The Method ἐξ ὑποθέσεως at Meno 86e1-87d8

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Abstract
Scholars ubiquitously refer to the method ἐξ ὑποθέσεως, introduced at Meno 86e1-87d8, as a method of hypothesis. In contrast, this paper argues that the method ἐξ ὑποθέσεως in Meno is not a hypothetical method. On the contrary, in the Meno passage, ὑποθέσεως means "postulate", that is, cognitively secure proposition. Furthermore, the method ἐξ ὑποθέσεως is derived from the method of geometrical analysis. More precisely, it is derived from the use of geometrical analysis to achieve reduction, that is, reduction of a less tractable problem to a more tractable problem. As such, the method ἐξ ὑποθέσεως does not by itself serve to solve problems.

Keywords
method, hypothesis, geometrical analysis, Meno

I. Introduction
At Meno 86e1-87b2, Socrates introduces Meno to a method of reasoning, which he derives from geometry and calls ἐξ ὑποθέσεως. Socrates' illustration of the method employs a geometrical construction problem: to inscribe a given area as a triangle in a given circle. Having introduced the method, Socrates applies it to the ethical problem governing his and Meno's discussion, the teachability of excellence. The application of the method to the ethical problem proceeds in two steps of uneven length. The gist of the first, brief step is the claim that if excellence is a kind of knowledge, then it is teachable. The second, lengthier step examines whether excellence in fact is a kind of knowledge. This step itself has two parts. The gist of the first, brief part is that if knowledge is the only psychological good, then excellence is a kind of knowledge. The second, lengthier part argues that

26 For helpful comments on various drafts of this paper, I am grateful to: Peter Adamson, Dominic Bailey (to whom special thanks also for the extended discussion per electronic mail), Lesley Brown, Benoît Castelnéac, Rafael Ferber, Christopher Gill, Verity Harte, Vassilis Karasmanis, Mary Margaret McCabe, Gerhard Seel, Frisbee Sheffield and James Wilberding. I am grateful also to the participants of the reading group held in various Dublin cafés from the summer of 2004 to the spring of 2005: in particular, Peter Dudley, Brian Garvey, Richard Hamilton, Brendan O’Byrne, Scott O’Connor, Damien Storey, Stefan Storrie, Daniel Watts and Gry Wester. And not least to John Dillon, and the Dublin Centre for the Study of the Platonic Tradition, and especially our seminar on the Charmides in Michaelmas Term 2004. I am especially grateful to Terry Penner for penetrating critical comments and to the editors of Phronesis for helpful final comments and suggestions. Above all, to Daniel Watts for countless discussions and constructive criticisms.
knowledge in fact is the only psychological good. Thus, Socrates concludes that excellence is a kind of knowledge and therefore teachable. In short, the structure of this stretch of the dialogue is as follows:

86e1-87b2: Geometrical problem
87b2-c10: First step of ethical problem
87c11-87d8: First part of second step of ethical problem
87d8-89c4: Second part of second step of ethical problem

This paper focuses on the method εν υπόθεσις exemplified in the treatment of the geometrical problem, the first step of the ethical problem, and the first part of the second step of the ethical problem.

Scholars ubiquitously refer to the method εν υπόθεσις as the method of hypothesis. By this they mean that the fundamental propositions on the basis of which Socrates reasons have the epistemological status of hypotheses. In other words, they are cognitively insecure. Accordingly, conclusions reached on the basis of arguments employing the hypothetical method are themselves insecure. Granted the insecurity of their foundations, hypothetical arguments may, nonetheless, be constructive. So long as Socrates and his interlocutors agree to use the hypotheses as provisional points of departure, they can reason from these to positive conclusions. Indeed, it is widely believed that this is how Socrates employs hypotheses and, therefore, that the hypothetical method is a constructive method, albeit, again, provisionally so. In particular, the hypothetical method is generally contrasted with the so-called elenctic method, whose function is understood as being to refute Socrates’ interlocutor’s theses. Thus, Richard Robinson expresses a common view when he writes: “With the introduction of this method [of hypothesis, Socrates] is passing from destructive to constructive thinking, from elenchos and the refutation of other men’s views to an elaboration of positive views of his own.”

In contrast to this standard conception of υπόθεσις and the hypothetical method, this paper argues that the method εν υπόθεσις in Meno is not a hypothetical method or method of hypothesis. On the contrary, in the Meno passage, υπόθεσις means “postulate.” Thus, a υπόθεσις is a cognitively secure proposition. Furthermore, the method εν υπόθεσις derives from the method of geometrical analysis. More precisely, it derives from the use of geometrical analysis to achieve reduction, that is, reduction of a less tractable problem to a more tractable problem.

The discussion will be structured as follows. Section II presents an account of the meaning of the word υπόθεσις in fourth century Attic and in Greek intellectual contexts relevant to the Meno passage. This discussion is used to clarify the meaning of υπόθεσις in the Meno passage. Sections III and IV clarify the specific υπόθεσις employed in the ethical sections of the Meno passage. Sections V-VII clarify the geometrical problem, provide a brief account of the method of geometrical analysis, explain the geometrical υπόθεσις in the Meno passage, and finally explain the method εν υπόθεσις as a method of reduction by analysis in both the geometrical and ethical problems.

II. υπόθεσις

The semantic root of the word υπόθεσις is “something laid down.” But instances of the word typically have the more specific sense of “something underlying.” The distinction of the latter sense is that the thing laid down stands in a relation of priority or fundamentality to something else. So, physically, a υπόθεσις may be an object, but, qua underlying thing, more precisely a base or foundation. Conceptually, it may be a proposition, proposal, or subject matter, but, again, more precisely a postulate, plan of action and thus source or point of departure, or the topic about which discussion is oriented.

υπόθεσις does not occur in Andocides, Antiphon, Lysias, Dinarchus, Demades, Lycurgus, Isaeus, Hyperides, Aeschylus, Sophocles, Euripides, Aristophanes, or Thucydides. The word does occur three times in Xenophon and Aeschines, seven times in Demosthenes, and thirty-one times in Isocrates. Among these, the most common sense (occurring twenty-nine times) is “subject matter” and hence “theme” or “topic.” For example, authors speak of returning to and trying not to stray from their given

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1) Robinson (1941).

2) There are three instances in the hypothesis sections of Isaeus 7, 8, 10, and one in Lycurgus 1, but these of course are later additions.

3) Dem. 3.1, 19.242; [Dem.] 60.9; Isoc. 5.10, 83, 138, 7.63, 77, 8.18, 145, 11.9, 49, 12.4, 35, 74, 88, 96, 108, 161, 175, 15.57, 60, 68, 138, 177, 277; Aesch. 3.76, 176, 190.
Xenophon’s 'Memorabilia', book IV:

Whenever anyone argued with him on any point without being able to make himself clear, asserting but not proving, that so and so was wiser or an able politician or braver or what not, he would lead the whole discussion back to the ὑπόθεσις.

