

# Debaters: *Qiyās* ix.18.

Wilfrid Hodges  
Herons Brook, Sticklepath,  
Okehampton, Devon EX20 2PY, England  
wilfrid.hodges@btinternet.com

## 1 Review of the section

This is one of the last sections of Ibn Sīnā's *Qiyās*, the book of his *Šifā'* which forms a loose commentary on Aristotle's *Prior Analytics*. The passage of the *Prior Analytics* being commented on here is ii.19, 66a25–66b3. In that passage Aristotle gives advice to the questioner and responder in a debate. The responder should be wary of conceding to the questioner a set of propositions that can be put together to form a syllogism, because the resulting syllogism might be used against him. By the same token, if the questioner is trying to get the responder to concede the premises of a syllogism, he should hide the fact that he is doing this. A general technique for hiding it is to put the propositions to the defender in an order that makes it harder for the defender to see the pattern.

Ibn Sīnā begins his commentary on this passage by giving a brief explanation of the format of a debate. There are two participants, the 'questioner' (*sā'il*) and the 'responder' (*mujīb*). The questioner invites the responder to concede that certain propositions can be used as premises for reasoning in the debate; he does this by asking a question 'Is (or Isn't) it the case that  $\phi$ ?' If the responder answers affirmatively, he is said to *concede* (*yusallimu*, Form II) the proposition; by putting the question the questioner 'invites a concession' (*yatasallamu*, Form V). We can infer from *Qiyās* 538.10f that the responder has the option of not conceding either  $\phi$  or not- $\phi$ ; but the responder damages his credibility if he summarily rejects a proposition that is common knowledge or an obvious logical consequence of things he has already conceded.

From *Qiyās* 538.5 we learn that the questioner can also ask whether  $\phi$  follows from some other specified propositions. In fact the questioner is allowed to propose syllogisms whose premises have been conceded by the

responder; he aims to do this in such a way that the responder is shown to have conceded an inconsistent set of propositions. Aristotle's advice is about stratagems that the questioner can use to achieve this aim, and ways in which the responder can resist. From *Qiyās* 539.6ff and other passages in this section we know that the questioner can infer conclusions from a set of more than two premises; in other words he can use 'compound' (*murakkab*) syllogisms.

One might feel that the advice to the questioner has more to do with playing poker than with formal logic. But for Ibn Sīnā the link to formal logic is close. When we infer a conclusion from premises, we do it by making certain connections between the premises, for example where the same term occurs in two premises. The form of these connections is a question of formal logic. In general the logical connections need not induce a linear ordering of the premises; but it so happens that in assertoric syllogisms they do induce a linear ordering. Ibn Sīnā calls this ordering the 'syllogistic ordering' (*tartīb qiyāsī*, *Qiyās* 540.15 in the present text). For Ibn Sīnā, Aristotle's advice to the questioner should be read as advice to present the premises in an order that is very different from the syllogistic ordering.

Strictly this is an oversimplification. There is the order in which the premises are first presented. There is also an order in which they are taken for logical processing. These two orders need not be the same. If all the steps are first figure syllogisms in mood *Barbara*, as for example at (2) below, then the two orders can be taken to be the same. But if one of the premises is existential, then all the premises before it will have the order of their terms reversed, so that either we reverse the order of the premises or we land ourselves in a fourth figure syllogism; in the first case the premises are in the 'wrong' order and in the second case the terms are in the 'wrong' order.

Exactly how much of the relevant combinatorics Ibn Sīnā understood is not clear from his text; his knowledge in this area was hands-on rather than theoretical. But he did make an important contribution to clarifying the facts, by distinguishing (in *Qiyās* ix.3, 436.1) between two senses of 'compound syllogism'. A 'separated' (*maḥṣūl*) compound syllogism consists of several premises arranged in an appropriate order. A 'connected' (*mawṣūl*) compound syllogism consists of a separated compound syllogism together with an array of two-premise syllogisms that derive a conclusion from two premises, then a conclusion from this conclusion and another premise, and so on until we reach the conclusion of the whole premise set. (The final conclusion is called the 'goal' (*maḥlūb*); 'conclusion' in general is *natīja*.) In modern parlance a separated compound syllogism is a valid sequent and a

connected compound syllogism is a proof of a valid sequent.

So we can compare (a) the order in which the premises are listed in the separated syllogism and (b) the order in which the premises are used in the connected syllogism. When Ibn Sīnā speaks at *Qiyās* 539.7 about some premise being ‘nearer to the goal’, he must be speaking of connected syllogisms, since in a separated syllogism the goal is not among the premises and hence is at the same distance from all of them.

There is a partial doublet of this passage of *Qiyās* in Ibn Sīnā’s *Jadal* [6] vii.1; *Jadal* is the volume of the *Šifā’* that forms a commentary on Aristotle’s *Topics*.

