Ibn Sina: Qiyās ii.4

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based on the Cairo text ed. Ibrahim Madkour et al.
(DRAFT ONLY)

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فصل في القياسات الإقترانيّة وذكر الأشكال الثلاثة في حالتي الإطلاق والضرورة

ii.4 Recombinant syllogisms and a comment on the three figures in the two cases of absolute and necessary

{*Prior Anal* i.4, 25b26}

فهذه الأشياء المذكورة ذكرت على سبيل المقدّمات لمّا يراد تعليمه من أمر

[2.4.1] These things that we have been discussing [(i.e. propositions)] 106.4
are referred to as 'premises' when one intends to study them as parts of

القياس، فنقول: إنّ اللّازم عن القياس لا يخلو، إمّا أن يكون غير مذكور هو

a syllogism. We assert that a [proposition] that follows from a syllogism 106.5
falls into one of two cases. The first case is that neither the proposition

ولا نقيضه في القياس بالفعل، وتسمّى أمثال هذه المقايس إقترانيّات، مثل

nor its contradictory negation is mentioned explicitly in the syllogism; syllogisms of this kind are called 'recombinant'. An example is

قولك: كلّ حيوان جسم ، وكلّ جسم جوحر ، فكلّ حيوان جوهر؛ وإمّا أن

when you say

(1) Every animal is a body,
and every body is a substance,
so every animal is a substance.

The second case is that

يكون اللّازم أو نقيضه، وبالجملة أحد طرفي المطلوب، مذكورا فيه بالفعل بوجه ما؛

the proposition or its contradictory negation, or more generally one of the two polarities of the goal, is mentioned in it explicitly in some way.

وخذا أسمّيه إستثنائيّا، والجمهور يسمّونه شرطيّا. وإنّما لم أسمّه شرطيّا، إذ من

I call these [syllogisms] 'duplicative', though the common name for them is 'conditional'. The reason I don't call them conditional is that

الشرطيّات ما يكون على سبيل الإقتران.

some conditional [syllogisms] are in fact recombinant (??). 106.10

ولنقدّم ما يكون على سابل الإقتران. ومنه ما يكون من حمليّات. فنقول:

[2.4.2] Let us start with the recombinant [syllogisms]. Some of them [are predicative, i.e. they] consist of predicative [propositions]. We assert that 106.11

إنّ كلّ قياس إقتراني بسيط حملي، فإنّه مؤلّف من مقدّمتين يشتركان في حدّ

every simple predicative recombinant syllogism is composed of two premises which share a term,

إشتراك المثال المورّد في الجسم. وهذا الحدّ لا يخلو إمّا أن يكون في أحدهما

like the shared term 'body' the example above. This term can be in one of the two [premises]

محمولا، وفي الآخر موضوعا، أو يكون محمولا في كليهما، أو موضوعا

as predicate and in the other as subject; or it can be predicate in both; or it can be subject

في كليهما. وإذا كان موضوعا في أحدهما محمولا على الآخر، فإمّا أن يكون

in both. When this term is the subject in one and the predicate in the other, then there are two cases. It can be 106.15

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محمولا على موضوع المطلوب، وموضوعا لمحمول المطلوب، وهو الّذي
predicated of [the term that is] the subject of the goal and subject for [the term that is] the predicate of the goal; this case is 107.1

يسمّى الشكل الأوّل؛ وإمّا أن يكون محمولا على محمول المطلوب،
called 'the first figure'. Or else it can be predicated of the predicate of the goal

موضوعا لموضوع المطلوب، وهذا هو الشكل الّذي ألغي، لمّا أذكره من
and subject for the subject of the goal. But when I come to discuss it, I will eliminate this figure

العلّة بعد وجوبه في القسمة.
on grounds of deficiency, though it had to be included in the classification. 107.4

فإنّهم حين قسموا الأشكال على القسمة المثلّثة الّتي
[2.4.3] When people classified the figures according to the threefold classification that 107.4

ذكرناها فجاءت ثلاثة، عيّنوا واحدا منها على أنّه الشكل الأوّل، وأخذوه على
we mentioned, where syllogisms come in three forms, they identified one of these parts as being the first figure, and they took it as 107.5

أنّه هو الّذي أوسطه موضوع في أحدهما محمول في الآخر، ثمّ لمّا نظروا
being the one whose middle term is a subject in one of the two premises and a predicate in the other. But then when they considered

فيه من حيث يجتمع منه ما يجتمع، أخذوه من حيث يحفظ موضوع وسطه
any specific premise pairs that presented themselves (idiom??), they took 'first figure' to mean that the term that serves as subject for the middle term remains
{NB 'They take X *min ḥayṯu* ϕ' here means 'They take X to mean that ϕ'.}

موضوعا ومحموله محمولا فقط. وهذا أخصّ من المعنى الّذي لأجله جعل شكلا
a subject in the conclusion, and the term that serves as predicate for the middle term remains a predicate in the conclusion. This is a narrower

meaning than the one originally assigned for this figure.