Xenophon proceeds to give an illustration. An anonymous interlocutor claims that one man is a better citizen than another. To resolve the question, Socrates proposes first to consider the function (ἐργόν) of a good citizen. In the light of the example, the word ὑπόθεσις seems to mean the basic principle or concept upon which the debate turns.

Finally, four instances of ὑπόθεσις have the sense of “proposal.”

Indeed, one might propose something as a foundational principle, but this is not required by the use of ὑπόθεσις. Rather, like “subject matter” or “topic,” what is proposed may simply be a point of orientation in a discussion or inquiry.

ὑπόθεσις occurs thirty-four times in Plato, excluding several instances in Meno. The three instances among the early dialogues, again excluding Meno, all mean “proposal” or “thesis.” In Euthyphro Socrates refers to Euthyphro’s proposed definitions of holiness as ὑπόθεσις. Similarly, in Gorgias Socrates refers to Gorgias’ definition of rhetoric as a ὑπόθεσις. And, once again, in Hippias Major Socrates refers to the definition of beauty as pleasure through sight and hearing as a ὑπόθεσις.

These Platonic instances, taken with the range of uses in other canonical Attic authors of the fourth century, indicate that ὑπόθεσις does not imply hypotheticality. Consider Webster’s primary definition of “hypothesis”: “a tentative assumption made in order to draw out and test its logical or empirical consequences.” Thus, a hypothesis is a proposition about the truth of which the hypothesizer is unsure. But, for instance, Socrates’ interlocutors assert their definitions confident of knowing their subject matters.

Carl Huffman has recently discussed the verb ὑποτίθεμαι and noun ὑπόθεσις in pre-Platonic intellectual contexts, specifically in Philolaus and in the Hippocratic corpus. Huffman claims that here the concept of ὑπόθεσις is linked to the concept of ἄρχη so that to make, literally lay down, a ὑπόθεσις (ὑποτίθεμαι) is equivalent to positing ἄρχη. For example, the author of On Ancient Medicine criticizes medical theorists for the use of ὑπόθεσις in their theories. He decries as naïvely reductive the use of such postulates as the existence of the hot and the cold to explain the complexities of disease. Likewise, Huffman writes:

...the author [of Flesh] asserts that a common starting-point (κοινὴν ἄρχην) must be postulated (ὑποτίθεμαι), by which he means a starting-point common to the opinions of men. This sounds very much like the call for an indisputable initial premise which was seen in the texts above [On Ancients Medicine, On the Art, and Disease].

In these contexts, ὑπόθεσις evidently has the sense of “foundational principle.”

No instance of ὑπόθεσις in a mathematical context predates Meno—even though the way in which Socrates introduces the method makes it clear that mathematicians used the word or at least the concept. Árpád Szabó
proposes that Eudemus' discussion of Hippocrates of Chios' quadrature of lunes suggests that Greek mathematicians were already using ύποθέσεις in the fifth century. The passage in question runs:

[Hippocrates] set down an ἀρχήν and established as the first (κρῶν θέτο) thing useful for his proof, that...15

And Szabó comments:

Although the word [ὑπόθεσις] does not occur in this sentence, the presence of such expressions as ἀρχή, κρῶν, and θέτο, which are either synonymous with it or related to it, seems to suggest that Eudemus is talking about a [ὑπόθεσις]...16

The mathematical use of ύποθέσεις closest in time to Meno is the much discussed passage in Republic VI where Socrates distinguishes the method of geometry and other mathematical sciences from that of dialectic. Socrates describes the mathematicians as υποθέςαν, that is, laying down as υποθέσεις, the odd and the even, the basic geometrical figures, the acute, right, and obtuse angles, and "other things akin to these according to each form of inquiry."17 He then claims that the mathematicians have the following attitude toward these mathematical entities:

...they treat these as things they know (εἰδότες) and as υποθέσεις, they do not think it fit to give any explanation of them either to themselves or to others because they believe that they [the mathematicians] are evident to everyone."18

Possibly, as in case of the author of On Ancient Medicine who criticizes the uses of the hot and the cold to explain the complexities of disease, Socrates means that in laying down the odd and even and so forth, the mathematicians lay them down as fundamental beings, that is, fundamental to the given subdiscipline of mathematics that they study.19 But the main point is that the mathematicians' υποθέσεις are not tentative or provisional.

15 R. 510c5.
16 R. 510c5-d1.
17 There is considerable debate over this question. See Robinson (1941) 103-4, von Fritz (1955), and Mueller (1991); in particular, consider R. 533c.

Rather, the existence, or nature, of the mathematical entities is taken to be obvious and beyond dispute: "evident to everyone." Consequently, the sense of υποθέσεις that here emerges is "a solid foundation."18

Socrates proceeds to contrast the mathematicians' treatment of υποθέσεις with that of dialecticians:

[Dialectic] treats the υποθέσεις not as foundational principles (ἀρχής), but really (τῷ ὑπότι) as under-lyings (ὑποθέσεις), that is, as footholds (ἐπιθέσεις) and springboards (ὄρμας)...19

Plato is here punning on the literal sense of the word υπό-θεσις (layings under). His idea is that putative υποθέσεις are merely provisional anchors or bearings in the process of inquiry. On the one hand, Socrates' epistemic degradation of υποθέσεις in Republic indicates an important methodological and epistemological moment in Plato's intellectual career. On the other hand, the dialectician's rejection of mathematical υποθέσεις as ἀρχή precisely confirms Huffman's claim that laying down a υποθέσις (ὑποτιθέσθαι) was understood in intellectual and more specifically methodological contexts as positing an ἀρχή.

In sum, the evidence presented strongly suggests that the introduction in Meno of the method εξ υποθέσεως, which is explicitly said to derive from geometry, is not a hypothetical method, but rather a method of reasoning from a postulate or cognitively secure proposition. In the following sections I will argue below that the evidence from the Meno passage confirms this interpretation of υποθέσεως.

The interpretation of υποθέσεως in the Meno passage as postulate or cognitively secure proposition requires one further point of clarification. Elsewhere in Meno Socrates distinguishes knowledge from true belief. How, then, do the υποθέσεως at Meno 86el-87d relate to known and merely truly believed propositions? Cognitively secure propositions differ from merely truly believed propositions in that merely truly believed propositions are unstable. Merely cognitively secure propositions differ from known propositions in that known propositions imply a "reasoning of the cause." Merely cognitively secure propositions, at least those at Meno 86el-87d, are treated as self-evident.

18 It is also worth noting that both of the instances of υποθέσεως in Euclid's Elements (10.44, 47) have the sense of "postulate" rather than "hypothesis."
19 R. 511b5-6.
III. The ὑπόθεσις at *Meno* 87c11-d8

I will begin with the postulate (ὑπόθεσις) in the second step of the ethical problem. The reason for this peculiar order is both expository and exegetical. I will use what I take to be a less controversial claim (concerning the postulate in the first ethical section) to clarify a more controversial one (concerning the postulate in the second ethical section), and I will use a less controversial claim to support a more controversial one. I will argue that the postulate is:

(P) Excellence is good.

