

Aristotle on Hypothetical Arguments and the Completeness of the Syllogistic

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This paper considers the discrepancy between Aristotle's claim, in the *Prior Analytics*, for the completeness of the syllogistic on the one hand, and his claim that hypothetical arguments are irreducible to the syllogistic on the other hand. I propose to construe Aristotle's notion of hypothetical arguments as a concatenation of a proper syllogism and an 'incomplete argument', of the sort discussed in *Prior Analytics* A23-44. This construal is suggested by both the immediate context of the two claims and the details of the arguments given in their support.

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In this paper I suggest a way to construe the reservations Aristotle expresses about the prospect of reducing hypothetical arguments into syllogistic deductions in view of his argument for the completeness of the syllogistic. If we are to take seriously Aristotle's claims for completeness, we must find some way to clarify how they fit with his position on hypothetical arguments. I propose that we can find some indication for this in Aristotle's position regarding arguments that are in need of completion, and the general project that constitutes the textual context for his treatment of hypothetical arguments.

I

Chapter 23 of the first part of *Prior Analytics* opens with a bold claim to the general adequacy of the syllogistic developed in chapters 4-7: "That every deduction without qualification can be so treated [i.e. be 'perfected' to accord with the deductions of the first figure, and thus

reduced to them], will be clear presently, when it has been proved that every deduction is formed through one or other of these figures” (A 23 40b20-22).¹ Aristotle goes on to distinguish between ostensive arguments and hypothetical arguments, the latter kind including arguments *per impossibile*. Therefrom the chapter is clearly divided in two: “Let us speak first of probative [ostensive] deductions; for after it has been proved in their case, the truth of our contention will be clear with regard to those which are proved *per impossibile*, and in general hypothetically” (A 23 40b27-29). The first section, then, provides a proof of the completeness claim for all ostensive arguments, which is highly compressed and difficult. The second section attempts to show how the considerations of the first section, reserved to the realm of ostensive arguments, can be brought to bear on that of the hypothetical arguments.

However, when the discussion moves to focus on hypothetical arguments in chapter A 44, a qualification to the completeness claim of chapter A 23 is made straight away: “Further we must not try to reduce hypothetical deductions; for with the given premises it is not possible to reduce them. [...] The same holds good of arguments which are brought to a conclusion *per impossibile*. These cannot be analysed either” (A 44 50a16-17, 29-30). Here Aristotle does not seem to grant that the theory of the syllogism is equipped to handle hypothetical arguments – their form cannot be straightforwardly resolved into a syllogistic form. The reason given for this restriction seems to be that the progression from the premises of an hypothetical argument to its conclusion is not deductive throughout, but contains a step that is grounded on some agreement between the disputants.

¹ Quotes are from the revised Oxford translation, Jonathan Barnes (ed.), *The Complete Works of Aristotle*, Princeton: Princeton University Press (1984)

Clearly, there is a discrepancy to be explained here – Aristotle’s assessments of the prospects of a complete reduction of inference in the two chapters seem to be in direct conflict. In what follows I suggest to resolve the difficulty along the following lines: the hypothesis in an hypothetical argument is excluded from the syllogistic, and so, indeed, prevents it from being resolved into a syllogism. Nevertheless, the hypothesis itself relies on a syllogism in some implicit way. This solution is indicated both by the structure of the completeness argument and by the context in which the completeness is claimed to encompass hypothetical arguments.