أوّلا. فإذا جعلوا شكلا أوّلا، لا بمجرّد أنّ الأوسط موضوع ومحمول، بل لأنّ

Then because they counted the first figure not as the one satisfying the general condition that the middle term occurs both as subject and and predicate, but where
{Should be *anna* rather than *li-anna*, shouldn't it?}

الأوسط محمول على موضوع المطلوب، وموضوع لمحمول المطلوب؛ فقد ألّفوا قسما

the middle term is predicate of the subject of the goal. and subject of the predicate of the goal, they devised a fourth subdivision. 107.10

رابعا. وفاضل الأطّباء يذكر هذا، ولكن لا على هذا الوجه، بل هذا الإلغاء هو

The best of doctors mentions this fourth figure, but he doesn't take the view that we do. Here we reject it

بسبب أنّه أمر غير طبيعي، وغير مقبول، وغير ملائم لعادة النظر والرويّة، ومستغني

because it is unnatural, unreasonable and inappropriate for the conduct of the enquiry and reflection. And it is not needed,

عنه بقوّة عكس نتيجة ما هو شكل أوّل، وعلى ما سنوضحه في موضع آخر.

thanks to the possibility of converting the conclusion of [a syllogism] in first figure; we will explain this elsewhere.
{Is this a reference to 110.6ff? }

فليكن

[2.4.4] So let 107.13

الشكل الأوّل ما ذكرناه. وأمّا الثاني فهو الّذي يكون حدّه الأوسط محمولا على

the first figure be what we said it is. The second figure is the one in which the middle term is predicated of

الطرفين. وأمّا الثالث فهو الّذي يكون حدّه الأوسط موضوعا فيهما جميعا.

both the two extreme terms. The third figure is where the middle term is subject for both the extreme terms. 107.15

والطرف الّذي هو موضوع المطلوب يسمّى حدّا أصغر، والمقدّمة الّتي فيها هذا

The extreme term which is the subject of the goal is known as the 'minor term', and the premise which contains

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الطرف تسمّى مقدّمة سغرى، والطرف الّذي هو محمول المطلوب يسمّى حدّا
this extreme term is called the 'minor premise'. The extreme term which is the predicate of the goal is called

أكبر، والمقدّمة الّتي فيها هذا الطرف تسمّى مقدّمة كبرى. وتأليف مقدّمتين
the 'major term', and the premise that contains this extreme is called the 'major premise'. A composition of two premises

بالإقتران يسمّى قرينة. والّتي يجب عنها النتيجة لذاتها تسمّى قياسا. وهيئة نسبة
is called a 'premise-pair'. The thing from which the conclusion has to follow intrinsically is called a 'syllogism'. The format of the relation
{The *li-ḏātihā* refers back to *bi-ḏātihā* in the definition of syllogism at 54.7. }

الأوسط إلى الطرفين يسمّي شكلا. والّذي يلزم، فإنّه ما دام يساق أليه بالقياس
between the middle term and the two extremes is called a 'figure'. The thing that follows is called the 'goal' while we are still making our way towards it through the syllogism.

يسمّى مطلوبا. فإذا لزم سمّى نتيجة.
Then when it has followed, it is called the 'conclusion'. 108.5

وإنّما سمّى الشكل الأوّل شكلا أوّلا لأنّ
[2.4.5] The first figure is put as the first figure just because 108.5

إنتاجه بيّن بنفسه، وقياساته كاملة، ولأنّه ينتج جميع المطالب، والثاني لا ينتج إلّا
the fact that its conclusion follows is self-evident, and the syllogisms in it are perfect. Another reason is that it entails each kind of goal, whereas the second figure entails only

السالب، والثالث لا ينتج إلّا الجزئي، ولأنّه ينتج أفضل المطالب وهو الكلّي
negative propositions, and the third figure entails only existentially quantified propositions. Moreover it entails goals of the best kind, namely universally quantified

الموجب.
affirmative propositions.

