaining knowledge of this fact? (I will soon ask why he *would* want to deny proof of his having hands.) He could deny that he can see any way of proving it, for what would a candidate proof look like? He would have to infer from some known premises the strictly weaker conclusion that he has hands, and it is difficult to see what those premises could be. However, consider the following proof alluded to above:

13. It seems to me (or I perceive) that I have hands;
14. If it seems to me (or I perceive) that I have hands, then I have hands;
15. Therefore, I have hands.

It is natural to suppose that one knows one has hands precisely on the basis of making such an implicit inference, and if this supposition is right, then (13)–(15) constitutes a proof.

⁴John Greco says that Moore's passage above concerning the Cartesian hypothesis "may be read like this: 'I certainly know that I am not dreaming, because I can see that I am awake. My conclusive evidence for my belief that I am awake and not dreaming is my sensory experience. But I cannot give you that evidence—it is not propositional evidence, and so I cannot cite it as premises from which I can demonstrate that I am not dreaming, as I would have to do in order to prove it'" (Greco, 2002, 552). First, however, Moore explicitly denies that he knows that he is not dreaming. Second, if Greco were right, (7)–(9) would constitute a *proof* of its conclusion, contrary to what Moore and Greco believe.

⁵The only other option is to claim that (10)–(12) constitutes a proof of its conclusion even though (7)–(9) does not. But surely it is harder to prove that one is not a brain in a vat than it is to prove that one is not dreaming. For example, we may be able to reliably sense the difference between being awake and dreaming when we are awake, while there is nothing that would allow us to distinguish between being invatted from being embodied.

Indeed, Moore himself suggests as much.⁶ Of course, if (14) is to be read as a completely general claim that in *any* circumstance in which it seems to one that one has hands, then one has in those circumstances hands, then it is false and hence not knowable, for sometimes it seems to people that they have hands when they don't. But we need not read (14) in such generality since it can be relativized to the moment at which Moore's having hands (among other things) causes him to have the seeming. In this case (14) is true and arguably known. Thus, the variant of (13)–(15) relativized to a time at which the seeming is caused in the appropriate way gives Moore a proof that (at certain times) he has hands, and this is arguably good enough to defeat the skeptic. So if Moore denies proof of the conclusion, he must deny knowledge of one of the premises, and it is very difficult to see which he could plausibly deny having knowledge of. Certainly he knows when it seems to him that he has hands, and denying knowledge of (14) would lead many to conclude that knowledge—not proof—of (15) (i.e. (1)) must be denied, and if this is denied, Moore's proof is undermined. Does Moore then have other reasons for denying proof of his first premise?

In an attempt to stave off the objection that if his alleged proof is to count as genuinely conclusive, then the premises must themselves be proved, Moore claims that the premises simply cannot be proved because, as we can recall, Moore thinks it is not possible to prove that he is not dreaming. But we have seen, in light of the argument consisting of (7)–(9), that this goes against what he says about having conclusive evidence for being awake. Moore also thinks that lacking a proof of his first premise is unproblematic because one can know things one cannot prove. He says 'I can know things, which I cannot prove; and among the things which I certainly did know, even if (as I think) I could not prove them, were the premisses of my two proofs [...] I should say, therefore, that those, if any, who are dissatisfied with these proofs merely on the ground that I did not know their premisses, have no good reason for their dissatisfaction' (Moore, 1939, 170). This, of course, does not constitute a reason for denying that the first premise is provable, but merely a reason for denying that the unprovability of the first premise is unproblematic.

But these are not reasons for thinking that the first premise of his proof is not provable. Moore is simply restating his reasons for why he thinks the premise is not provable and why that should not be a problem. If, however, he had been confronted with (10)–(12) then he would see that if he wants to deny proof of the conclusion, he would have to deny knowledge of his first premise which means giving up his proof. And if had been confronted with (13)–(15), then he would see that denying proof that he has hands requires giving up knowledge of propositions he maintains he knows. Moreover, as will be shown below, he must accept, given his notion of proof, that the first premise of his anti-skeptical argument is indeed provable, and given this we may go on to ask whether this is a consequence Moore can accept, independent of whether he thinks he can.

There is indeed a persuasive reason for resisting proof of the first premise that involves a certain skeptical argument Moore discusses. When arbitrating between his argument and the skeptic's, he invites us to consider whose premises are known or known with more certainty.⁷ It is worth quoting Moore at length here:

⁶See (Moore, 1957, Chapter 6).