II

The hypothetical argument is characterized in *Prior Analytics* A 44 by this example:

[F]or instance if a man should suppose that unless there is one faculty of contraries, there cannot be one science, and should then argue that not every faculty is of contraries, e.g. of what is healthy and what is sickly; for the same thing will then be at the same time healthy and sickly. He has shown that there is not one faculty of all contraries, but he has not proved that there is not a science. And yet one must agree. But the agreement does not come from a deduction, but from an hypothesis. This argument cannot be reduced; but the proof that there is not a single faculty can. The latter argument no doubt was a deduction, but the former was an hypothesis. (A 44 50a17-29)

It seems that the hypothetical argument is conceived as divisible into a properly syllogistic argument, followed by an irreducibly non-syllogistic argument. The hypothetical argument as a whole combines the two sub-arguments: first, an initial set of premises leads by deductive

inference to an intermediate conclusion; then, the intermediate conclusion is taken to lead to a further conclusion, in a manner that commits the disputants to accept it. This commitment is grounded in the prior agreement of the disputants to accept that the final conclusion is implied by the intermediate conclusion. This agreement may be explicit, or it may be implicit, as in the case of arguments *per impossibile*. Aristotle then points to a further project:

Many other arguments are brought to a conclusion by the help of an hypothesis; these we ought to consider and mark out clearly. We shall describe in the sequel their differences, and the various ways in which hypothetical arguments are formed. (A 44 50a39 – 50b1)

I would like to point out the following features that arise from this characterization: (i) structurally, an hypothetical argument is a concatenation (or ‘connection’, cf. 41a1, 41a19) of two arguments, the conclusion of one carried to serve as a premise of the other; (ii) the reliance upon a preliminary agreement between disputants seems to refer the hypothetical argument to the context of a formal disputation, most prevalent in Aristotle’s *Topics* and *Sophistical Refutations*, and so reveals how the syllogistic is embedded in a broader practice of argument. The following discussion argues that regarding the hypothetical argument with the considerations of this broader context in view suggests a role for it in the general program of bridging between the earlier and the later logic of Aristotle.

The concatenated structure of the hypothetical argument offers a way to resolve our difficulty – as some interpreters have suggested, chapter A 23, in the wide sweep of its completeness claim, includes the hypothetical argument in the syllogistic in virtue of that part of it which is a genuine deduction. Indeed, that part can be regarded as, in a sense, the main part of the hypothetical argument, where the actual argumentation takes place, whereas the hypothesis itself merely brings the argumentation to bear on the discussion in which it

appears. Chapter A 44, however, brings the hypothetical argument under closer scrutiny, and makes the finer distinction between its parts: although the first stage is a deduction, the last stage is not, and so the argument as a whole, strictly speaking, cannot be reduced into the syllogistic. Thus, the proposal goes, we may take the inclusion of hypothetical arguments within the syllogistic in A 23 to be rather lenient manner of speaking, and their exclusion from the syllogistic in A 44 to be more accurate.

Although this may be a viable solution, it seems to me to stretch charity somewhat. It seems implausible that the term ‘deduction’ could be given a sense by which it is applicable to inferences which merely include a deduction as a part. Therefore, according to this explanation, the use of the term ‘deduction’, which allows the inclusion of hypotheticals into the syllogistic, seems to be a stretch of charity.

In A23 Aristotle makes this striking completeness claim for his syllogistic:

That every deduction without qualification can be so treated [i.e. made perfect by means of the universal deductions in the first figure, and reduced to them], will be clear presently, when it has been proved that every deduction is formed through one or other of these figures. (A 23 40b20-21)

This statement is followed by a compressed and difficult proof, which has been given various interpretations of its detail as well as its purpose. Still, three stages are clearly discernible in it – the first (A 23 40b30-41a10) presents a notion of relevancy relation that can hold between sentences, which is a requisite of all attempts of informative inference, and goes on to show that the combined constraint of relevance and informativity requires a middle premise that relates the major premise to the conclusion. The second stage (A 23 41a10-17) goes through all the possible relations of relevance that might hold between three sentences, and shows them all to produce structures already accounted for in the theory of the syllogism. The third stage (A 23 41a17-20), which has posed the greatest challenge for interpretation, seems to be concerned with showing how the considerations of the second stage apply to valid arguments that are extensions, or elaborations of the two-premise structure.

