On mixed syllogisms of possible and necessary in the first figure of possible and necessary

[4.3.1] [In the first figure] when the minor premises are necessity propositions and the major premises are possibility propositions, there is no doubt that the conclusion will hold as a possibility proposition, because of the universal quantification.

{The default in Aristotle’s modal syllogisms, which Ibn Sinā seems to follow, is that possibility is strict, i.e. it is contingency. Aristotle divides the present syllogisms into two cases, according as both premises are affirmative or one is negative. If one is negative, it has to be the major premise, by the flattening principle (every sound modal syllogism remains sound under at least one way of removing the modalities). Ibn Sinā ignores this distinction, since he has only the same comment on all cases (though that’s true of Aristotle too). Aristotle comments that these syllogisms are perfect.
My suspicion is that Ibn Sīnā’s ‘there is no doubt that’ means there is no doubt in the mind of the reasoner (rather than that of the logician), and is his way of saying that the syllogisms are perfect. His explanation of the perfection lies in the major premise — the only one with a universal quantifier in all cases — which tells us that whatever is said of all Bs, viz. that they are possibly As, will be true of anything included in the Bs. So the syllogism convinces because it’s obvious that the minor premise says among other things that every C is a B. *Is̲ārāt* succeeds in making this point more snazzily.}

[4.3.2] If the major premises are necessity propositions, then in that case

\[
\text{يحتاج إلى بيان يثبت أن القياس مرجح، وذلك كقولنا: كل ج ب اب}
\]

one needs a proof to establish that the syllogism is productive. Thus we say

Every C is a B with possibility;
and every B is an A with necessity.

{Barbara LM(broadposs)}

In the first instance it entails a conclusion that is a possibility proposition in the broad sense. Thus

{‘In the first instance’: He says this because we can make a first stab at finding the conclusion by adapting Aristotle 34a34, and the outcome is that the conclusion is broad possible. In *Najā* he goes on to show that the conclusion can’t be contingent; putting these two arguments together shows that the conclusion is necessary, a view he reaches by a different argument below. Street p. 152 comments that he ‘cannot understand’ the first proof in *Najā*. For that reason I sketch it below.}

\[
\text{إن لم تكون ممكنة، كانت غير ممكنة أن تكون كل ج اب، فتكون بالضرورة}
\]

if the conclusion fails to hold as possible, it is not possible that every C is an A, and we have that

\[
\text{بعض ج ليس اب، وبالضرورة كل ب اب، فيكون بالضرورة بعض ج}
\]

With necessity some C is not an A.
Now with necessity every $B$ is an $A$ [(by (1))], and so with necessity some $C$

ليس $ب$، وكان بالإمكان الحقيقي كل $ج$ $ب$.

is not a $B$, though we had [(by (1))] that with strict possibility every $C$ is a $B$.

[4.3.3] Likewise if [the major premise] is a negative

{Here he uses Baroco LLL, cf. 121.12ff.}

ضروريّة كقولك: كل $ج$ $ب$ بالإمكان، وبالضرورة لا شيء من $ب$،

necessity proposition, as in

Every $C$ is a $B$, with possibility;

(3) and with necessity no $B$ is an $A$.

Then it is possible that no $C$ is an $A$.

{Celarent LMM}

فيمكن أن لا يكون شيء من $ج$، وإلا فليس هناك. فبعض $ج$،

For otherwise this is not possible, and so some $C$ is an $A$

بالضرورة، وبالضرورة لا شيء من $ب$، فينتج ما علمت.

with necessity. But with necessity no $B$ is an $A$, and you know what follows.

{The sense requires that the $j$ in the Cairo text should be $b$, though there is no ms support for this.}

وأما هل تكون

[4.3.4] As to whether

هذه النتيجة ضروريّة أو مطلقة أو تكون مبكرة صرفة، فقد قيل في التعليم

this conclusion is necessity or absoluteness or pure possibility:

الأول في - قولنا كتبنا: إن الكبرى الضرورة إن كانت موجهة,

the First Teaching states as a universal rule that a necessity major premise, if it is affirmative,

{At 35b28ff Aristotle says that when one premise is affirmative and the
other is negative, if the affirmative is necessary then the conclusion is possible, but if the negative is necessary then the conclusion can be possible or truth. }
entails just a possibility conclusion, which doesn’t have to be an absolute-ness proposition; and if it is negative it entails both a possibility conclusion and an absoluteness.

{Note that Aristotle 35b29 says not that the conclusion is absolute but that it holds; but Theodorus’ translation has mu’tlaq.}

conclusion that is not a necessity proposition.

Aristotle proves absolute conclusion for Celarent poss nec.