وإعلم أنّه لا قياس من سالبتين، ولا من جزئيّتين، ولا صغرى سالبة

[2.4.6] Know that: 108.8

1. There is no syllogism from two negative propositions,
2. Nor is there from two existentially quantified propositions.
3. The minor premise is not negative [[unless it is a contingency proposition]].
4. The major premise is not existentially quantified.
5. And know that the conclusion follows the worse of the two premises, not in every respect, but in quantity and quality though not in modality. 108.10

{Camestres and Baroco are both counterexamples to the third condition. Could the suspicious item about contingency propositions be a corruption of a clause covering this? }

كبراها جزئيّة إلّا أن يكون السالب ممكنا. وإعلم أنّ النتيجة تتبع أحسن المقدّمتين.

{NB This is a typo for the peiorem rule.}

لا في كلّ شيء؛ بل في الكميّة والكيفيّة دون الجهة. وهذه جعل تعلّمها بعد

You will learn these things later

بإعتبار الجزئيّات.

as we consider the separate cases.

الشكل الأوّل:

The first figure: 108.12

والشكل الأوّل فإنّه لمّا كانت صغراه موجبة، صار الحدّ الأصغر فيه داخلا

[2.4.7] Consider a syllogism in the first figure. Given that its minor premise is affirmative, [it is asserted that some or all of the things satisfying] its minor term are included 108.13

فيما يقال عليه الأوسط. فإذا كان في الكبرى إيجاب كلّي على كلّ ما يقال عليه

among the things that satisfy the middle term. So when the major premise is universally quantified, if it affirms or denies [the major term] of everything that satisfies

الأوسط، أو سلب كلّي عن كلّ ما يقال عليه الأوسط كيف قيل، دخل فيه

the middle term, regardless of how it does so, [it follows that the things satisfying] its minor term are included among [the things that satisfy, or respectively fail to satisfy, the major term]. 108.15

الأصغر. فإن لم يكن كلّيّا أمكن أن يفوته الأصغر؛ إذ يجوز أن لا يكون هو

But if [the major premise] was not universally quantified, it could happen that [the things satisfying] the minor term escape [the major term], since it could happen that [the premises are true but]

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البعض الّذي عليه الحكم ، سواء كان ضروريّا أو ممكنا. فأمّا إذا لم يكن
the 'some' individuals [witnessing the major premise] are not [those satisfying the minor term]. (This could happen equally well when [the major premise] is a necessity proposition or a possibiity proposition.) And if [the minor premise] didn't

الأوسط محمولا على الأصغر، فستجد أمورا توجب على كليهما، وهما مباينان؛
predicate [i.e. affirm] the middle term of the minor term, then you will find [a syllogism of the same form] with minor and middle terms such that nothing satisfies both of them;

وأمورا تسلب عن كليهما، وهما متباينان. فلا يلزم أن يكون الحكم على الأوسط
and things that are denied of both of them, and the two are disjoint. So it doesn't follow that what [the major premise] says about the middle term
{We surely want things that are true of all of one but none of the other? }

حكما على الأصغر، كان سلبا أو إيجابا. فإن كان الأكبر جزئيّا، فذلك أبعد ، بل
holds also of the minor term, regardless of whether [the major premise] is an affirmation or a denial. If the major premise is existentially quantified, then the same holds a fortiori;

إن كان جزئيّا على الأوسط، والأوسط موجودا للأصغر، لم يجب أن يتعدّى إليه ،
or rather, if the middle term is existentially quantified [in the major premise], and the middle term is predicated of the minor term [in the minor premise], 109.5
then what is said of the middle term [in the major premise] doesn't have to transfer to the minor term,

إذ الحكم على الأوسط كان حكما جزئيّا، فيجوز أن يكون الأوسط أعمّ من
since what is asserted or denied of the middle term is asserted or denied of 'some' of the middle term, so it is possible for the middle term to cover more things than
{NB Here the quantifier is definitely part of the *ḥukm*.}

الأصغر، ويكون الحكم في البعض الّذي هو خارج عن الأصغر بإيجاب
the minor term, and the assertion or denial [in the major premise] is about some things that are not covered by the minor term,

أو سلب، فيكون الحكم على ما ليس الأصغر، ويكون ما قدمنا ذكره. فبيّن أنّه
so the assertion or denial is about things not satisfying the minor term, and we are in the situation discussed earlier. So it is clear that

إذا كانت الصغرى سالبة والكبرى جزئيّة لم ينتج. وهذا يجب أن يقتصر عليه،
when the minor premise is negative and the major premise is existentially quantified, the premises don't entail a conclusion. We should stop there

ولا يشتغل بعدّ ضروب ما لا ينتج، بسبب أنّها لا يلزم منها نتيجة معيّنة. فإنّك
and not bother to enumerate the moods that are unproductive because no 109.10
determinate conclusion follows from them.

بعد الإحاطة بما قدمناه، يمكنك أن تورد تلك الأمثلة.
When you have understood what we said earlier, you can give examples of such moods.