The difficulties of reconstructing Aristotle's argument in this last passage have led commentators to doubt whether in A 23 Aristotle indeed attempts a "completeness-proof" in the modern sense, i.e. proving that every valid argument whose premises and conclusion are expressible in the language can be proved with the resources of the language. Thus John Corcoran:

In the first place, even raising a problem of completeness seems to be a very difficult intellectual achievement. [...] Apparently no one stated a completeness problem before it emerged naturally in connection with the underlying logic of modern Euclidean geometry in the 1920's [...]. In the second place, it does not seem to be the case that Aristotle was clear enough about his own semantics to understand the problem.²

And, similarly, Jonathan Lear:

Since [...] Aristotle had a unified notion of logical consequence – not the bifurcated notion of semantic and syntactic consequence [...], it would be anachronistic to attribute to Aristotle the ability to raise the question of completeness which depends on an awareness of the syntax/semantics distinction.³

But even if it were true that Aristotle was in no position to clearly formulate the problem of completeness in modern terms, it is undoubtedly also true that he recognized that problem at least with enough clarity to present a more limited completeness claim throughout A 4-7, to the effect that all two-premise arguments are either invalid, or can be completed by means of the first figure. Perhaps the difficulty in identifying a completeness proof in A 23 is due to the Aristotelian constraints on what counts as a proposition – Aristotle would only consider, at least formally, a premise that relates two terms by the symmetric relation of “belong to-”.

² J. Corcoran, “A Mathematical Model of Aristotle’s Syllogistic”, *Archiv für Geschichte der Philosophie* 55 (1973) p. 215.

³ Jonathan Lear, *Aristotle and Logical Theory*, Cambridge: Cambridge University Press (1980) p. 15-16.

In his paper “Aristotle’s Completeness Proof”,⁴ Timothy Smiley attempts to recover a genuine completeness proof from A 23, by locating a step of mathematical induction at the last stage of the proof (A 23 41a17-20), in Aristotle’s instruction to reapply, as many times as required, the same procedure that was described for proving the general adequacy of the syllogistic in treating all two-premise valid arguments, in order to prove a similar adequacy for extended arguments of arbitrary length.⁵

Smiley begins by noting two steps to the argument: the first concerns the adequacy of the formal language of the syllogistic to express all arguments in science, geometry etc., so that every argument put forth in a non-formal manner, can be reformulated as an argument in Aristotle’s more formal language; the second step concerns the adequacy of the deduction procedures of the syllogistic to derive the conclusion from the premises of every valid argument that has been recast in the formal language. On the first step, then, Aristotle establishes that for an argument to be informative as well as valid, the premises must differ from the conclusion, but also relevant to it. Therefore some of the premises must establish the relevance via a middle term. The second step shows that since the first figure exhausts all the possible ways in which two terms can be combined through a third term, the conclusion that the syllogistic is sufficient to treat of any argument that involves a single middle term is secured. Aristotle then comments that “the argument will also be the same if A is connected with B through more things: for the figure will be the same even in the case of many terms.” To explain this comment, Smiley builds on the prominence of the relevancy relation defined in the preceding passages – it can be reiterated throughout a series of standard first-figure

⁴ Timothy Smiley, “Aristotle’s Completeness Proof,” *Ancient Philosophy* 14 (1994).

⁵ *Ibid.*, p. 31.

arguments, so that the conclusion of one serves as a major premise for the next. Thus an extended deduction is formed, which advances by deductive steps in the first figure.

With this reconstruction Smiley claims that the extended deductive arguments are included in the completeness claim derivatively, as each is in fact an elliptical expression of a chain of two-premise arguments, the conclusion of the first member of the series carried to serve as a premise for the next, until the final conclusion is reached. This interpretation leaves us with a structure of a systematic concatenation of two-premise syllogisms at the end of the first part of A 23.