The translation in Section 2 below is mine and should be regarded as provisional; it has not yet been checked by a native Arabic speaker. Also the paragraph divisions are mine, though they mostly agree with the Cairo edition.

## 2 Translation

/537/ ix.18 On dos and don’ts for the questioner and the responder to use, for example in relation to conceding or refusing to concede premises

[9.18.1] Syllogisms can be used both in the sciences and in debate. The syllogisms that are used in the sciences are used on the basis of how things are in themselves, while the syllogisms that are used in debate are used on the basis of what is either common opinion or a thing conceded [in the debate]. If a thing is condemned by common opinion then it is no use for debate. Now the main point about a premise in a debating disputation is that it should be something that is conceded, where what is conceded to is a request, and the request is about the proposed sentence, requesting that it be [taken as] a premise. The only difference between a premise and a request is that the request has associated to it a [linguistic] form which diverts its meaning away from that of the form of the premise. The premise can also be called a ‘request’ since it is conceded in response to a request. The sole aim of a debate is entailment and refutation (more specifically finding a syllogism whose conclusion conflicts with the proposition that the responder is defending), and it is not the aim of the debater, for purposes of the debate, to reach the truth. Therefore there is no harm if the questioner contrives, when he constructs a dialectical syllogism, stratagems whose use is a quick way of putting the goal at a distance. [Likewise there is no harm if] the

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responder, to whom the questioner addresses a syllogism whose conclusion is opposed to what [the responder] is defending, relies on some device that protects him, when he needs to concede one request or another, /538/ from any contradiction or refutation that attaches to [what he concedes], so that he puts his effort into preventing [the questioner] from producing any syllogism at all, or into preventing a syllogism that yields a conclusion opposite to what he is defending. 537.15

[9.18.2] Let us now consider principles which are useful specifically for someone who uses syllogisms, or who has a responsibility for them in the sense that he is an expert on the forms of syllogisms. Dialectical questions can have either of two forms. First, they can be about the premises and the conclusion of a syllogism together, as when you say 538.3

- (1) When every  $B$  is a  $C$  and every  $C$  is a  $D$ , doesn't it follow that every  $B$  is a  $D$ ? 538.5

In this case the only possible responses are either to concede or to reject the request, or to deny one of the premises, or to claim that the syllogism is not productive. Or secondly, the question can be about this or that premise, so that it's a separate issue whether the premises combine to form a syllogism and they yield the [claimed] conclusion. So [the responder] has to be careful about two things: firstly whether a particular premise should be conceded, and secondly how to avoid allowing [the questioner] to compose a syllogism by combining premises that have been conceded.

[9.18.3] As for the first aspect: we should try to use it so that we don't concede (in the syllogistic sentences) [premises in more than one of which] the same term occurs. [The reason is that] if there is no syllogistic term in common between [two] premises, then it's impossible to compose a syllogism from the premises, and so it's impossible for the questioner to make [the premises into] a refutation. (A refutation is a syllogism that establishes the contradictory negation of the posited proposition that the responder is defending.) As for [the other aspect, namely] the consequences of having made certain concessions: [the responder] should check how the middle term in the conceded premises is related to the two extremes, so that he knows the figure and the mood. If the figure is not productive for the given goal, as for example the second figure is not productive for an affirmative goal and the third figure is not productive for a universally quantified goal, this prevents the syllogism from entailing the goal. If it is not productive at all, this prevents its entailing anything at all. The responder can follow this 538.10 538.15

advice only if he has memorised the figures and moods of syllogisms. This is the advice for the responder.

[9.18.4] /539/ As for the questioner: he has to contrive, in some elegant way, not to reveal [that he is doing] what we have advised [the responder] to be on his guard against. So he has to take care to hide his strategy, so that he gets [the responder] to concede what is necessary for the derivation, but he doesn't ask [the responder] to concede the order of [the premises in] the syllogism; this needs skill in his art. 539.1

[9.18.5] Thus if the syllogism is a compound of syllogisms which yield conclusions that form premises for syllogisms that entail other conclusions, and so on up to the goal, he asks first about the premises that are furthest from either giving any hint of the goal or leading to a request to concede the goal. Next after this, he asks not about the next premise, but about one of the premises between the first and the goal, one which is nearer to the goal. Then he goes back and asks about a premise that is between the two premises he has asked about. For this purpose there are several aspects to the ordering. For example if the questioner was proving that every *Z* is a *B*, and he was deducing this on the basis that 539.3  
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Every *Z* is an *H*; and every *H* is a *D*; and every *D* is a *C*; and  
(2) every *C* is a *B*; and every *B* is an *A*;  
so every *Z* is an *A*.