(P) is explicitly described as a ὑπόθεσις:

We agree that this thing, that is, excellence is good; and this postulate (αὕτη ἡ ὑπόθεσις) stands (μένει) for us, that it is good.20

All commentators I have consulted agree that (P) is a ὑπόθεσις.21 Indeed, Lynn Rose writes that although there is controversy over the identity of the other ὑπόθεσις, [excellence] is good’ is definitely considered to be a ὑπόθεσις.22 But although this is uncontroversial, since many commentators conceive of ὑπόθεσις as hypotheses, they are obliged to explain (P) as hypothetical. The reason is obvious. The proposition that excellence is good is as conspicuously true as any. As such, there appears to be nothing hypothetical about it. For instance, Bluck observes:

It might indeed be suggested that ἀρετή is the noun corresponding in meaning to ἀγαθόν in Greek, so that to say that it is ἀγαθόν is to state a truism; and hence, it might be argued, the premise here is not hypothetical.23

In defense of the hypotheticality of (P), Bluck argues as follows. “Beneficial” is the normal meaning of the adjective ἀγαθός when used in the neuter, as in the *Meno* passage; therefore:

22 Rose (1970) 3.
23 (1961) 88.

(i) [(P)] is making an assumption about the meaning of the unknown quantity ἀρετή, inasmuch as it attributes to it a quality, or identifies it with a quality, which is not known to be contained in the meaning of ἀρετή. The result is that this premise [ii]... in the strict sense, hypothetical ... (ii) Moreover, [Plato] calls ἀρετή is ἀγαθόν a ὑπόθεσις.24

The claim in (ii) is question-begging. I include it to illustrate the influence exerted by the assumption that ὑπόθεσις means “hypothesis.” The claim in (i) is unpersuasive. It is of course true that at this stage in the investigation the interlocutors are unclear about the identity of ἀρετή. However, this need not disturb their grasp of the logical relation between ἀρετή and ἀγαθόν. In comparison, consider that one may not know what knowledge is, but still be certain that knowledge is knowable. Surely Socrates would reject any account of ἀρετή according to which ἀρετή was not good or beneficial.25

R. W. Sharples also explicitly argues for the hypotheticality of (P). He rejects Bluck’s proposal and defends the following:

... it seems simpler to suppose that ‘excellence is good’ is an assumption because it is asserted with a specific purpose in mind in the context of the present argument. In fact, Bluck himself says, ‘assumption’ combines two ideas, the general one of something assumed for the sake of an argument, a starting point, and the more particular sense to which Plato draws attention at 86e-87b, of something assumed for the sake of argument even though one is not certain of its truth.26

Sharples, then, attempts to resolve the problem by resorting to two distinct senses of ὑπόθεσις: (i) something assumed for the sake of an argument, a starting point, and (ii) something assumed for the sake of argument even though one is not certain of its truth. So Sharples is claiming that while Plato has Socrates use the noun (and verb) in sense (ii) in regard to the ὑπόθεσις in geometrical illustration and in regard to the ὑπόθεσις in the first step of the ethical problem, he has Socrates use it in sense (i) in regard to (P). Clearly this is ad hoc and unsatisfactory. Beyond the prima facie implausibility that the same term is, without explanation, used in multiple senses in a passage whose specific purpose is to demonstrate its use, Sharples’s interpretation strains the coherence of the method. Indeed,
Sharple's solution exposes and underscores the difficulty of explaining (P) as a hypothesis on the assumption that ὑπόθετης means “hypothesis.”

In short, I maintain that (P) is not hypothetical. Rather, it is introduced and employed as a stable proposition, assumed by the interlocutors to be self-evidently true.27

IV. The ὑπόθετης at Meno 87b2-c10

We turn now to the ὑπόθετης in the first step of the ethical problem. I will maintain that the ὑπόθετης in the first step of the ethical problem is:

(Q) Knowledge is teachable.

In contrast, many commentators maintain that the ὑπόθετης in the first step of the ethical problem is:

(H) Excellence is knowledge.28

The principal reason for thinking that (Q) is the ὑπόθετης in the first step of the ethical problem is simply that, as we have seen, ὑπόθετης here means “postulate” and that (Q) is such a proposition. Like (P), (Q) is manifestly true.

In contrast, the common view that (H) is the ὑπόθετης is largely based on the assumption that ὑπόθετης means “hypothesis.”

Indeed, at this stage of the argument the proposition that excellence is knowledge is treated hypothetically. But a number of commentators also draw attention to the following passage that occurs at the end of the stretch of argumentation from 86e1-89c4:

(M) [Me.] And it is clear, Socrates, (i) according to the ὑπόθετης, (ii) if indeed (εἰς τὴν) excellence is knowledge, (iii) that it is teachable.29

On the mistaken assumption that ὑπόθετης means “hypothesis,” the ὑπόθετης referred to in (i) is widely taken to be (H). But in that case, Meno's statement is to be understood as follows:

And it is clear, Socrates, according to the hypothesis that excellence is knowledge, if indeed excellence is knowledge, that excellence is teachable.

Yet this very re-phrasing of Meno's statement suggests that ὑπόθετης in (i) does not refer to (H). In particular, the protasis in (ii) now makes little sense. On the assumption that excellence is knowledge, it is intelligible to claim that it is clear that (iii) excellence is teachable. But then one would expect (ii) to inform that this is because knowledge is teachable, viz.:

And it is clear, Socrates, according to the hypothesis that excellence is knowledge, since knowledge is teachable, that excellence is teachable.

Commentators avoid this problem by taking (ii) as standing in apposition to (i), viz.:

(M2) And it is clear, Socrates, according to the hypothesis – [namely,] if excellence is knowledge – that excellence is teachable.

But (M2) is unsatisfactory on two accounts. First, why should the alleged hypothesis be expressed as a protasis rather than a simple assertion? Consider:

And it is clear, Socrates, according to the hypothesis, excellence is knowledge, that excellence is teachable.

Second, (M2) ignores the emphatic force of enclitic particle ἐπει. Consider it again in my original rendition of Meno's statement (M):

And it is clear, Socrates, according to the hypothesis, if indeed excellence is knowledge, that excellence is teachable.

In short, according to (M2), where (ii) stands in apposition to ὑπόθετης, Meno's statement simply makes no sense.

Let us, therefore, dismiss the common reading. Instead, given that ὑπόθετης here means “postulate,” (M) must be interpreted as follows:

28 So Cherniss (1951), Bluck (1961), Rose (1970), Thomas (1980), Sharples (1985), Menn (2002). Note that for some commentators, the hypothesis is the conditional or biconditional: if excellence is knowledge, it is teachable (Robinson, 1941); or if excellence is knowledge, it is teachable, and if not, not (Weiss, 2001). Bedu-Addo (1984) claims that the hypothesis is both that virtue is knowledge and that if virtue is knowledge, it is teachable.
29 Men. 89c2-4.
And it is clear, Socrates, according to the postulate [that knowledge is teachable], if indeed excellence is knowledge, that excellence is teachable.

The proposition whose status is expressed hypothetically here is that excellence is knowledge. And this is as it should be. Socrates has just argued that knowledge is the only psychological good. Thus, in expressing (ii) in (M) Meno is acknowledging that the teachability of excellence depends upon the uncontroversial postulate (Q) that knowledge is teachable and the controversial claim that excellence is knowledge.