IV

In the second part of A 23, Aristotle moves abruptly, it seems, to consider hypothetical judgments. He provides the following justification to include hypothetical arguments in the syllogistic:

Consequently, since the falsehood is established in reductions *ad impossibile* by a probative [ostensive] deduction, and the original conclusion is proved hypothetically, and we have already stated that probative deductions are effected by means of these figures, it is evident that deduction *per impossibile* also will be made through these figures. Likewise all other hypothetical deductions.” (A 23 41a31-37)

How are we to understand hypothetical arguments in relation to ostensive arguments? In his discussion of hypothetical arguments in Aristotle, Jonathan Lear builds upon his suggestion that the hypothesis is introduced into the discussion to allow for the function of entertaining a supposition, without asserting it outright. This has been a feature of other

treatments as well. However, if such were the case, one would expect the distinction between hypothetical arguments and ostensive arguments to be exclusively in the status, or force, accorded to the premises, while the structure is the same for both types of argument. Indeed, Lear claims as much with regard to the arguments *per impossibile*, which are classified by Aristotle as a type of hypothetical argument. But Aristotle's full treatment of hypothetical arguments goes in the face of this expectation – clearly, there is a structural difference between ostensive and hypothetical arguments: the latter include an 'hypothesis', an element additional to a proper deductive element.

It is difficult to see right away how the 'alien' element of the argument, the hypothesis, is supposed to be incorporated into the syllogistic. However, we can begin by pointing out that the concatenated structure that was presented at the final stage of the completeness 'proof', which constitutes the immediate context of this statement about hypothetical arguments quoted above from A 23, is reflected in the structure of the hypothetical argument itself. The structure of hypothetical arguments is discussed in fullest detail later, in A 44. There, as we have seen, Aristotle characterizes hypothetical arguments as made up of two parts – the one, the hypothesis, is a statement of dependence, or conditionality, between two propositions; the other part is a standard syllogism that proves the condition, or antecedent, of the conditional. Thus, the conclusion of the syllogism is carried over to serve as the antecedent of a conditional, and thereby proving the consequent.

What distinguishes hypothetical arguments from the extended arguments featured in the first part of A 23 is, of course, that the hypothesis, the conditional, is not a syllogism. But, on the other hand, the hypothesis cannot be considered a conditional proposition in the sense appropriate to propositional logic, because such propositions are not legitimate logical elements in the system of the *Prior Analytics*. In his earlier attempts at a system of reasoning,

Aristotle indeed introduces argument-forms whose validity does not rest at the level of the structure of term-relations, but rather at the level of the propositions. However, Aristotle considers his “first logic,” which includes e.g. *modus ponens* and *modus tolens*, to be essentially superseded by the syllogistic. There seems to be an underlying project of accommodating the achievements of the propositional logic of the *Topics* in the more fundamental system of the term-logic of the *Analytics*.

Indeed, Aristotle often employs the locutions associated with conditional statements to indicate the relation between premises and their conclusion. This practice, in fact, has been cited by Łukasiewicz as the primary specific textual evidence for his controversial reconstruction of the syllogism as a conditional rather than an inference.⁶ Łukasiewicz points to such passages as “if A is predicated of every B and B of every C, it is necessary for A to be predicated of every C” (A 4 25b37). It is a usage common in Aristotle to replace the A in ‘if A then B’ with the two premises of a syllogism, and B with the conclusion, e.g.: “if someone were to put the premises as A and the conclusion as B, it would result not only that when A is necessary altogether then B is also necessary, but also that when A is possible B is possible” (A 15 34a22).

Łukasiewicz’s original approach is no longer generally accepted. Nevertheless, his attempt is instructive, as it brings out the close ties between inference and implication in Aristotle’s logic. In his review of Łukasiewicz’s book, Arthur Prior promptly remarked that the occasions where Aristotle speaks of inferences as implications, being the references that Łukasiewicz cites as evidence to his claim, are in fact occasions where Aristotle speaks *about* syllogisms, rather than define them.⁷ Following Prior’s observation, I would like to consider

⁶ J. Łukasiewicz, *Aristotle’s Syllogistic from the Standpoint of Modern Formal Logic*, Oxford: Clarendon Press (1951).