then he would ask either about [the premises containing] the extremes, or about [those containing] the middle terms. If he asks about the premises [containing] the extremes, then it would be best to take the major premise. This is because if the questioner asks first about the minor premise, namely whether every *Z* is an *H*, then the responder would guess that perhaps every *H* is a *D*, or some other premise from the ordered [premises intended by the questioner]. But if the questioner asks about the major premise—namely whether every *B* is an *A*—then he will have disrupted the order of the discourse. So the effect is that there is less chance that [the responder] will guess what is happening if [the questioner adopts] this approach, because the sentence 539.10

(3) Every *B* is an *A* and every *Z* is a *B*,

is not in the actual order of the syllogism. In fact when there is no shared term whose occurrences in the two premises are adjacent, then there is 539.15

nothing for [the responder] to intuit. How could there be when no common term is stated? The other approach is for the questioner to ask first about the major premise, saying

(4) Isn't it the case that every *A* is a *B*?

Then he puts it at a distance by asking not about the premise that is adjacent to it, but rather about something further away from it, for example he asks /540/

(5) Is every *H* a *D*?

Then he goes back and asks about something between the two, such as

(6) Is every *C* is a *B*?

In this way he is careful to ensure that the order of the premises comes out differently. Even if he starts by asking about one of the middle premises, and then an extreme, so that he departs from the ordering of the middle terms, and then he goes back to the other extreme, there is nothing wrong in his failure to put the questions in their [syllogistic] order.

[9.18.6] If the syllogism is simple, not compound, the questioner should first ask about the middle term starting with questions about the major premise. So the first [term] expressed will be the middle term; for example we say 540.5

(7) Is every *B* an *A*?

This will be the first place where the middle term is expressed, and the first request will be about the relation of the major term to the middle term. Then the questioner asks about the minor premise, and thus he will have done what he could do by way of altering the connection between the premises. When he has done this, a syllogism is formed which has as conclusion the contradictory negation of the posit, i.e. a refutation of the posit. 540.10  
A refutation is a sort of syllogism, satisfying certain conditions in terms of figures and moods, but with the further property that its conclusion is the contradictory negation of a posit which the responder is defending.

[9.18.7] One of the commentators thought that the statement of the First Teacher, 'He should start with the middle term first', means that he should begin with the minor [term]. This is not correct. If the questioner asks about 540.13

the minor premise, he has to follow this with a question about the major premise, in which case he will have asked in accordance with the regular syllogistic order. But [the First Teacher] has already warned about taking the minor premise first, because to do that would give an indication of the way that [the questioner] will take the argument. If the question about the major premise gave the responder no choice but to respond /541/ in line with the intentions of the questioner, then it would have the same effect as if the questioner started his questions with the minor premise; whereas if the responder was given the option of answering in some other way, then that would be smarter than forcing that answer onto him, which would be more revealing of the minor premise, and more revealing of the [intended] arrangement of the syllogism. If the questioner has a way of coercing the responder into conceding the major premise, then from this point onwards he will have imposed his own approach on the responder. If the questioner asks first about the major premise, and then follows this with a question about the minor premise, where the syllogism is in first figure, then he doesn't display for the responder how the syllogism is composed and ordered, so he doesn't display why he had to coerce the responder. Then if the requested premise is very much as one would require and think appropriate, the questioner would hope that his deviation [from the syllogistic order] wouldn't send the responder in the wrong direction, given that the questioner was proving this premise with a view to the syllogistic construction. Thus if someone disputes with us about whether the world was created, and we want to put it to him that the world was created. Then if we say to him

(8) Isn't the world a such-and-such?

then that would call his attention to the proposition that the world's being a such-and-such makes it created; so he would make difficulties about that straight away. But if we were to ask him

(9) Isn't a such-and-such a created thing?

then it could be that he would intuitively set off in the direction of asking whether being a such-and-such is not a necessary consequence either of being created or of being eternal.

[9.18.8] You should know that this [latter] disruption of the ordering is useful when the syllogisms are composed in the ordering of the first figure, and when one is debating with opponents who are unsophisticated in

debate—be they beginners or [just] people lacking insight. But this degree of disruption is not effective with sophisticated opponents; to lead them into mistakes one must use compound syllogisms.

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### 3 Notes

[9.18.1] 537.12 Ibn Sīnā refers here to his view that a phrase can have its meaning altered by having a particle attached to it. This looks like either a denial of compositionality, or a careless statement of the shallow observation that a phrase plus particle doesn't in general mean the same as the phrase on its own. But on closer inspection it seems that Ibn Sīnā counts being asserted as part of the meaning of a sentence, and his point is that a sentence on its own can be asserted, but when preceded by 'If' or 'Is it the case that ...?', it can't be taken as an assertion. In this passage the 'linguistic form' is the question particle. He makes the corresponding point about 'If' at *ʿIbāra* [4] 33.17–34.2.