V. The Problems of the Geometrical Illustration at Meno 86e1-87b2

We come now to the postulate in the geometrical illustration. As I have said, the basic character of the geometrical problem is straightforward: to inscribe an area as a triangle within a circle. But Socrates’ description is vague and ambiguous at several points and has generated a vast literature.30

The text runs as follows:

By ‘out of a postulate’ (τὸ ἐξ ὑποθέσεως) I mean the following – the way the geometers often inquire whenever someone puts a question to them; for example, concerning area (χώρον), whether this area (τὸ ὑπὸ τοῦ χώρου) can be extended in this circle as a triangle. One of them would say, ‘I do not yet know if it [the area] is of that sort [that is, can be so extended]; but I have, as it were, a certain postulate (τὸν ὑποθέσεως) useful for the task, the following one (τούτῳ). If this area (τὸ τοῦ διήθεσαν χώρῳ γραμμῇ), it can fall short (ἐλλείψειν) by an area (χώρῳ) that is of such a kind as (τοῦτῳ...οἷς) the extended [area] (τὸ παρατεινόμενον) itself (τούτῳ), then one consequence follows; and on the other hand, if it is impossible for it to experience these things, then another consequence follows. Therefore, laying down a postulate (ὑποθέσαις), I want to tell you what follows in the case of the extension of it (the area) (ἡς ἐκ τοῦ ὑποθέσας χώρῳ) into a circle, whether it is impossible or possible.31

The passage involves numerous geometrical and philological difficulties. Let us hereafter call the figure to be inscribed in the circle X, X, which is described as “this area” (τὸ δὲ τῷ χώρῳ καὶ τούτῳ τῷ χώρῳ), can be conceived in terms of its area or its shape. We can assume that the shape of X is rectilinear, but it is unclear whether X is regular or how many sides X has.

Typically these obscurities are taken to be insignificant, for, following Euclid I.45, any rectilinear figure can be converted into a parallelogram in a given angle. Let us refer to any such converted parallelogram as Y.

It is unclear whether Socrates has a specific kind of triangle in mind. Interpreters often assume that the triangle is isosceles.32

It is unclear whether in presenting the problem, Socrates is seeking an actual solution or rather the determination of the possibility of a solution.33 X is said to be extended παρὰ τὴν διήθεσαν χώρῳ γραμμῇ, literally “along the given line of it.” The pronoun χώρῳ has variously been interpreted to refer to the circle, to X, or to Y. Related to this is the question of the meaning of “given”. For example, if the line refers to the base of Y, then “given” means “resulting” from the conversion of X into Y. But if the line refers to the diameter of the circle, then “given” means “produced before” X is applied to the circle. Furthermore, whatever figure is applied to the circle, the success of the inscription requires that it fall short by another figure Z of such a kind (τούτῳ...οἷς) as the figure applied. It is unclear whether the correlates here mean that the area of Z is equal to the area of X or Y or whether the shape of Z is similar to that of X or Y.

Finally, there is a problem of the relation between παρατεινώνα and ἐλλείπειν. The participle is masculine accusative singular. As such, it appears to refer to the agent extending and thus applying the rectilinear figure X. However, the subject of the infinitive must be the extended and converted figure Y, for it is Y relative to the line given for the extension of X, that falls short, not the agent extending X. Accordingly, there appears to be an anacolothon between παρατεινώνα and ἐλλείπειν.34

30 Heijboer (1955) notes that in 1832 Patze had collected twenty-two interpretations and that by 1861 Blass had collected about thirty. A century after Blass, Bluck (1961, 441-61) discusses five “among the most interesting explanations” of his predecessors: Benecke (1867), Burcher (1888), Cook Wilson (1903), Farquharson (1923), and Heijboer (1955). Note that Heiltsu’s interpretation (1921) is the same as Cook Wilson’s. Since then, at least four more have been published: Gaiser (1964), Sternfeld and Zyskind (1977), Meyers (1988), and Lloyd (1992). See also the comments of Sharples (1985) 158-60. Note also that the Cook Wilson interpretation is preferred by Knorr (1986) 71-6, maintained in Grube’s translation in Cooper (1997), and assumed by Menn (2002).

31 Men. 86e4-87b2.


33 See Knorr (1986) 73.

34 I think παρατεινώνα must be corrupt. It is attested in manuscripts BTW. Manuscript F has παρατεινῶνα, but this is no better. Those who retain it, argue that it is an accusative absolute. (See Sharples, 1985, 161.) But with a personal construction, this is extremely rare. Since the sense is not really in doubt, a simple emendation to παρατεινώνει may be the obvious solution, viz.: “it can fall short for one who extends it along its given line.” Alternatively, we may have the aorist neuter participle παρατεινὸν or the infinitive
No interpretation is both compelling in itself and wholly free from problems. The so-called Cook Wilson interpretation appears to be the most widely accepted. Subsequent to Cook Wilson himself, it has been endorsed by Heath, Mahoney, Knott, and Menn. Heijboer, Bluck, Gaiser, Sternfeld and Zyksind, and Meyers all reject it; and Lloyd emphasizes the gravity of its defects. Moreover, no one who has endorsed the Cook Wilson interpretation since Heath has actually defended it against its critics.  

But the defects in the interpretations of Heijboer, Bluck, Gaiser, Sternfeld and Zyksind, and Meyers are graver than those of the Cook Wilson interpretation; and it is possible to allay a number of criticisms that they have made against the Cook Wilson interpretation.

According to the Cook Wilson interpretation, Socrates offers a reduction of the problem by mean of geometrical analysis, rather than an actual solution to the problem. Precisely, the problem reduces to the problem of applying \( X \) to the diameter of the circle (AB) so that the applied figure \( BDCE (= Y) \) falls short by a similar figure \( DAFC (= Z) \).

\[ \text{[Cook Wilson diagram]}^{36} \]

\(^{36}\) *nupartíeivn* (used intransitively as at R 527a8) perhaps followed by 

\[ \text{viz.: "extending along its given line it [also] falls short" or "it extends along its given line and falls short." For alternatives, see Bluck (1961) 324.} \]

\(^{39}\) The most incisive criticisms of the Cook Wilson interpretation can be found in Bluck (1961) 449-51, who largely follows Heijboer (1955), and Lloyd (1992) 171-3.

\(^{30}\) This diagram is based on the one in Cook Wilson (1903).

Note that in theory any area can be extended along any line (segment) such that it equals, exceeds, or falls short of that line. Accordingly, the application of a figure to a line on what we would call the \( X \)-axis requires a correlative line on the \( Y \)-axis. Compare Euclid 1.42, the first problem to employ techniques for the application of areas in *Elements*. The problem is to construct a parallelogram – the result here is \( EFGC \) – equal to a given triangle \( ABC \) in a given rectilinear angle \( D \). Note that in the figure below \( \angle D = \angle B = \angle E \).

\[ \text{[Euclid 1.42]}^{37} \]

Here the altitude of the triangle, specifically the vertex \( A \), determines the correlative points that constitute a straight line parallel to the line to which the figure is applied. In the case of the Cook Wilson interpretation, \( X \)'s application to the diameter of the circle is correlative to a point on the circumference of the circle, for example, point \( C \) in the Cook Wilson diagram.