[4.3.5] [In the First Teaching] we don’t find a proof of this in the affirmative mood, but we do meet a proof of it in this second mood, {Aristotle on Celarent}.

where it’s possible to construe [Aristotle] as indicating that the conclusion is necessary. He explains it

there as follows:

So it has to be that $A$ is not true of any $C$.

Here the expression ‘has to be’ refers not to the
{This is verbatim from Theodorus’ translation of Prior Analytics i.16, 36a10 (apart from some uncertainty between $yụjādu$ and tājādu, not affecting the sense); see Jabre 241.8.}

fact that the conclusion necessarily follows, but rather to the fact that the conclusion is a necessity in itself. The word ‘so’ signifies

على ذلك اللزوم، وبكون الوجوب هو الآلزم. فكأنه لنا قاس قال منتجا:
the entailment, and the thing that 'has to be' is the conclusion of the entailment. It's like when he expresses a syllogism and says that the conclusion is

في الضرورة ليس آ في شيء من ح، فإقتصر بالغا على دلالة اللزوم والإتباع.

So with necessity $A$ is not true of any $C$.

and by the ‘So’ he means only that the conclusion is a consequence [of the premises].

ثم بيَّن ذلك بالخلف على ما اعتبر عنه بأن قبل: فتتوجه أن آ موجودة في كل

[Aristotle] goes on to prove [the case we are considering] by absurdity. He expresses this by saying

Then let it be posited that $A$ is true of every or some $C$.

{In place of the correct technical term $tūda'$ the Cairo edition has $nū.da.h$, noting that $nū.da.e$ appears in several manuscripts. It’s possible that Ibn Sīnā was working from a faulty text. The original of this phrase follows immediately after the passage quoted above from Prior Analytics 36a10.}

He just says

200.10

of every

first in order to explain that in cases like this where the conclusion is negative and

الحَرْطُبَة التي نقيضها كليَّة موجبة. وأما قوله: فتتوجه، فمعناه أنه لنا قبل

existentially quantified, the contradictory negation of the conclusion is universally quantified and affirmative. When he says

Let it be posited

he means that when it has been said

{Again correcting the Cairo $nū.da.h$ to $tūda'$.}

أَنَّه تَكوِّن النَتِيجة سَالِبة كَلِئِية ضَرَورِيّة، قبل بعده: فإن لم يكن بالضرورة

that the conclusion is a negative existentially quantified necessity proposition, the next thing one says is: If it is not the case that with necessity
no \( C \) is an \( A \), then suppose that it is false that with necessity no \( C \) is an \( A \), and hence that it is possible with

العامة أن يكون بعض \( A \). فلنفرض ذلك موجوداً، فإنه لا يلزم من فرض الممكن

broad possibility that some \( C \) is an \( A \). So let us assume that that is the case. Now when a proposition is possibly true, the assumption that it is in fact true doesn’t entail

موجوداً محال، ولنفرض كل \( A \) ونضيف إليه أيضاً قولنا: بالضرورة

an impossibility. So let us assume

200.15

(4) Every \( C \) is an \( A \).

We add to it our [previous] sentence [(3) 2nd],

Transcription checked 7 Sep 12. Readings checked 8 Nov 12.
converting it to a necessity proposition

(5) With necessity no \( A \) is a \( B \).

and [thus] reducing [the two propositions] to a first figure syllogism, which allows us to supply a proof. (Even if this is not what Aristotle did, {The reduction is to Celarent with absolute minor premise and necessity major premise, as considered at 129.5 above, where the conclusion is necessity.})

(6) No \( C \) is a \( B \) — and that is with necessity.

But [we assumed that] it was possible for

\[
\text{كلّ} \quad \text{ج} \quad \text{ب} \\
\text{هذا محال.}
\]

every \( C \) to be a \( B \). This is an impossibility.

Getting an absolute conclusion for Celarent

[4.3.6] Now this is one way of giving a demonstrative proof which proves 201.5 that the conclusion is necessary, and this is the direction that [Aristotle] took in the

الأول، لكنّ الصدر والاقتصاد المذكور قبل التفصيل يبطل هذا التأويل.
First Teaching. But [Aristotle’s] introductory comments, which we mentioned before dividing [into the separate moods], go against this reading of him.

فلننظر كيف يمكن إستنتاج المطلقة عن هذا. فنقول: إنه يمكن على هذه
So let us look into the question how this mood could have an absoluteness conclusion. We say: It can happen as

الصفة، وهو ما عليه الظاهر من التفسير، فنقول: إنه لا شيء من جـ أ،
follows, which is a straightforward commentary [on Aristotle’s text]. We state that

(7) No C is an A.