⁷ A. N. Prior, ‘Łukasiewicz’s Symbolic Logic’, *Australasian Journal of Philosophy* 30 (1952), p. 33–46.

whether the hypothesis in a hypothetical argument might also be such an occasion where a reference is made, in some oblique sense, to a genuine deduction. This suggestion is supported by the immediate context in which hypothetical arguments are discussed, the general aims Aristotle can be plausibly ascribed with, and the sense it makes of our initial puzzle over the discrepancy between A 23 and A 44.

In the chapters preceding A 44 Aristotle is concerned to substantiate his project of justifying argumentation through the syllogistic by describing various methods and marking various pitfalls in the procedure of constructing a syllogism from less formal manners of reasoning and argument. Aristotle shows that underlying such informal argument-formulae, there is a syllogistic structure. By explicating this structure the argument is said to be analyzed, reduced, or resolved into a syllogistic form. This concern bears out the speculation that Aristotle, as part of his general aim in *Prior Analytics*, tries to ground his earlier logical work, and to a certain extent still considers the later developments as pertinent to his earlier project. By this I wish to emphasize that although, perhaps, Aristotle did not conceive of the syllogistic as a manual for actual inquiry and debate, which is to be rigorously adhered to, it still has application to actual practice. Although, indeed, Aristotle himself rarely follows the syllogistic in his non-logical works, his meticulous advice on formulating syllogisms out of natural discourse shows that he expects the syllogistic to be used as a standard. The *Topics* and the *Sophistical Refutations* are firmly established in the contemporary practice of debate, and are full of practical advice; the *Prior Analytics*, while it primarily constructs a theoretical foundation further removed from the function of a handbook of debate, may nevertheless have been expected to have some ready application.

This view is corroborated by the related question of the relation between the *Prior Analytics* and the *Posterior Analytics* – Jonathan Barnes, in the introduction to his edition of the

Posterior Analytics, discusses the chronological controversy about the chronological order of the two *Analytics*: “Such speculations,” he says, “should not be allowed to obscure the central fact that the *Posterior Analytics*, in the form in which we now read it stands firmly on the logic of the syllogism.”⁸ Robin Smith, in his paper ‘The Relationship of Aristotle’s Two Analytics’,⁹ also stresses the possibility that the theoretical edifice of *Prior Analytics* was erected partly with a view to the more practical (though still idealized) concerns of the *Posterior Analytics*. In particular, we may expect that Aristotle’s claim for completeness in A 23 embrace at least the basic argument-forms presented in the *Topics*, and that some attempt is made to fit them into the *Prior Analytics*, so as to make the syllogistic serviceable even at its highly abstract and incomplete state. Thus Bochenski, in his discussion of the hypothetical syllogism, writes: “Most of these are, or correspond to, rules of inference which are of very frequent use both in everyday life and in science.”¹⁰ In particular, Bochenski notes that in A 44 Aristotle acknowledges the validity of *modus ponens* introduced in *Soph. El.* 5, 167b.

V

A clue as to how the *Prior Analytics* can incorporate the older Aristotelian logic can be gathered, for example, from chapter A 32. This chapter begins the project of explaining how to analyze familiar argument forms into syllogisms, thereby vindicating reciprocally both the natural, everyday arguments, by revealing the formal ground of their validity, and the syllogistic, by demonstrating its power and scope of application. Aristotle warns against the appeal of certain arguments that may be accepted before they are completely resolved into a

⁸ J. Barnes, *Aristotle’s Posterior Analytics*, Oxford: Clarendon Press (1975), p. xvi.

⁹ R. Smith, ‘The Relationship of Aristotle’s Two Analytics’, *Classical Quarterly* 32:2 (1982), p. 327.