The equilateral triangle is the triangle of maximum area that can be inscribed within a circle. In other words, this constitutes the limiting condition or dörizm of the problem. Therefore, if the area of \( X \) is equal to the area of the equilateral triangle, there is only one solution to the problem. However, if the area of \( X \) is less than the area of the equilateral triangle,
there will be two solutions. In that case, the problem is equivalent to that of finding two mean proportionals between two given lengths. The point or points (H and I in the figure below) on the circumference of the circle determining the length and height of the possible solutions will lie in a hyperbola whose asymptotes are the diameter of the circle and tangent at its endpoint.

Accordingly, the actual solution cannot be achieved by ruler and compass, but requires the use of conics. In the second half of the fifth century Hippocrates of Chios had reduced the problem of cube duplication to the problem of finding two mean proportionals between two given lengths. And c. 370 or later Menaechmus, a mathematician working within the Academy, had solved the problem of finding two mean proportionals through the use of conic sections. Menaechmus’ solution, then, postdates the composition of Meno. Accordingly, Knorr concludes: “Plato’s emphasis on the possibility of the inscription might be taken to signify that geometers had then discovered the dionysia, but not the actual solution of this problem.”

So much for the Cook Wilson interpretation. Now for its defects. τούτο... ὀνομάζει means that Y and Z are geometrically similar, not equal. But Heijboer writes: “the text itself may be said to contradict the supposed geometrical meaning [of similar] on account of the addition of αὐτό [to the phrase ‘the extended [space]’ (τὸ παραστημένον)]. Of a figure similar to another figure we might vaguely say that it is like the other, but we could not possibly say that it is ‘like the other figure itself’. The word ‘itself’ far more suggests identity than similarity.” Note in addition that Socrates would be using the same word χωρίσει to refer first to the equal areas of X and Y, but then to the similar shapes of Y and Z.

Second, according to the Cook Wilson interpretation, “its given line” refers to the diameter of the circle. But Bluck insists that the γραμμή of a circle is its circumference. In support of this view, he cites Euclid I def. 15: “a circle is a figure encompassed by one line (ὑπὸ μίας γραμμῆς περιεχόμενον).” Moreover, as Bluck notes, since Socrates has already spoken of this circle, the circle is given. So why speak of its given line? “Surely παρὰ τὴν γραμμὴν αὐτοῦ [its line] ought to be enough?” In addition, note that there is no instance in Euclid where the γραμμή of a circle refers to the diameter of a circle.

I do not see that there is a solution to the first problem. If we accept the Cook Wilson interpretation, we must accept that Plato is using the correlative inconsistently. I do, however, see a solution to the second problem. The genitive here is possessive; thus, the more fluid translation “its given line,” compared to “the given line of it.” But possession may be variously conceived. I suggest that the sense here is equivalent to the sense that we have when, for example, with regard to driving on the highway, we criticize a driver for not sticking to his lane. Here we mean that the lane belongs to him in the sense that it is for the driver to drive on. Accordingly, X’s given line is the line for X to be extended along, in other words, the line to which X is to be applied. This line may well be the diameter of the circle.

30 This diagram is based on the one in Mahoney (1968/9).
40 (1986) 73.
circle. Consequently, there is no need for supporters of the Cook Wilson interpretation to maintain that “κύκλου” is masculine and refers to the circle (τὸν κύκλον) at 86e6, two lines above. That is clearly unacceptable.

Lloyd, who regards these problems for the Cook Wilson interpretation as “perhaps, of minor importance,” emphasizes three that he takes to be “more serious.”45 First, there is no explanation of “how the problem as reduced is equivalent to the one started with.” By this Lloyd means that while the Cook Wilson interpretation explains the crucial conditional,46 this explanation actually exposes the obscurity of Socrates’ statement. Second, it is unclear how to tackle the problem once it has been reduced. In other words, according to the Cook Wilson interpretation, no actual solution to the problem was available to Plato. Third, “nothing is said . . . concerning . . . the [diorism] of the problem.” That is, Socrates does not specify that the equilateral triangle is the triangle of maximum area that can be inscribed within a circle. Like his first objection, Lloyd’s second and third underscore the obscurity in the way the illustration is presented.

Indeed, Lloyd’s emphasis on the obscurity consequent upon the Cook Wilson interpretation serves Lloyd’s thesis: “the very obscurities [of the geometrical illustration] . . . provide the point [that Plato is trying to impress upon his readers], namely that we stand in need of initiation [into the science of mathematics].”47 And others who have defended the Cook Wilson interpretation emphasize that, as far as mathematical details are concerned, Plato is being intentionally cryptic. For example, Heath: “Plato was fond of dark hints in things mathematical.”48

Yet these are not necessarily problems of the Cook Wilson interpretation. If indeed Plato is being cryptic, then an accurate interpretation should reflect this. Of course, those who favor a mathematically simpler solution observe that Meno accepts Socrates’ statements without question. As such, supporters of the Cook Wilson interpretation may claim that Meno grasps the general form of reasoning that Socrates uses the geometrical illustration to convey; however, he does not grasp the mathematical details.

46 If X is of such a kind that when one extends it along its given line, it can fall short by figure Z that is similar to the extended figure Y, then one consequence follows; and on the other hand, if it is impossible for it to experience these things, then another consequence follows.
47 (1921) 302.
48 (1921) 302.

So much then for the problems as well as the admittedly imperfect defense of the Cook Wilson interpretation. In conclusion, let us now state the geometrical υπόθεσις. First, recall Socrates words:

I have, as it were, a certain postulate (υπόθεσις) useful for the task, the following one. If this area is of such a kind that when one extends it along its given line, it can fall short by an area that is of such a kind as the extended [area] itself, then one consequence follows; and on the other hand, if it is impossible for it to experience these things, then another consequence follows.

In accordance with the Cook Wilson interpretation, this υπόθεσις is interpreted as:

(R) If X can be applied to the diameter of the circle so that the application yields Y and Z, then X can be inscribed as the triangle; and if not, not.

Observe that (R), like (P) and (Q), is true and regarded by Socrates as such. In other words, (R) is not a hypothetical proposition. I emphasize that this is so, even though (R) is a conditional proposition. Hypotheticality is an epistemic attitude; conditionality is a syntactic form. While a conditional sentence may also be hypothetical, it need not be. For example, the sentence “if A=B and B=C, then A=C” is conditional, but necessarily true. In short, (R) shares with (P) and (Q) the characteristic of being non-hypothetical.