537.14 Following several mss, read *al-sā'ilu* for *lil-sā'ili*. Defending a posited proposition is the task of the responder, so the syllogism here must come from the questioner. In strict grammar Ibn Sīnā should have added a *lahu*.

[9.18.3] 538.10 This quotes *Prior Analytics* ii.19, 66a25.

538.13 It seems that Ibn Sīnā is giving the responder two pieces of advice: (i) if possible, avoid conceding two propositions that share a term; (ii) if you can't always follow (i), then at least try not to concede two propositions that share a term but are not productive together. He confuses the issue by suggesting that (ii) is advice about what to do *after* the concessions have been made; but at this stage the responder can only hope that the questioner has failed to notice that some set of conceded propositions entails the negation of the posit. Ibn Sīnā also makes the point that (ii), unlike (i), requires the responder to know the conditions of productivity for the relevant kinds of proposition. In his writings on formal logic more generally, Ibn Sīnā gives a new emphasis to these conditions of productivity, an emphasis which his successors continued. For the importance of memorising the rules of syllogisms, see also *Qiyās* [5] ix.6, 466.5.

[9.18.4] 539.1 This quotes *Prior Analytics* ii.19, 66a32.



539.2 I don't see the grammar of this, which seems to use *bi-* as a conjunction. But the sense is clear from the context.

[9.18.7] 540.13 This quotes *Prior Analytics* ii.19, 66b2. Here as often, Ibn Sīnā seems to be quoting a different translation from the surviving one attributed to Theodorus; but a case can be made that he deliberately alters the wording to show he has internalised the text.

540.13 "One of the commentators': We know very little about what commentaries on *Posterior Analytics* ii were available to Ibn Sīnā. I believe the only detailed commentary that we have and he almost certainly had is the small surviving part of Al-Fārābī's full commentary on the *Prior Analytics* [1] 445.3–12. Al-Fārābī agrees with Ibn Sīnā that Aristotle means the questioner should start with the major premise in this case; so he is not Ibn Sīnā's target here. (Ibn Zur'ā's commentary [8], p. 194 para. 9, also attributed to Al-Farāj, mentions the paragraph but doesn't go into this detail.)

540.15 'Syllogistic order'. This passage is one of a number of places where Ibn Sīnā says we need to have a set of premises arranged in the right *tartīb* ('order') if we are to see what conclusions follow from them (e.g. *Qiyās* [5] 460.6–12 and the opening paragraph of i.1.1 of *Pointers* [7]). So there should be no surprise that in his *Autobiography*, when he describes how in his youth he digested the arguments of the *Organon* and other classical texts, he mentions that he 'recorded the syllogistic premises and their order (*wa-tartībahā*) and the conclusions which they might yield' (cf. Gutas [2] pp. 16f and 203 note 72—Gutas misses the point when he amends *tartīb* here to *tarkīb* 'compound' or 'compound-ing').

## References

- [1] Al-Fārābī, *Al-manṭiqiyāt lil-fārābī* Vol. 2 *Al-shurūḥ al-manṭiqiyya*, ed. M. T. Dānishpazhūh, Maktabat Ayat Allah, Qum 1988.
- [2] Dimitri Gutas, *Avicenna and the Aristotelian Tradition: Introduction to Reading Avicenna's Philosophical Works, Second Edition*, Brill, Leiden 2014.

- [3] Ibn Sīnā, *Al-<sup>c</sup>ibāra (De Interpretatione)*, ed. M. El-Khodeiri et al., Dār al-Kātib al-<sup>c</sup>Arabī lil-Ṭabā<sup>c</sup> wal-Našr, Cairo 1970.
- [4] Ibn Sīnā, *Al-qiyās (Syllogism)*. Ed. S. Zayed, Cairo 1964.
- [5] Ibn Sīnā, *Al-jadal (Debate)*, ed. Aḥmad Fu'ād al-Ahwānī, Cairo 1965.
- [6] Ibn Sīnā, *Al-išārāt wal-tanbīhāt (Pointers and Reminders)*, ed. Mojtaba Zāre<sup>c</sup>ī, Būstān-e Ketāb-e Qom, Qom 2000. The logical part is translated: S. C. Inati, *Ibn Sīnā, Remarks and Admonitions, Part One: Logic*, Pontifical Institute of Mediaeval Studies, Toronto 1984.
- [7] Ibn Zur<sup>c</sup>a, *Manṭiq ibn zur<sup>c</sup>a*, ed. J. Jihāmī and R. al-<sup>c</sup>Ajam, Dar al-Fikr al-Lubnani, Beirut 1994.