¹⁰ I. M. Bochenski, *Ancient Formal Logic*, Amsterdam: North-Holland Publishing (1963), p. 56.

proper syllogism. The crucial distinction is between proper syllogisms and such arguments that are flawed, because some premises are left out, but still persuasive, since they can be completed in an obvious way. Aristotle draws the following lesson from this distinction:

We are misled in cases like these [of derivations that are not proper deductions] by the fact that something necessary results from what is supposed, because a deduction is also necessary. But ‘necessary’ is more extensive than ‘deduction’: for every deduction is necessary, but not everything necessary is a deduction. Consequently, if something does result when certain things have been put, one should not try straight-off to lead back <into the figures>. (A 32 47a31-38)

As Smith remarks in his commentary to this passage,¹¹ some interpreters see this advice as evidence that Aristotle concedes that there are valid arguments not covered by the syllogistic. However, it is more plausible that Aristotle merely claims that certain arguments are irreducible only as they are presented in a certain dialectical context, because they leave some premises tacit. Upon explication, however, these arguments will be found to conform to one of the figures. Revealing the unstated parts of an argument is not always a straightforward matter, and so Aristotle outlines different strategies for this purpose, some more detailed than others. Aristotle does not contend that he has provided conclusive, decidable procedures for reducing all valid, ‘necessary’ arguments to deductions.

Thus, when Aristotle claims that “‘necessary’ is more extensive than ‘deduction’”, and that consequently one should not try to analyze every derivation, he means it only in the sense that some necessary implications cannot be analysed “straight-off,” but only once the

¹¹ R. Smith, *Prior Analytics*, Indianapolis: Hackett (1989), p. 161-162.

missing premises have been identified and stated. A similar solution might be applicable to Aristotle's claim that hypothetical arguments are not to be analysed, as we propose in the last section.

VI

The proposal, then, is that A 44 claims that hypothetical arguments cannot be reduced into syllogisms because they contain an element which is incomplete, namely the hypothesis. The hypothesis can be considered incomplete in the same sense that the flawed but valid arguments in A 32 are incomplete, since like them an hypothesis is a progression, or derivation, of one proposition from another – it is an elliptical argument. It might be objected that the relation between the two propositions is not that of derivation, which involves necessity, but rather more like a material implication. However, it is doubtful that Aristotle would consider the notion of material implication to merit consideration in this context. It is safe to assume that since the hypothetical claim being agreed upon ties the truth of one proposition with the truth of another, it involves strict or necessary implication. Obviously, if the hypothesis indeed stands for an argument, it must be elliptical, since it only has one explicit premise, represented by the condition, and “nothing results of necessity through a single thing having been taken about one another” (A 23 40b35).

The various confused or incomplete arguments reviewed in A 32-43 bear various structural or terminological marks that constrain the ways in which they can be completed and reformulated, and each chapter focuses on a different type of argument. The underlying project, however, motivated by the completeness proof in A 23, concerns all of them together. Since the hypothesis is not characterized with any detail to classify it as belonging to one or another of the specific types, we can only think of it as standing for unanalyzed

arguments in general. According to our suggestion, Aristotle claims that hypothetical arguments appear in his discourse on demonstrative argumentation in a state that calls for further development – the hypothetical argument as it is presented, in fact covers an array of argument-forms that need to be explicated and systematically defined. Thus, Aristotle states in conclusion to his remarks in A 44:

Many other deductions [– other than the example in the previous passage] are also brought to a conclusion from an assumption, and these must be examined and marked off in a clear fashion. We will state later what the differences among these are and in how many ways something can form an assumption. But for the present, let this much be evident to us: that it is not possible to resolve these sorts of deductions into the figures. (And we have explained through what cause this is so.) (A 44 50a39-50b3)

If Aristotle ever followed up his commitment to characterize and classify the ways in which an hypothesis may be formed, his work did not survive. Still, the very fact that Aristotle held that the procedures of forming hypotheses can be classified is significant: it suggests that there is a further field for systematic treatment, which is attached to the syllogistic, as it were, by the general notion of hypothesis. This is in keeping with our suggestion, that the hypothesis obliquely represents considerations that typically belong to the dialectical realm of Aristotle's early logic, which is given a systematic treatment in the *Topics*.