وإعلم أنّ المهملات حكمها

[2.4.8] Know that unquantified propositions behave like 109.11

حكم الجزئيّات، فتصلح صغريّات، وتنتج مهملة. وإنّ المخصوصات أحكامها
existentially quantified propositions, in that they can legitimately occur as minor premise in a syllogism with an unquantified conclusion. Singular propositions behave

أحكام الكلّيّة. فإنّه قد يكون من مخصوصتين قياس، كقولك: زيد هو
like universally quantified propositions. In fact there can be a syllogism in which both premises are singular, for example

(2) Zayd is the father of Abdullah.

أبو عبد الله، وأبو عبد الله هذا، أو أخو عمرو. ولكنّ النتائج تكون مخصوصة
and

(3) Abdulluh is this person (or the brother of ᶜAmr).

But the conclusions will be

شخصيّة. وأكثر ما تستعمل المخصوصات مقدّمات صغرى.
singular. Most of the singular propositions that are used [in syllogisms] 109.15
occur as minor premises.

فلنعدّ المحصورات فنقول: إنّه إذا كان كلّ ج ب وكلّ ب ا ، فبيّن أنّ كلّ ج ا ،

[2.4.9] Let us list the quantified moods. We say: 109.16

When every C is a B;
(4) and every B is an A;
then clearly every C is an A.

{BARBARA}

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وأنّه إذا كان كلّ ج ب ، ولا شيء من ب ا ، فبيّن أن لا شيء من ج ا ،

And

When every C is a B;
(5) and no B is an A;
then it's clear that no C is an A.

{CELARENT}

وأنّه إذا كان بعض ج ب ، وكلّ ب ا ، فبيّن أنّ بعض ج ا ، وأنّه إذا كان

And

When some C is a B;
(6) and every B is an A;
then it's clear that some C is an A.

{DARII}
And

When some C is a B;
(7) and no B is an A;
then it's clear that not every C is an A.

{FERIO}

بعض ج ب ، ولا شيء من ب ا ، فبيّن أن ليس كلّ ج ا . فهذا هو الشكل الأوّل،

[2.4.10] This is the first figure

وضروبه المحصورة هذه الأربع، ونتائجه هذه. وقد يلزم القياسات الثلاثة من
and its quantified moods are these four, and their conclusions are these. And three of these syllogisms can be taken to have consequences

هذه لوازم هي عكوس هذه. فإن جعلت قياسات عليها، لم تكن قياسات كاملة
that are converses of the ones above. If you make syllogisms with these 110.5
conclusions, the syllogisms aren't perfect

بالقياس إليها؛ بل إنّما يتبيّن ما يلزم عنها بالعكس.
in comparison with the ones above; rather one just proves what follows from the ones above by [adding] a conversion.

فأمّا من قال: إنّ في غير

[2.4.11] Suppose someone were to say that there are other 110.6

هذه الضروب ما ينتج، وهو إذا كان لا شيء من ج ب وكلّ ب ا ، أو لا شيء

productive moods besides these, namely that when either

(8) No C is a B;
and every B is an A.

or

(9) No C is a B;
and some B is an A.

من ج ب وبعض ب ا ، أنتج ليس بعض ا ج . قال: لأنّك إذا عكست كلّ

it follows that

(10) Some A is not a C.

Hbecause when you convert

(11) Every B is an A.

ب اأو بعض ب ا ، أنتج من الشكل الثاني ليس كلّ ا ج . فالجواب عن هذا

or

(12) Some B is an A.

then it follows by a syllogism in the second figure that

(13) Not every A is a C.

The answer to this

أنّه إنّما قيل كبرى وصغرى، بسبب أن في إحديهما موضوع المطلوب،

is that one calls the premises major and minor just because the first contains 110.10
the subject of the goal

وفي الأخرى محمول المطلوب. فإذا جعلنا مقدّمة ج ب صغرى، وكان ب الحدّ

and the second contains the predicate of the goal. When we make the premise C B the minor premise, where B is the

الأوسط، فيكون جَ الحدّ الأصغر، ويكون موضوع المطلوب، وعلى مثل ذلك
middle term, then C is the minor term and it will be the subject of the goal. Likewise
{I.e. the opposite to what he's just said. We fix which is the minor premise and which the major, and this determines the form of the conclusion. This is clearly what happens in practice, particularly when the conclusion is not yet found or may not exist.}

يكون ا محمول المطلوب. فإذا قلنا: لا ينتج بسلب أو إيجاب، عنينا أنّ ذلك
A will be the predicate of the goal. And when we said that it doesn't entail either a denial or an affirmation, we meant that this

لا ينتج و آ محمول. وقد زال بهذا الشكّ. وإن أنتج شيئا، فليس عن كبرى
doesn't entail any conclusion with A as its predicate. That deals with the doubt. Even if these moods do entail a conclusion, it is not from the major and

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وصغرى على ما وضع.

minor premises that were posited.