⁷The premises of the skeptic he calls Hume's principles: 'I will call the first the rule: That nobody can ever know of the existence of anything which he has not directly apprehended, unless he knows that something which he has directly apprehended is a sign of its existence. And I will call the second the rule: That nobody can ever know that the existence of any one thing A is a sign of the existence of another thing B, unless he himself

One condition under which a premiss may be known to be true, is a condition which we have already stated. Namely, any proposition is known to be true, if we have a conclusive argument in its favour; if, that is to say, it does really follow from some premiss or set of premisses already *known* to be true [...] And some philosophers seem to have thought that this is the only way in which any proposition can ever be known to be true [...] But it is, I think, easy to see that, if this view were true, no man ever has known any proposition whatever to be in the slightest degree probable. For if I cannot know any proposition whatever to be either true or probably true, unless I have first known some other proposition, from which it follows, to be so; then, of course, I cannot have known this other proposition, unless I have first known some third proposition, before *it*; nor this third proposition, unless I have first known a fourth before it; and so on *ad infinitum* [...] If, therefore, either my argument or my opponent's, or any other argument whatever, is to be a good one, it must be the case that we are capable of knowing at least *one* proposition to be true, *without* knowing any other proposition whatever from which it follows. And I propose to call this way of knowing a proposition to be true, *immediate* knowledge. (Moore, 1957, 122–123)

Moore then goes on to claim that he knows *immediately* that he has hands. So the more compelling reason that Moore has to deny proof of his having hands is that if such a proposition were provable, it would be derivable from some previously known propositions, and hence would no longer qualify as immediate knowledge. Since there is nothing special about the proposition expressed by 'I have hands', this point would apply generally to any candidate for immediate knowledge, and so no knowledge would count as immediate. And if no knowledge counts as immediate, then we face the skeptic's regress argument. In conclusion, if we are to avoid the regress argument, propositions such as those expressed by statements like 'I have hands' cannot be provable according to Moore; that is, some propositions must be immediately known.

It should be noted that it is one thing for Moore's notion of proof to yield that every known proposition is provable, and quite another for the definition of proof itself to require that the premises of a proof be themselves provable. For if this were part of the definition of proof, a vicious circularity would ensue *unless* we single out a privileged class of propositions that are provable all by themselves. However, such propositions Moore would not be happy to call 'provable'; rather, he would call them 'immediately known'.

2 Everything known is provable

We now come to the problem I alluded to at the beginning, viz., the problem that Moore's notion of proof trivializes in the sense that every knowable proposition turns out provable. As a consequence, there would be no immediate knowledge, and hence no proof since we could not lay claim to the knowledge of its premises. As I will argue, however, there is a

(or, under certain conditions, somebody else) has experienced a general conjunction between things like A and things like B' (Moore, 1957, 109). William Lycan (Lycan, 2001) claims that any deductive argument is no more than an invitation to compare plausibility, and that Moore is inviting us compare the plausibility between the premises of his proof and the premises of the skeptic's. James Weatherall (2017) offers more or less the same interpretation of Moore's proof.

solution to this problem, but not by strengthening condition (4), which might be thought to be the most obvious route to fixing the problem.

Even though I cannot prove that I have hands from the premise that I have hands, since the premise and conclusion are the same contra condition (4), I *can* prove that I have hands in the following way:

16. I have hands and I have feet;
17. Therefore, I have hands.

It is easy to check that all the conditions of a proof are satisfied: (i) the premise is distinct from the conclusion (since the conclusion is strictly inferentially weaker), (ii) the premise is known since each of its conjuncts is, and (iii) the conclusion logically follows from the premise. The argument consisting of (16)–(17) therefore constitutes, contra Moore, a proof that I have hands, and it is one that does not require a proof of the fact that I am not now dreaming. It is easy to see how such a proof can be adapted to a proof of *any* known proposition *A*—simply replace ‘I have hands’ with *A* to obtain a proof of *A*.⁸

How might we save Moore’s notion of proof? We could replace condition (4) with:

- 4’. The conclusion is distinct from the conjunction of premises, and does not follow from the conjunction by a series of applications of conjunction elimination.

We can see, however, that this strengthened condition will not be enough, for consider the following argument:

18. I have hands or I don’t have legs;
19. I have legs;
20. Therefore, I have hands.

The conclusion follows from the premises by an application of *disjunctive syllogism* rather than conjunction elimination. It is easy to check that all the conditions of our strengthened notion of proof are satisfied, and so, again, we have a proof of the fact that I have hands.

Could we further strengthen (4’) to rule out the above proof? We could require that the conclusion not follow from the premises by an application of disjunctive syllogism, but surely such a restriction would be too strong in the sense of ruling out what should constitute legitimate proofs by Moore’s lights. Moreover, any proof by disjunctive syllogism can easily be transformed into a proof by *modus ponens* which is the very same inference employed in Moore’s proof:

21. If I have legs, then I have hands;
22. I have legs;
23. Therefore, I have hands.

⁸See (Sosa, 2007, 51) for related discussion. The main proof that Sosa discusses involves a necessary premise and, therefore, it does not satisfy the first of Moore’s conditions (i.e. (4)) on a plausible way of reading it, according to which the distinctness of conclusion from premises is spelled out in terms of strict, rather than logical, implication.