The meager idea we are given in A 44 as to what forms an hypothesis is baffling: hypotheses “have not been proved by means of a deduction but instead are all consented to by means of an agreement” (50a18-19). The agreement on the hypothesis achieved beforehand forces the conclusion: “Indeed, to agree [to the conclusion] is necessary; not

from a deduction, however, but from an assumption” (50a25). However, an agreement need not always be secured – in the special case of hypothetical arguments *per impossibile* an express agreement can be dispensed with, since while “in those earlier ones, it is necessary for someone to have made an agreement in advance whether he is going to consent [...]; in these latter cases, however, people consent even without having made an agreement in advance because the falsehood is obvious” (50a34-39).

The introduction of the agreement, or consent, again plainly puts the hypothetical argument in a dialectical framework, and brings to the *Analytics* the broad context which is prevalent in the *Topics*.

One may puzzle over the ground of the necessity in hypothetical arguments – the agreement itself, as we have seen, is not the source of the necessity to accept the argument’s conclusion, since it can sometimes be omitted. If hypothetical arguments are taken to be merely expressions of provisional reasoning, as “what if” arguments, it is difficult to explain any necessitation of the hypothesis beyond mere agreement. On our suggestion, however, the hypothesis is not set haphazardly but rather stands for a piece of sound reasoning, only not yet syllogistic. Thus the agreement on which the hypothesis is sometimes based is understood as the conclusion of a dialectical discourse of the sort presented in the *Topics*, and governed by the same standards. Rather than mere stipulative agreement, it is these standards that are the ground for the necessity of hypothetical arguments. That is why arguments *per impossibile* do not rest on an agreement – although the Law of Contradiction is part of the standards of argumentation, it cannot itself be argued for, and thus cannot be resolved in agreement: “[s]ome indeed demand that even this [the Law of Contradiction] shall be demonstrated, but this they do through want of education” (*Met.* Γ 4 1006a5-6).

The hypothetical argument, then, is the juncture that brings together the two Aristotelian conceptions of logic, the earlier and the later, and allows them to be used in conjunction. This is achieved by the complex structure of the hypothetical argument – it is sewn together out of a syllogistic argument, of whatever form, and a valid pre-syllogistic argument, of whatever form. Aristotle stresses this duality in pointing out the different sources of necessity of the two parts. He specifies the various forms the syllogism part might

not already resolved into a syllogism, we can see why Aristotle considers the completeness proof to bear on it as well, and how to understand the qualification he puts on it – it is not reducible into a syllogism as it stands (exactly as he qualifies incomplete arguments in A 32), but it is reducible in the sense that insofar as it is valid, it rests on a syllogism.

This leads seamlessly to the concern of the chapters lying between A 23 and A 44, in which Aristotle tries to substantiate the completeness claim by setting forth general methods by which pre-syllogistic argument-forms can be shown to rest on syllogisms. That undertaking, of course, cannot be brought to definitive conclusion, and so Aristotle comes back to hypothetical arguments in A 44: here he affirms the validity of the hypothetical argument, which allows one to draw on the assortment of argument-forms in the context of the syllogistic, linking them to syllogisms by inserting them as hypotheses in hypothetical arguments. This explains why hypotheses in some way involve soliciting consent, or agreement: they are elements imported from the practical, dialectically-oriented context of the *Topics*. It also explains why Aristotle intended to expand on the different manners in which hypotheses can be formed: such a discussion would have united the achievements of the early logic with the achievement of the *Prior Analytics*.