What is distinctive about (R) qua υπόθεσις relative to (P) and (Q), then, is that (R) is a conditional, whereas (P) and (Q) are atomic propositions. Evidently, for Socrates and so Plato υπόθεσις may assume either form. It is not hard to see the reason for this. Let us call the property of being able to be applied to the diameter of a circle so that the resulting applied figure falls short of the diameter by a figure similar to the applied figure the “elliptic-property”; and let us call the property of being able to be inscribed as a triangle in a circle the “inscription-property.” Observe, then, that (R) depends upon the following atomic proposition: an area that has the elliptic-property has the inscription-property. From this it follows that if X has the elliptic-property, then X has the inscription-property. In other words, the υπόθεσις in the geometrical illustration simply involves the application of the principle to the given figure X. Conversely, turning to the ethical problem, it would have been reasonable for Socrates to have expressed the υπόθεσις as the following conditionals: if excellence is
knowledge, then excellence is teachable, and if knowledge is the only psychological good, then knowledge is excellence.

VI. Socrates' Geometrical Illustration and the Method of Geometrical Analysis

Indeed, it has been suggested that the method \( \varepsilon \upsilon \omega \theta \varepsilon \eta \varsigma, \) which Socrates of course says he is deriving from geometry, is specifically indebted to the method of geometrical analysis.\(^{49}\) I believe that this is correct, although precisely how the method \( \varepsilon \upsilon \omega \theta \varepsilon \eta \varsigma \) is indebted to geometrical analysis requires clarification.\(^{50}\)

Analysis is a method of discovery. The analyst seeks to determine whether a theorem is true (theoretical analysis) or whether a construction is possible (problematic analysis).\(^{51}\) The theorem or construct is called the thing-sought (τὸ ζήτουμενὸν). The analysis begins by assuming the truth of the theorem or the existence of the construct.\(^{52}\) The nature of the next step in the procedure is controversial. Hintikka and Remes well articulate the problem:

\(^{49}\) Heath (1921) 300-1, Mahoney (1968/9) 334-6, Knorr (1986) 72, Faller (2000) passim and Faller (unpublished), and most recently Menn (2002).

\(^{50}\) Menn (2002, 197) claims that “there is no real doubt about what analysis was.” The remark is rather amazing. Admittedly, Menn is contrasting the “unclear” and “sometimes misleading” descriptions of analysis that have survived, particularly in Pappus, but also [Euclid] and Heron, with the practice of analysis in Archimedes, Apollonius, and elsewhere. Even so, Menn ignores the discussion of Behboud, which rejects the basic position of Hintikka and Remes that Menn accepts. The point is simply that the debate persists. The principle English contributions are as follows: Heath (1921) 137-42, Corrington (1939), Robinson (1935), Cherniss (1951), Guille (1958), Mahoney (1968/9), Hintikka and Remes (1974), Knorr (1986) 354-60, Behboud (1994). Consider also Faller (2000). At the beginning of his paper, Mahoney has helpful historical remarks on the status questionis before the twentieth century. Behboud also helpfully summarizes the debate and its limitations.

\(^{51}\) There is a further distinction to be noted between poristic and problematic analysis. In the former case, the objective is not to construct, but to find something such as a point, abstract magnitude, or number, “none of which are properly constructed.” See Menn (2002, n.14).

\(^{52}\) As Behboud (1994, 58) and Menn (2002, 200) emphasize, the proper logical description of the geometrical practice of analysis requires the assumption of the conjunction of the thing-sought and its antecedent condition.

Does analysis consist of (i) drawing logical conclusions from the desired theorem, or (ii) in looking for the premises from which such conclusions (ultimately leading to the theorem) can be drawn?\(^{53}\) (i) suggests that the analyst draws logical consequences from the assumed thing-sought. The drawing of consequences stops when the analyst hits upon something independently known to be true. In this case, the direction of analysis is conceived as “downward,” that is, by deduction from the thing-sought to its consequences.

In contrast, (ii) suggests that the analyst seeks the premises from which the thing-sought is deducible, the premises from which those premises are deducible, and so on, until one hits upon a first principle or proven theorem. In this case, the direction of analysis is conceived as being “upward,” from the thing-sought through its antecedents. The idea is that axioms, definitions, first principles, or more fundamental theorems preclude, govern, or control the rest.

Adjudication between the upward and downward interpretations of analysis involves consideration of the relation of analysis to the complementary method of synthesis. The basic question is what synthesis contributes to analysis. For instance, assume the downward interpretation of analysis where one begins with the assumption of the thing-sought and deduces to something independently known. In that case, synthesis reverses the procedure and reasons from the thing independently known to the thing-sought. The problem here is the reversibility or convertibility of the deductions from the thing-sought to the thing independently known; \( P \)'s implication of \( Q \) does not assure \( Q \)'s implication of \( P \). Successful analysis, therefore, requires convertible implications, in other words, equivalences. In contrast, according to the upward interpretation of analysis, where one reasons from the assumed thing-sought through premises from which the thing-sought can be deduced to more fundamental theorems or first principles, synthesis is simply the natural deduction of the thing-sought from premises. Accordingly, here where analysis involves the logic of discovery, synthesis involves the logic of demonstration.

I follow those scholars, most recently Menn, who favor the downward interpretation of analysis.\(^{54}\) Menn, who also endorses the Cook Wilson

\(^{53}\) Hintikka and Remes (1974) 11; I have inserted Roman numerals to facilitate discussion.

\(^{54}\) Hankel (1874) 137-50, Zeuthen (1869) 92-104, Heath (1921) 291, Robinson (1935) 464-5, Cherniss (1951) 417, Mahoney (1968/9) 321, Knorr (1986) 354-7, Behboud...
interpretation of the geometrical problem in *Meno*, proposes the following analysis to explain Socrates’ articulation of the geometrical ὑπόθεσις:

![Geometrical Diagram]

[Menon's Analysis]55

So let BCG be an isosceles triangle, BC = BG, inscribed in the circle; the diameter BA perpendicularly bisects the chord CG at a point D. Connect AC. The angle ACB is inscribed in a semicircle, and is therefore a right angle. So the triangles ADC and CDB are similar, to each other and to the triangle ACB. So, completing the rectangles ADCF and CDBE, we see that these rectangles are similar, and therefore the rectangle CDBE falls short of the line AB by a rectangle similar to itself. Since the rectangle CDBE is double the triangle CDB, which is half the triangle BCG, it follows that CDBE = BCG; but BCG = X, so CDBE = X. So the given area X has been applied to a diameter of the given circle in the form of a rectangle, in such a way that it falls short of the diameter by a figure similar to the applied area.56

Recall that, according to the Cook Wilson interpretation, analysis is employed in Socrates’ geometrical problem not to solve the problem, but to reduce one problem (the triangle inscription of an area into a circle) to another (the application of areas). Indeed, it has been suggested that the method of analysis was originally employed to reduce less tractable problems to more tractable ones.57 For example, we mentioned that Hippocrates of Chios reduced the problem of cube duplication to the problem of finding two mean proportionals. There is also a remarkable passage in Prior Analytics where Aristotle illustrates reduction (ἀπαγωγή) using an example strongly reminiscent of the ethical section of our *Meno* passage:

By reduction we mean an argument in which the first term clearly belongs to the middle, but the relation of the middle to the last term is uncertain, though equally or more convincing than the conclusion. For example, let A stand for what can be taught, B for knowledge, and C for justice. Now it is clear that knowledge can be taught; but it is uncertain whether excellence is knowledge. Now if BC [justice is knowledge] is equally or more convincing than AC [justice is teachable], we have a reduction…58

- This passage lends support to the Cook Wilson interpretation of the geometrical passage in *Meno*, to the view that the ὑπόθεσις in the passage alludes to geometrical analysis, and to the view that the analysis alluded to was used to reduce one problem to another.