وإلا فليكن هذا باطلة; وليكن الحق أن بعض جـ أ، وبالضرورة لا شيء من
For otherwise let (7) be false, and suppose the truth is that

(8) Some C is an A.

Also

(9) With necessity no B is an A [(= major premise of (3)].

بـ أ، فالضرورة لا كل بـ، وكان كل جـ يمكن أن يكون بـ. وهذا البيان
So

(10) With necessity not every C is a B.

But

(11) Every C is possibly a B [ (= minor premise of 3)].

[This is impossible.] This proof
{(10) follows from (8) and (9) by Cesare with absolute minor and necessity major, which is at 131.7f. }

بيًّن الإطلاق بالمعنى العالمي، ولا بيًّن الإطلاق الذي لا ضرورة فيه، وذلك لأنّ
proves absoluteness in the broad sense. It doesn’t prove the kind of absoluteness that excludes necessity, because
someone might well say:

If (7) is false with absoluteness, it doesn’t follow that

بعض ج أ حقًا؛ بل يجوز أن يكون الباطل أنه لا شيء من ج أ بالإطلاق

(8) is true. It could be that what is false is (7) with the kind of absoluteness

لا ضرورة فيه؛ ويكون الحق أنه لا شيء من ج أ بالضرورة، ولا يلزم أن

that excludes necessity, and the truth is (7) with necessity. So it doesn’t follow that

يكون بعض ج أ حقًا.

(8) is true.

Therefore this proof is not valid for establishing that the conclusion is absolute in the sense of ‘absolute’ that excludes its being necessary.

But it is valid when it is used to prove broad absoluteness.

Getting a necessary conclusion, also for Barbara

[4.3.7] It remains to look into the necessity [of the conclusion]. The proof above
QIYAS

Prior Anal i.16, 35b23

202

البيان لا يثبت القولان أنه ليس هما ضرورة، ولا يتبيّن به أن فيه إمكانا حقيقيا.

doesn’t show in any way that the conclusion is not a necessity proposition, but neither does it show that the conclusion is a strict possibility proposition —

elaa an yitkafu’ l-imkan ymani al-suru, wa’l ila ma safir marama.

-that is, unless the possibility under scrutiny is possibility in the sense of the quantifier, which is something we have met a few times already.

لكني أقول: إن النتيجة في هذا وما أشبه ضرورية; وأقول: إن الضرر
But for myself I say: The conclusion in this and similar cases is a necessity proposition. And I say: Both the

الموجب والسالب الذين كبرهما ضروبًا ضرورية ينتج نتيجة ضرورية. مثل الأول:
affirmative and the negative moods whose major premises are necessity propositions entail a necessity conclusion. An example of the affirmative case is:

كل ج ب بالإمكان، وكل ب أ بالضرورة، فكل ج أ بالضرورة،
Every C is a B with possibility;

(12) and every B is an A with necessity;
so every C is an A with necessity.

والله فيمكن أن لا يكون بعض ج. فتفض هذا الإمكان موجودا، ينتج
Otherwise it is possible for some C not to be an A. And so let us posit that

(13) Some C is not an A.

is true. Then this [and the major premise in (12)] form a productive

{I read as that (13) is true, not as that the possibility of (13) is true. This implicates Ibn Sinâ in the false rule of possibility, but that’s his normal practice. Ibn Sinâ hasn’t yet come to second figure mixtures of possible and necessary; but as I have it he is using Baroco with absolute minor and necessary major, which at 151.8 he says is standard, but he doesn’t say that the conclusion is necessary. }
syllogism in the second figure, entailing: it’s with possibility that not some \( C \) is a \( B \); or rather,

(14) It is not possible that every \( C \) is an \( A \).

This is an absurdity. It follows not from the premise [(13)] that was counted as true, but from the one that was considered dubious.

\{Here he repeats the move at 196.8, of shifting the blame for a contradiction away from the ‘false but possible’ premise. \}


c:\[4.3.8\] Let us prove the same thing

\[
\text{في الشكل الأول بعينه، ولنضع أن كل ج ب بالوجود، وكل ج أ}
\]
in the first figure. Suppose that

(15) Every \( C \) is a \( B \) in fact,
and every \( B \) is an \( A \) with necessity.

\{Using Barbara with absolute minor and necessary major, 125.9. \}

بالضرورة، فكل ج أ بالضرورة. وإذا كان فرضنا الممكن موجودا يجعل

Then

(16) Every \( C \) is an \( A \) with necessity.