ومع ذلك فإنّه يرجع إلى الكامل بعكسين. فهو بعيد

[2.4.12] Nevertheless it does reduce to a perfect syllogism through two conversions. But this is remote 111.1

من الطبع، مناسب للقسم الثاني من الأقسام الأربعة للأشكل، الّذي إنّما ألغي

from nature; it fits the [residual] subdivision of the figures, which is invalidated

{The figure that Ibn Sīnā regards as invalidated is the fourth figure, and it's the fourth figure that we get by converting the conclusion of a first figure syllogism. So I can't see how in this line he can be saying anything other than that the two moods under consideration are in fourth figure. This means either replacing *al-ṯānī min al-'aqsāmi l-'arba^{c}a ti* by *al-rābi^{c}ati* or perhaps better *al-bāqī min al-'aqsāmi l-'arba^{c}a ti* by *al-rābi^{c}ati*, or supposing that Ibn Sīnā is temporarily using a different ordering of the figures. See also 111.5, where except for five listed mss that have *bāqī*, again he calls this the second subdivision. }

{In (110.7) he goes from 'No C is a B' and 'Every B is an A' to 'Some A is not a C'. To get the major and minor premises in the right order, this would need to be written 'Every B is an A', 'No C is a B'. So it is in fourth figure. Converting the premises to 'Some A is a B', 'No B is a C' gets it back to first figure but with two conversions. }

لأنّه بعيد عن الطبع جدّا. فإنّ الشكل الثاني بعد عن الطبع في نظم مقدّمة واحدة

by its extreme remoteness from nature. In fact the second figure is remote from nature through having a single premise — the major one — in the wrong order.

هي الكبرى، والثالث بعد عنه في نظم مقدّمة واحدة وهي الصغرى، وإذا

The third figure is remote from nature though having a single premise — the minor one — in the wrong order. When

كان البعد في معنى واحد إحتمله الذهن وفطن للغرض. وأمّا القسم الثاني فإنّه

the remoteness occurs in just one [premise], the mind tolerates it and sees 111.5

how to reach the target. But the residual subdivision of the figures
{For *ṯānin* read *bāqī* with several mss. Note also that a ms confuses these two words at 112.5 below. }

يحتاج في ردّه إلى الأمر الطبيعي إلى تغيّر يلحق جميعه، وهو مستغني عنه.
has to have both premises altered in order to reduce it to natural form, and this is something we can do without.

فالأولى به وبما هو في مذهبه أن يلغى.
The best way to deal with this and similar syllogisms is to count them as invalid.

الشكل الثاني:

[2.4.13] The second figure: 111.8

هذا الشكل خاصّيّته في نظمه أنّ الأوسط منه محمول على الطرفين، وخاصّيّته

The distinctive feature of the format of this figure is that its middle term 111.9
is predicated of both extreme terms. Its distinctive

في إنتاجه أنّ الموجبتين منه لا تنتجان؛ وذلك لأنّ المحمول الواحد بالإيجاب

productivity condition is that in it a pair of affirmative premises is not pro- 111.10
ductive. This is because one and the same predicate in [both] affirmations

كالجسم يحمل على متباينين كالحجر والحيوان، وعلى متّفقين كالإنسان والضحّاك.
(for example 'body') can be predicated [truly] of two disjoint things (for example 'stone' and 'animal'), and also of things that coincide (for example 'human' and 'laugher').

ولا السالبتان، لأنّ المحمول الواحد كالحجر قد يسلب عن متباينين كالإنسان والفرس،
A pair of negative premises is not productive either, because one and the same predicate (for example 'stone') can be [truly] denied of two disjoint things (for example 'human' and 'horse'),

وعن متّفقين كالإنسان والناطق. ولا عن جزئيّتين، فإنّ المحمول الواحد يوجب
and of two things that coincide (for example 'human' and 'rational'). Also a pair of existentially quantified premises productive [in this figure], because one and the same predicate can be both affirmed [truly]

لبعض الأمر الواحد ويسلب عن بعضه، وقد يوجب ويسلب عن بعضي
of some of a thing and denied [truly] of some of that thing, and it can be [truly] affirmed and denied of some of