**VII. The Method εἰ ὑπόθεσις in Meno**

The preceding results provoke several related questions. What is the relevance of geometrical analysis to the ethical problem that immediately follows the geometrical problem in *Meno*? If the geometrical problem that Socrates uses to illustrate reasoning εἰ ὑπόθεσις involves analysis, we would expect the ethical problem to do so as well. Indeed, we have just seen independent evidence from Aristotle's Prior Analytics that suggests that the examination of the ethical problem relates to reduction. But it is a question precisely how geometrical analysis relates to the ethical problem. Indeed, it is a question precisely how geometrical analysis relates to the ὑπόθεσις employed in the examination of

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56 This diagram is based on the one in Menn (2002).

57 See Mahoney (1968/9) 331-7.

58 II.25.
the geometrical and ethical problems. Finally, it is a question what role the ὀπόθεσις in both the geometrical and ethical problems play.

Let's begin with the geometrical problem. In this case, Socrates' examination does not actually deploy analysis to reduce the problem of inscribing \( X \) as a triangle in a circle. Rather, the geometrical ὀπόθεσις depends upon reduction yielded by prior analysis. To be more precise, we should distinguish two aspects of the ὀπόθεσις, the principle itself (that which has the elliptic-property has the inscription-property), and the application of the principle to a given figure \( X \). The principle is the result of an analysis that has occurred prior to and independently of the geometrical illustration. The actual ὀπόθεσις involves the application of the given figure \( X \) to the principle. Accordingly, reasoning ἐκ ὀπόθεσεως here means using something cognitively secure — in this case achieved by the method of geometrical analysis — to advance inquiry into something unknown. In other words, one reasons from the postulate toward the goal of inquiry.

In the case of the first step of the ethical problem, it appears that analysis — or, if you will, a method analogous to analysis — occurs. Socrates reasons as follows:

(i) What sort of being pertaining to the soul would excellence be, if it were to be teachable or not teachable? (ii) Firstly, if it were different from or such as knowledge, then it would be teachable or not teachable ... (iii) Or is this at least clear to everyone, that there is nothing else that a person learns except for knowledge? ... (iv) Then if excellence is a sort of knowledge, it is clear that it is teachable.\(^{59}\)

The question governing the inquiry is whether excellence is teachable. Strictly, then, we would expect the analysis to begin with the assumption that excellence is teachable and to proceed with deduction from the assumption. Indeed, Socrates begins in a comparable way; (i) is similar to the following question: "If we were to assume that excellence were teachable, what would this imply about excellence?"

Step (ii), then, begins the deduction from being teachable to being a sort of knowledge. This step in the argument is clearly based on the proposition that knowledge is teachable, whose cognitive security is independent of the argument. As such, the proposition is akin to a geometrical proposition that a mathematician would know independently of and prior to the analysis and thus one that he could confidently deploy in the analysis. The striking difference, of course, is that such propositions of geometry were not only already to some extent formalized and systematized, but, in comparison with the range of propositions that might be deployed in the analysis of an ethical problem, extremely limited in number.

Step (iii) adds important information to the deduction. As we emphasized in our brief account of analysis, the success of analysis depends upon deductions that are convertible, in other words, equivalences. In the case of the geometrical illustration, the elliptic- and inscription-properties are equivalent. Here too in the first step of the ethical problem, specifically in (iii), Socrates is careful to deduce not merely that being teachable implies being a kind of knowledge, but that since a person learns nothing except knowledge, the two are equivalent.

It is the convertibility of the deduction that explains what would otherwise be a puzzling conclusion to the first step of the ethical problem. Having used the postulate that knowledge (alone)\(^ {60}\) is teachable to complete the deduction, Socrates now draws the inference in (iv) that if excellence is knowledge, then it is teachable. If Socrates were analyzing the assumption that excellence is teachable, we would instead expect him to conclude with the following inference: if excellence is teachable, then excellence is knowledge. Strictly speaking, then, what we have in (iv) is not the conclusion of the analysis, but what would in fact be the first step in the synthesis of the problem. Observe that the ὀπόθεσις in the geometrical problem has the same form. The conditional is not: if \( X \) has the inscription-property, then \( X \) has the elliptic-property; rather, it is: if \( X \) has the elliptic-property, then \( X \) has the inscription-property. Of course, in both cases, the conditional does not mark the actual first step in the synthesis of the problem. Instead, the conditional expresses the reduction of the problem as the result of analysis. In other words, the conditional states that if it were the case that \( X \) or excellence had the elliptic-property or were a sort of knowledge, then

\(^{59}\) Men. 87b5-c6. I have inserted Roman numerals to facilitate exegesis.

\(^{60}\) There is a serious problem with Socrates' argument here. Postulate (Q) is originally introduced as "knowledge is teachable." It does not follow from this, however, that what is teachable is knowledge. In other words, knowledge and what is teachable are not equivalent. Instead, Socrates needs the stronger claim (Q2): Only knowledge is teachable. But this presents a problem for Socrates. One might charitably, originally interpret (Q) as (Q2). But then it is questionable whether (Q2) can be admitted as a ὀπόθεσις, for it is questionable whether (Q2) is self-evident and uncontroversial. (I am grateful to an anonymous referee for pressing me to state this difficulty with Socrates' argument.)
the problem would be solved. So, in short, the analysis in the first step of the ethical problem serves to reduce one problem, the teachability of excellence, to another, the epistemic character of excellence.

Finally, as in the case of the geometrical problem, here in the first step of the ethical problem the ὑπόθεσις, which is something cognitively secure, serves to advance inquiry into that which is unknown. More precisely, we can say that the ὑπόθεσις serves as such in the analysis of the problem which results in the reduction of the original problem to a different problem. In contrast, in the geometrical problem, the ὑπόθεσις, which includes the principle as well its application to the given figure X under examination, does not serve in the analysis, but in the expression of the reduction itself resulting from the analysis.