One could object that the above proof is a proof by disjunctive syllogism in disguise, since it appears to employ the material conditional in its first premise which should be taken to be a disjunctive claim. Otherwise the first premise is intuitively false, for the having of legs doesn't suffice for the having of hands. However, even on a subjunctive reading of (21), according to which if I *were* to have legs, I *would* have hands, it is true, for I do have legs and hands.⁹ Since *modus ponens* is usually taken to be valid for the subjunctive conditional, the proof is valid. In further patching the notion of proof, we could rule out proofs by *modus ponens* involving the subjunctive conditional. However, it should be dubious by now that any amount of strengthening of (4) by restrictions on allowable inferences will suffice to patch Moore's notion of proof in a way that gives him just what he wants, viz., a notion of proof that rules out a proof of having hands while ruling in a proof of the external world.

We have seen Moore's reasons for resisting a proof of the premises, yet one might nonetheless find it plausible that all known propositions be provable. For example, one might think that proof in the present context should mirror the notion of proof in logic or mathematics where one cannot prove a proposition categorically from a set of premises without having already proved at least one of the premises. Alternatively, one might side with Moore's skeptic that his proof is not conclusive until its premises have themselves been proved. However, even if these views were correct, surely an endorser of them would *not* want to say that the "proof" consisting of (21)–(23) is, in the relevant sense, a genuine proof of its conclusion. We therefore still need a means of ruling out such arguments as counting as proofs.

3 Refining the notion of proof

The premise 'I have hands' is a premise that is immediately known to Moore; or, at least, the premise 'The sense-data which I directly apprehend are a sign that I have hands', as Moore is more cautiously willing to put it. It is for this reason that Moore thinks his premises 'are much more certain than any premiss which could be used to prove that they are false; and also much more certain than any other premiss which could be used to prove that they are true' (Moore, 1957, 125). For the skeptic's premises are not immediately known. This suggests the following fourth condition to be added to the definition of proof:

24. The premises are immediately known.

Now if we reconsider the arguments above that established proof of an arbitrarily known proposition, these arguments no longer constitute proofs under the new, stricter sense, for not all of the premises are immediately known. In particular, the premise 'If I have legs, then I have hands' is not, for it is known *because* its consequent is immediately known, and so the conditional as a whole is only *mediately* known.

However, while this further condition that the premises be immediately known seems to block proof of an arbitrarily known proposition, one might wonder whether it goes too far by ruling out Moore's proof from being rightly so-called. Unless the premise 'If I have legs, then there is an external world' is immediately known, Moore's proof under the new sense would no longer count as a genuine proof. Given the fact that the premise is non-empirical

⁹That A and B entails the subjunctive $A > B$ is widely accepted. On a Lewis-Stalnaker semantics, it requires the semantic condition Lewis calls *centering*, i.e. that the actual world be at least as close or similar to itself as any other world.

and the examples we so far have of immediately known propositions are empirical, it is natural to ask whether non-empirical premises can also be immediately known. It seems quite plausible to me to say that the premise is immediately known, for it is difficult to say on which further, more certain knowledge it could possibly be derived.

In any case, we can avoid this worry by refining the new fourth condition as follows:

25. The premises are known and the *empirical* ones are *immediately* known,

This condition is strong enough to rule out all the erroneous proofs above, but still weak enough to admit Moore's proof while avoiding the worry above.

It might be thought that this stricter notion of proof is too strict. For we can prove that there is at least one hand from the fact that I have hands, and from this implied fact it follows that there is an external world, and yet the argument from 'There is at least one hand' to 'There is an external world' does not constitute a proof, despite its empirical premise being provable. I do not see this as particularly problematic because we nonetheless have a proof of the conclusion, even though it must go through a proposition that is immediately known, viz., that I have hands. Proofs under the stricter sense have the property of being *canonical* in the sense that they always involve the ultimate grounds for their conclusions, which I take to be an improvement over the original definition, though I see that this is a point for debate.¹⁰

The passage quoted above from *Some Main Problems of Philosophy* was delivered in lectures between 1910 and 1911. However, in *Four Forms of Scepticism* (Moore (1959)), which was delivered as a lecture between 1940 and 1944, Moore changes his view and comes to agree with Russell that he does *not* immediately know 'This pencil exists', though Moore claims—and Russell does not—to know it with certainty.¹¹ He claims, moreover, that his knowledge, while certain and not immediate, does not logically follow from what he *immediately* knows, but that it is somehow based on an analogical or inductive argument.¹² As such, later Moore would *not* claim that the first premise of his proof, viz. 'I have hands', is immediately known, and so his proof would fail to be genuine given my proposed fourth condition, i.e. (24) (or (25)).¹³