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أمرين مختلفين. ولا إذا كانت الكبرى جزئيّة، فإنّه إذا حكم على « كلّ شيء ما » ، ثمّ

two disjoint things. Nor is it productive when the major premise is existentially quantified; when [the minor premise] makes an assertion about 'Every [C]' and

{Given the cases above, we have to show that 'Every C is a B and some A is not a B', or 'No C is a B and some A is a B', are not productive. We show it by showing that there can be (1) terms satisfying the premises and such that every C is an A, and (2) terms satisfying the premises and such that no C is an A. }

{Several mss felt a need to add further explanation here, though the details they add are different. }

حكم على « بعض الآخر » ، لا بخلاف ذلك، جاز أن يكون الشيء محمولا على ذلك

[the major premise] makes an assertion about "some A", it can be that [A] is true of

الكلّ، لكنّه أعمّ منه، فيوجب عليه وإن كان بعضه لا يوجب عليه، وجاز

every [C] but [A] is broader than [C], so that while [A] is true of [C] there is some [A] that is not true of [C]; but also it's possible

أن يكون مباينا له بكلّيّته لا يحمل عليه. فهذه خاصّيّته في الإنتاج. وإنّما كان

that [A] is disjoint from [C] and none of it true of [C]. These are the distinctive features of productivity in the second figure. But this is just

شكلا ثانيّا، وآخر عنه الشكل الباقي من الأشكال، لأنّه ينتج ما هو أنفع وهو الكلّي،

the second figure, and there is a further figure. These two figures are different in that the second figure entails conclusions that are more useful, namely universally quantified propositions, 112.5

وذلك الباقي لا ينتج إلّا الجزئي، وإن كان ينتج الموجب، وهذا لا ينتج إلّا السالب.

whereas the further figure entails only existentially quantified propositions. But the further figure does entail affirmative conclusions, while the second

figure entails only negative ones.

فإنّ السالب الكلّي أنفع من الجزئي الموجب، أيّ في العلوم؛ ولأنّه إنّما يحدث

In fact negative universally quantified propositions are more useful than existentially quantified affirmative propositions, that's to say that they are more useful in the sciences. [The second and third figures differ also] because one can reach the first figure from it

منه الأوّل بعكس الكبرى منه، وأمّا الباقي فيحدث بعكس الصغرى، فقرابته من

by converting its major premise, whereas from the remaining figure one can reach the first figure by converting the minor premise. So the remaining figure

الأوّل في أشرف المقدّمتين.

comes closest to the first figure in the higher of its two premises.
{NB 'Nobler premise': this is a very silly comment. Can it really be Ibn Sīnā speaking? But note the use of *šaraf* in *Burhān*. }

والأشياء الإختباريّة الّتي لا وجوب فيها وإنّما يدعو إليها الإستحسان

[2.4.14] Turning to premises that are empirical and have no necessity in their content: it is just our sense of what is right and what we take to be for 112.10
the best that calls us to

والأخذ بالأولى، فإنّها لا تجاوز بعللها المبلغ الّذي أومأنا إليه. ومع ذلك فإنّا

consider them. [Aristotle] did not see them as providing any reasons to go beyond the range of facts that we have indicated. Nevertheless

نزيد أن نصرّح بما يرفع الحقّ عن وجوهنا قناع الحياء فيه، وهو أنّه إذا كانت هذه

we will go further, and set out explicitly some facts that will make it impossible for us to maintain an attitude of modest acceptance. To be precise, take the

السالبة الكلّيّة المطلقة على حسب ما يفهم من السلب الكلّي المطلق فهما بحسب

negative universal absolute proposition, understood as such propositions normally are understood, so that it is understood without

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الأمر في نفسه سواء كانت بالمعنى العامّ أو بالمعنى الخاصّ، فإنّه لا يأتلف منها
any condition being added — it makes no difference whether we take 'absolute' in the broader or the narrower sense. [The fact is that] there is no [productive] second figure syllogism whose composition
{Unclear whether the condition is added to the proposition or to the definition of 'absolute'. }

في هذا الشكل قياس. وذلك لأنّ السالبة الكلّيّة المطلقة والموجبة الكلّيّة المطلقة،
uses such a proposition. This is because a negative universally quantified absolute proposition and the [corresponding] affirmative universally quantified absolute proposition

قد تصدقان معا على شيء واحد. وقد أوردت له أمثلة في التعليم الأوّل. فإنّ
can be both true together of the same subject. Examples of this already appeared in the First Teaching. Thus

كلّ إنسان نائم وكلّ إنسان ليس بنائم قد تصدقان، لأنّ كلّ إنسان نائم وكلّ

(14) Every human sleeps.

and

(15) Every human doesn't sleep.