If [in the minor premise] we have assumed that a thing that is possible is true, this makes

\[\text{هذه النتيجة ضرورية فلا يمكن أن ينتقل عن الضرورة؛ فإن قولنا: كل ج أ،}
\]
this conclusion a necessity proposition [in the original syllogism], and there is no way of translating it into something that is not a necessity proposition. In fact the sentence

(17) Every \( C \) is an \( A \) with necessity.

بالضرورة، معناه: أن كل ما هو موصوف بـ \( ج \) ما دام ذاته موجوداً
means

Everything that fits the description $C$ fits the description $A$ for so long as its essence is satisfied — even if it changes in any [other] way.

So it follows that that every $C$

فمَا دَامَ ذَاتِهُ مُوجُودًا فَهُوَ أَبْعَدَهَا. إِذَا كَانَ ذَاتِهُ مُوجُودَةُ فَهُوَ

is an $A$ for so long as its essence is satisfied, with necessity. So while its essence is satisfied, it is an $A$

بالضَّرْوَةِ. وَإِذَا كَانَ ذَاتِهُ مُوجُودَةُ وَلَمْ تَكُنْ مُوقَعَةً بِبَٰلْدَةً فَلا يُطْلَبَ إِنَّ

with necessity. While its essence is satisfied and it doesn’t in act fit the description $B$, either

يَكُونُ مَوْصُوفًا بِبَٰلْدَةٍ أَنَّهَا أَبْعَدَهَا، أو لَا يَكُونُ فَإِنَّهُ مَوْصُوفًا بِبَٰلْدَةٍ أَنَّهَا، سَوَاءً

it fits the description $A$ permanently, or doesn’t. So it fits the description $A$, regardless of whether

وَجَدَ بَٰلْدَةً أَوَّلَ مَا وَجَدَ فِي كُلِّ وَقْتٍ، فَالنْتِيْجَةُ ضَرْوَةٌ.

it is a $B$ or not, and at every time, and thus the conclusion is a necessity proposition.
[4.3.9] And if while it is a $B$ it is an $A$, but when it is not a $B$ it is not an $A$, then it is not an $A$ while its essence continues to be satisfied, but rather while its essence continues to fit the description $B$. But we said that it does in fact fit that description so long as its essence continues to be satisfied, regardless of whether or not it fits the description $B$. This is an absurdity.

In general know that what can possibly be necessary is necessary permanently, and its possibility is possibility in the broader sense. {NB Possibly necessary implies necessary.}

This is because if it becomes necessary at some time but can then lose its necessity while its essence is still satisfied, then it won’t [really] have been necessary, because what it means to say that it becomes necessary is that when this predicate becomes necessary for the subject, the subject continues to fit the description given by that predicate for as long as the essence of the subject continues to be satisfied. But if during the time while its essence is satisfied, it fails to fit the description...
QIYAS .3  Prior Anal i.16, 35b23

قبل أن صار ضروريًا له، فقد صار ضروريًا له، وليس هو له ضروريًا,
until the description becomes necessary for it, and then the description be-
came necessary for it, but [now] it is not necessary for it,

وهذا مجال. ومثال هذا: كل إنسان عكّن أن يتحرّك، وكل متتحرّك جسم
then this is an impossibility. 203.10

An example of this:

Every human can move;
(19) and every moving thing is a body with necessity;
so every human is a body with necessity.

بالضرورة، فكل إنسان جسم بالضرورة. فأما كان كل متتحرّك ما دام ذاته
Consider the fact that every moving thing, so long as its essence continues
to be

وجودا - يتحرّك أو لم يتحرّك - موصوفا بأنه جسم، وكان الإنسان عندما satisfied — whether or not it moves — fits the description 'body'. It is true
of a human as soon as

يتتحرّك صادقا عليه أنه جسم بالضرورة أي ما دام ذاته موجودا كيف كانت
he moves that he is a body necessarily, i.e. so long as his essence continues
to be satisfied, whatever

أحواله، يلزم أن يكون - وإن لم يتحرّك - جسمًا، لأنه جسم ما دام ذاته
else happens, and it follows that he is — even when he doesn’t move — a
body, because he is a body for so long as his essence continues

موجودا لا عندما هو متتحرّك فقط. فهو ما دام ذاته موجودا جسم، وهو قبل
to be satisfied, not just while he is moving. This holds for so long as his 203.15
essence continues as a body, and he was a body before

المركة جسم، وع بدعا جسم، لا أنه إنما يستفيد هذا عندما يتحرّك. فإن الشيء
the movement and he is a body after it. It’s not as if a thing reveals [that it’s
a body] only when it moves. The fact that a thing has property X