There are two things to say. First, that it is still common to hold that 'I have hands' is immediately known, so that the fourth condition I propose provides a satisfactory refinement of Moore's definition of proof according to a plausible view about immediate knowledge that early Moore held, but that this refinement is not faithful to later Moore. Second, according to later Moore, 'I have hands' is part of an important class of knowledge that is (i) known with certainty, (ii) not immediately known, and (iii) does not logically follow from what is immediately known. This suggests the following fourth condition on proof, in place of condition (24), that *is* faithful to later Moore:

26. The premises are either immediately known or else are (i) known with certainty (e.g. by analogical or inductive argument), (ii) not immediately known, and (iii) do not logically follow from what is immediately known.

¹⁰Another notable consequence of the strict notion of proof is that it is not monotonic. For if a proposition is proved on the basis of some other premises, then adding an empirical premise that is only mediately known breaks the proof.

¹¹See Russell (1927).

¹²See (Moore, 1959, 223–226).

¹³I thank a referee of this journal for bringing it to my attention that Moore may have changed his view on these matters.

This is certainly not as elegant as condition (24), but it seems to me provide an equally satisfactory refinement of proof that is faithful to later Moore, rules out proof of his first premise, and deems his proof genuine.

There is a final worry concerning the addition of the fourth condition. Moore says that he immediately knows, not only that he has hands, but that he *knows* that he has hands. He says:

But is this premiss [that I know this pencil to exist] in fact known by me immediately? I am inclined to think that it is, though this might be disputed, for the following reasons. It must be noticed, that the premiss is: I know that this pencil exists. What, therefore, I am claiming to know immediately is *not*, that this pencil exists, but that I know it to exist. And it may be said: Can I possibly know immediately such a thing as this? Obviously, I cannot know *that* I know that the pencil exists, unless I do know that the pencil exists; and it might, therefore, be thought that the first proposition can only be mediately known—known *merely* because the second is known. But it is, I think, necessary to make a distinction. From the mere fact that I should not know the first, *unless* I knew the second, it does not follow that I know the first *merely* because I know the second. And, in fact, I think I do know *both* of them immediately. (Moore, 1957, p.125)

If we follow Moore in saying I know immediately that I know that I have hands, and if the second premise is non-empirical, then I could after all prove that I have hands even in the presence of the fourth condition:

27. I know I have hands;
28. If I know I have hands, then I have hands;
29. I have hands.

And, alas, we wind back up in the predicament the strict version of proof was intended to avoid.

However, in order that Moore's proof undermine the skeptic's argument, Moore need not take as premise the fact that *he knows* the pencil to exist, he need only take as premise *that* the pencil exists. However, in a direct refutation of the skeptic's argument (via Hume's principles), Moore assumes the stronger claim that *he knows* the pencil to exist, but perhaps that is because he took his proof of an external world as a refutation of idealism rather than as a refutation of skepticism, and in order to refute the latter, he argued as follows: I *know* this pencil to exist; therefore Hume's principles are false.¹⁴ Indeed, many will find it implausible that one immediately knows both *P* and the higher-order claim that one knows that *P*. For even if I know *P*, I may not know the higher-order claim that I know *P* (and may not even

¹⁴See fn. 1. Moore admits that if Hume's principles are true, then he does not (now) know that material object exists. But he thinks he can refute Hume's principles (and presumably any skeptical premises more generally) as follows. I *do* know that this pencil exists; but I could not know this if Hume's principles were true; therefore, Hume's principles, one or both of them, are false (Moore, 1957, 119–126). This is perhaps why Moore claims the premise 'I know that this pencil exists' is *immediately* known, even though, as I remarked earlier, it suffices that only the weaker premise 'This pencil exists' be immediately known, which Moore claims is also much more certain than any other premise which could be used to prove that it is false. I thank a referee of this journal for discussion on this point.

be in a position to know it), or I may know the higher-order claim *because* I know *P*. It is certainly less contentious and safer to simply not claim that knowledge ascriptions are themselves immediately known.

Nonetheless, there may be some who will want to preserve Moore's intuition concerning the immediacy of higher-order knowledge, leading to a further refinement to the notion of proof in order to rule out the likes of (26)–(28). For such purposes I provisionally propose the following condition: if the conclusion of a proof is *P*, then no premise can logically imply $K_S^n P$, where K_S^n is an iteration of 'It is known to *S* that' *n* times. Perhaps logical implication will need to be weakened, for example, to analytic entailment or an even weaker inferential relation, but since it is unclear to me what which such relation would serve best, I will leave the question open.

In the end, I think we have arrived at a satisfactory notion of proof that is, if not entirely, at least largely faithful to Moore.

Notes on contributor

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