can be true together, because [firstly] every human sleeps, and [secondly] there are some times at which every

إنسان ليس بنائم وقتا ما. وبالجملة إذا كان محمول يحمل على كلّ واحد لا دائما؛
human doesn't sleep. This holds generally, when a predicate is predicated 113.5
of every individual, not permanently

بل وقتا ما، فهو أيضا يسلب عن كلّ واحد لا دائما، بل وقتا ما. وكذلك إن كان
but at some time, and it is also denied of every individual, not permanently but at some time. The same holds if
{Unclear whether the *bal* clause means it is required not to be permanent, or just that it is not required to be permanent. }

حمله حملا يجوز أن يكون لا دائما وإن لم يوجبه، فيجب أن يعلم إذن أنّه ليس

its predication is allowed not to be permanent, even if it is not affirmed that the predication is not permanent; one should know that

يجب أن ينعقد من السالب المطلق والموجب المطلق قياس في هذا الشكل، الّهمّ

a syllogism in this figure, with a negative absolute premise and an affirmative absolute premise, need not be productive. That is, not unless [one of three cases holds.

إلّا أن يستعمل السالب الكلّي على اللّفظ المشهور الّذي بيّنّا أنّه ينعكس، أو تستعمل

The first is that] the negative universally quantified proposition which is used is the standard expression which — as we explained — does convert. [The second is that] the absolute proposition

المطلقة الّتي إطلاقها لا للحمل بل للحصر؛ إذ يصدق الحصر كلّيّا في بعض الأزمنة،

that is used is one whose absoluteness belongs not to the predicate but to 113.10
the quantifier, where the quantifier counts as true of all the subject individuals at some particular time.
{It could be not 'belongs to' but 'is attached to', though there is no attachment word. }

أو يستعمل في القضيّتين ما يتعذّر مراعاته، وهو جعل الوقت في كلّ واحد

[The third is that] the two propositions have a property that is difficult to take care of, namely that the time is one and the same in both of them
{NB Difficulty of correlating unstated conditions between the two premises. }

وقتا واحدا إن أمكن، وشرطا واحدا إن أمكن.

if possible, and under the same condition if possible.
{Why the 'if possible's? }

لكنّ المطلقة بإعتبار القول في نفسه، ممّا لم تجر العادة بأن تستعمل في العلوم

[2.4.15] But propositions that are absolute in the sense that no condition is added are not customarily used in the sciences 113.13

وفي المخاطبات، بل جرّت العادة بأن يستعمل السالب في كلّ موضع وينوى

or in debates. Rather the custom is that when negative propositions are used in any topic, one intends

الشرط الّذي ذكرناه. وكذلك قد جرّت العادة في قولهم كلّ بَ ليس اَ ، أنّه إنّما

the condition which we mentioned. And likewsie it has been customary to 113.15
use the sentence

(16) Every B is an A.

{What condition did we mention? That the proposition converts? that the absoluteness is on the quantifier? that the times are the same in both cases? }

يستعمل ذلك على نية أنّ كلّ بَ ليس اَ ، عند ما يكون بَ ليس ، فيجب أن يلتفت إلى

with the intention that every B is an A while it is a B. So one has to pay attention to

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هذين في هذا الشكل وما بعده. فلنستعمل نحن السالبة على النحو المشهور، فإنّ
these two usages in this figure and the next [figure]. So let us use the negative in the standard way, since
{Which two uses? I guess (1) the 'standard' usage and (2) the descriptional. I guess the next figure because this is partly reduced to the second. }

ذلك أجمع للغرض، فنقول: يجب في شرط إنتاج هذا الشكل أن تكون إحدى
this goes best with our purpose. We say: The productivity condition for this figure should be that one
{See *Jadal* 153.14 for this usage of *'ajmaᶜu li-*. }

المقدّمتين موجبة، وألأخرى سالبة، وأن تكون الكبرى كلّيّة.
of the two premises is affirmative and the other is negative, and that the major premise is universally quantified.

ولنذكر الضروب

[2.4.16] Let us mention just the moods

المنتجة فقط.
that are productive.

الضرب الأوّل: من كلّيّتين والكبرى سالبة ينتج كلّيّة سالبة، مثاله:
The first mood: From two universally quantified premises with the major premise negative, there follows a universally quantified negative proposition, as in: 114.5
{CESARE, proved by converting major premise to get Celarent. }

كلّ ج ب̄ ، ولا شيء من ا ب̄ ، فلا شيء من ج ا̄ . برهانه أنّا نعكس الكبرى

(17) Every C is a B;
and no A is a B;
so no C is an A.