لا يستفيد أبدا من أمر عند وجوده يكون ذلك الأمر له حاصلا قبل وجوده،
is not something it reveals by its having property $Y$ when it does have $Y$, if $X$ is a property that it had before it had $Y$ —
QIYAS .3

Prior Anal i.16, 35b23

204

حَتَّى لَو لم يوجد، لم يكن له ذلك. فإن ذلك مَهْال،
as if it wouldn’t have had property \( X \) if it hadn’t already had \( Y \). That would be absurd.
{Not in fact absurd. A plate can reveal that it had a weakness by breaking, even if the weakness was invisible before the breakage. Was Ibn Sinā nodding here? }

وَالعِجْبُ كَلّ العِجْبِ أَنْ مَثَل هذَا الْبِيَانُ الَّذِي ذَكَرَهُ، حَيثَ الْكِبْرَاءُ
It’s quite remarkable that [Aristotle uses] a proof like this one mentioned above, where the major premise is a negative

ضَرْوَهَا، لِبَيْنَهُ بَأَنْ النَّتِيجةُ قد تكون ضَرْوَهَا، وَقَدْ كَانَ يَمْكِن أن يَذْكَر
necessity proposition, to prove that the conclusion can be a necessity proposition, when he could already have said the same
{NB Here he says that a proof proves ‘that its conclusion is necessary’, not that it proves a conclusion which is a necessity proposition (or a necessary proposition). I have an impression that he does this elsewhere too. Check. }

في الموجبة، فَقَدْ حَكَمَ فِي الْصَّدِرُ بَأَنْ يَوِجِبُ الفَرْقُ فِي ذلِكَ بَينَ الْكِبْرَاءَ
about the affirmative case; and that [Aristotle’s] introduction reckons that

موجبة وأَلْتَي كِبْرَاء سَائِلَةٌ فِي هذَا الْمُنْعِيْنِ. وَمَن العَجَابُ أَنْ لَمْ كَانَ الكِبْرَاءَ
and those with negative major premise. And it’s remarkable that when the major premise is

مَطْلَقَة سَائِلَة مَخْلُوْطةٌ بَالْمَكْرِ تَمْلَِحُ لَهَا نَتِيجة ضَرْوَهَا سَائِلَةٌ، وَلِمَا صَارَت
an absolute negative proposition and is combined with a possibility premise, he contrived to show that it can have a necessity conclusion, but when

[the major premise] is [affirmative], he determined that the conclusion is [not] a necessity proposition. This in spite of the fact that when it is the possibility premise that is negative,

{There is a problem of getting the Cairo text to say something that agrees with Ibn Sīnā’s analysis of the logical situation. I don’t see an alternative to correcting the darʿūriyyatan at the beginning of line 204.8 to mujibatan; perhaps the curious darʿūriyyatan mumkinatan in the previous line distracted an early copyist. Then we need to negate the second darʿūriyyatan; one ms moves in this direction by writing haraja for jazama, but loss of a là is a commoner and more probable error. A better suggestion would be welcome.}

it implies precisely the same [modality] as when [the possibility premise] is affirmative. Reducing the conclusion from affirmative to negative is not possible,

{When the possibility premise is negative, e.g. with Celarent with necessary minor and possible major, we have a possibility conclusion by 199.5. Switching the negative to affirmative gives Barbara with necessary minor and possible major, which again by 199.5 has possibility conclusion.}

since the possibility in it is the broad one and not the narrow one.

{This sentence has all the marks of being a marginal note by a reader who hadn’t quite thought it through. The point seems to be that Aristotle couldn’t have seen the parallel between the affirmative case and the negative one by making a straight reduction from one to the other. But the suggested reduction, of a possibility conclusion in the affirmative case to a possibility conclusion in the negative case, is irrelevant to the issue. Ibn Sīnā’s point was that Aristotle could have got an affirmative conclusion already in the affirmative case and not just in the negative; so the relevant reduction would have been from a negative necessity conclusion to an affirmative one.}

[4.3.11] Be aware that most of what the First
Teaching contains about mixtures of modalities consists of tests rather than authoritative rulings. The true facts about them will become clear to you when some of the facts above about mixtures of modalities are mentioned or used in later topics, where are these later topics? I’ve not seen any modal syllogisms in *Jadal.*  
So far you have seen only one [or two] of the cases [in this figure], but from these cases you can tell the facts about the syllogisms with existentially quantified premises.  
{Darii and Ferio. Aristotle discusses them at greater length, i.16, 36a31ff.}  
The general rule is that the choice of modality for the conclusion lies with the major premise. If this premise is a possibility proposition then the conclusion is a possibility proposition, and if it is a necessity proposition then the conclusion is a necessity proposition.