As we noted in the introductory section of the paper, the second step of the ethical problem has two parts. The first (87c11-d8), akin to the first step of the ethical problem, involves the reduction of one problem to another. The second part (87d8-89c4) involves an argument that knowledge is the only psychological good. It is the first part that concerns us. It runs as follows:

(i) After this, it seems, we ought to inquire whether excellence is knowledge or different from knowledge ... (ii) What then? Do we affirm that excellence is a good thing. And does this postulate stand firm for us? ... (iii) Then if there is something that is both good and separate from knowledge, perhaps excellence would not be a sort of knowledge. But if there is nothing good that knowledge fails to encompass, then our suspicion that it is a sort of knowledge is a good suspicion.\footnote{Mtn. 87c11-d8.}

Having employed analysis to reduce the problem of the teachability of excellence to the problem of the epistemic nature of excellence, the second step of the ethical problem begins in (i) with the statement of this problem: to determine whether excellence is a sort of knowledge. Here too analysis of the problem follows. This is confirmed by comparison with the analysis in the first step of the ethical problem. However, here in the second step, the order of reasoning differs. If the reasoning in the (first part of the) second step paralleled that in the first step, we would begin with an expression of the assumption that excellence is a sort of knowledge. But we get no question such as: “What sort of being would excellence be if it were to be a sort of knowledge?” Next, we would expect the claim that knowledge alone is good and the deduction that if excellence is good, then excellence is a kind of knowledge. The reason why Socrates does not proceed in this way is as follows. It is controversial whether knowledge is the only (psychological) good. In contrast, it is uncontroversial that excellence is psychological goodness, in other words, that excellence is the only psychological good. Indeed, this, like the proposition that knowledge is teachable, is cognitively secure. Accordingly, instead of seeking to identify excellence with a sort of knowledge, Socrates attempts to identify knowledge with excellence.

We must, then, assume that the second step in the ethical problem proceeds upon the implicit question: “What sort of thing would knowledge be, if it were excellence?” Accordingly, (ii) states the cognitively secure ὑπόθεσις regarding excellence; and (iii) deduces that if knowledge is the only psychological good, then excellence is a kind of knowledge.

There are two points to observe about the deduction in (iii). First, Socrates clearly recognizes the significance of the distinction between equivalence and mere implication: "if there is something that is both good and separate from knowledge, perhaps (τάξις) excellence would not be a sort of knowledge." That is, Socrates recognizes that the identification of knowledge with excellence requires that knowledge be the only psychological good. In other words, successful analytic deduction requires an equivalence: "if there is nothing good that knowledge fails to encompass, then our suspicion that it is a sort of knowledge is a good suspicion."\footnote{Incidentally, note that what is hypothetical here, the identification of knowledge with excellence, is described as a suspicion.}

Second, as in the first step of the ethical problem, the conditional in (iii) does not state the deduction we would expect from analysis. We would expect the following: if excellence is a sort of knowledge (= the assumption of the thing-sought), then knowledge is (the only psychological) good. Instead, in (iii) we get what appears to be the first step in the synthesis of the problem. But here again, (iii) does not actually serve as the first step in the synthesis; instead, it is a statement of the reduction resulting from analysis. That is, the problem of determining whether excellence is a sort of knowledge has been reduced to the problem of determining whether knowledge is the only psychological good. And, finally, as in the first step in the ethical problem, the ὑπόθεσις, as something known, serves in the analytic process to reduce one problem to another.
In sum, it emerges that Socrates' method of reasoning ἐξ ὑποθέσεως at Meno 86e1-87d8 derives from the method of geometrical analysis. More precisely, it derives from the particular use of geometrical analysis to reduce one less tractable problem to another more tractable one. ὑποθέσεως themselves, which are employed in the process, are not hypotheses, but cognitively secure propositions useful for those employing the method for purposes of reduction. Generally speaking, Socrates' presentation of the method ἐξ ὑποθέσεως suggests that when seeking whether x has a property P, something that we do not know, we attempt to identify another property Q possessed by all things that have P, something that is cognitively secure. In that case, instead of inquiring whether x has P, we can inquire whether x has Q. The procedure is valuable precisely insofar the question whether x has Q may be more tractable than the question whether x has P.

Finally, it is worth reiterating that at Meno 86e1-87d8 analysis is not used to solve a problem. Having reduced the problem of the epistemic character of excellence to the problem of the (psychological) goodness of knowledge, Socrates proceeds to argue (87d8-89c6), by non-analytic means — indeed, by means familiar from among the early dialogues — that knowledge is the only psychological good and thereby to solve the problem.

Bibliography

August, E.F., Zur Kenntnniss der geometrischen Methode der Alten in besonderer Beziehung auf die platonische Stelle im Meno, Berlin, 1829
—— Aristoteles Posterior Analytics, 2nd ed., Oxford University Press, 1993
Benecke, A., Über die geometrische Hypothese in Platonos Meno, Elbing, 1867
Blass, C., De Platone mathematico, Bonn, 1861
Bluck, R.S., Plato’s Meno, Cambridge University Press, 1961
Cherniss, H., “Plato as Mathematician,” Review of Metaphysics 4 (1951) 395-425
Corcoran, J., “Mathematics and Dialectic in Republic VI-VII,” Mind 41 (1930) 43-7, 173-90
Faller, M.A., Plato’s Philosophical Use of Mathematical Analysis, University of Georgia, dissertation, 2000
—— Plato’s Philosophical Adaptation of Geometrical Analysis,” unpublished
Gaier, K., “Platons Menon und die Akademie,” Archiv für Geschichte der Philosophie 46 (1964) 241-92
Gulley, Norman, “Greek Geometrical Analysis,” Phronesis 3 (1958) 1-14
Hankel, H., Zur Geschichte der Mathematik im Altertum und Mittelalter, Leipzig, 1874
—— A History of Greek Mathematics, vol. 1, Clarendon Press, 1921
Heijboer, A., “Plato Meno 86e-87a,” Mnemosyne, 4th series, 8 (1955) 89-122
Huffman, C., Philolaus of Croton, Cambridge University Press, 1993
Klein, J., A Commentary on Plato’s Meno, University of North Carolina Press, 1965
Knorr, W., The Ancient Tradition of Greek Geometrical Problems, Birkhäuser, 1986
Patriz, A., Commentatio de loco mathematico in Plato’s Menone, Susati, 1832
—— Plato’s Earlier Dialectic, Clarendon Press, 1941
Sharples, R.W., Plato’s Meno, Aris and Phillips, 1985
Aristotle on Ontological Dependence

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Abstract
Aristotle holds that individual substances are ontologically independent from non-substances and universal substances but that non-substances and universal substances are ontologically dependent on substances. There is then an asymmetry between individual substances and other kinds of beings with respect to ontological dependence. Under what could plausibly be called the standard interpretation, the ontological independence ascribed to individual substances and denied of non-substances and universal substances is a capacity for independent existence. There is, however, a tension between this interpretation and the asymmetry between individual substances and the other kinds of entities with respect to ontological independence. I will propose an alternative interpretation: to weaken the relevant notion of ontological independence from a capacity for independent existence to the independent possession of a certain ontological status.

Keywords
Aristotle, substance, property, universal

In the Categories, Aristotle classifies beings into four kinds: individual substances such as you and me, universal substances such as humanity, and also individuals and universals in the various categories other than substance, such as quality and quantity, which I will lump together under the label ‘non-substances’. Aristotle holds that individual substances are ontologically independent from non-substances and universal substances but that non-substances and universal substances are ontologically dependent on substances. There is then an asymmetry between individual substances and other kinds of beings with respect to ontological dependence. Such asymmetry is widely and rightly thought to be a lynchpin of Aristotelian metaphysics. What is really real for Aristotle are such ordinary mid-sized...