To demonstrate it, we convert the major premise

فيصير لا شيء من ب ا̄ ، فيكون كلّ ج ب̄ ، ولا شيء من ب̄ ا̄ ، فلا شيء
so that it becomes 'No B is an A', and then [the syllogism] is

(18) Every C is a B; and no B is an A;
so no C is an A.

من ج̄ ا . وقد نبيّنه من طريق الخلف فنقول: إنّه إن كان قولنا هذا كاذبا،
We can also prove it by way of absurdity. We say: If [the conclusion] is false,

فليكن بعض ج̄ ا وكان لا شيء من ا ب̄ ، ينتج من الشكل الأوّل: ليس
then let some C be an A. We had that no A is a B, and it follows by [a syllogism in] the first figure that not
{By FERIO. For below, note that if the sentences are read descriptionally, then we have that some C is an A all the time it's a C, and there is no A that is a B all the time that it's an A (taking the weaker possible reading). Therefore there is a C that is not: B all the time it's A, but also is an A all the time it's a C. NB Nothing follows. So take the stronger reading: Every A is a non-B all the time it's an A. Now there is a C that is an A all the time it's a C; so all the time it's a C, it is a non-B. So there is a C that is a non-B all the time it's a C. This contradicts that every C is a B all the time it's a C. }

كلّ ج̄ ب̄ ، وكان كلّ ج̄ ب̄ ، هذا خلف.
every C is a B. But we had that every C is a B, and this is absurd. 114.10

ولقائل أن يقال: إنّ هذا
[2.4.17] Now someone might well say: This 114.10
{NB The objection to the proof of Camestres is answered by showing that the proof works for the descriptional reading; there is no argument that it works in general. }

ليس خلفا محالا، فإنّ المطلقات لا يكذب فيها أن يقال كلّ وليس كلّ، فإنّه
is not an impossible absurdity, because you needn't get a falsehood by saying both 'Every' or 'Not every' when the propositions are absolute. In fact

يجوز أن يكون كلّ ويعني به في كلّ واحد وقتا ما، ولا كلّ ويعني في كلّ
it's possible to have 'every' and mean by it every individual at some time, and 'not every' and mean by it every

واحد وقتا آخر، وليس هذا بخلف. فالجواب أنّا قد قدمنا أنّ الّذي نذهب
individual at some other time, and this is not an absurdity. The answer is that we have already set out the line that we are taking

إليه ههنا في إستعمالنا للمطلقات، ما كان منها بمعنى لا شيء من ا ب̄ ما دام ا ،

here in our use of the absolute. One case is where the meaning is that no A is a B all the time that it is an A,
{Which way round the scope? As at 114.9 above, it has to be: Every A is a non-B all the time it's an A. }

وكذلك قولنا: كلّ ج ب فإنّما يعني به كلّ ج ب ما دام ج ، فتكون النتيجة
and likewise the sentence 114.15

(19) Every C is a B.

just means

(20) Every C is a B for as long as it is a C.

The conclusion will be

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لا شيء من جَ اَ ما دام جَ . وهذا لا يصدق مع قولنا: بعض جَ اَ

that no C is an A all the time that it is a C. But this can't be true at the same time as the statement 'Some C is an A

{NB by notes above, this has to say that every C is a non-A all the time it's a C. Note that by using A and C, Ibn Sīnā has implicitly switched to the straight first-figure Ferio; in his proof of the second-figure Cesare it was C and B, not C and A. }

ما دام جَ ، فإذن هذا خلف محال.

for as long as it is a C', and so this is an impossible absurdity.

فسببه إمّا أنّ التأليف غير منتج، وإمّا أنّ

[2.4.18] [Returning to the main argument,] the reason for [the absurdity] is either that the syllogistic format is not productive, or that

المقدّمات كاذبة. لكنّ التأليف منتج والقائلة: لا شيء من اَ بَ كانت

the premises are false. But the premise-pair is productive and the sentence 'No A is a B' is

موضوعة حقّا. فبقي أنّ السبب هو كذب قولنا: بعض جَ اَ ، فلا شيء إذن

posited as true. So the remaining possibility holds, namely that the reason for the absurdity is the falsehood of the sentence 'Some C is an A'. Therefore

من جَ اَ .

no C is an A. 115.5

{Here he returns to the reductio argument. Since this is his first proof of a syllogism by reductio, he explains the rationale. But he garbles it; the fact that a proposition is posited as true doesn't make it in fact true. The 'reason for the absurdity' is that incompatible things have been assumed. So we can assume one of them and use the absurdity to discharge the assumption of the other and infer the falsehood of the other. This doesn't show that the other is in fact false. But Ibn Sīnā has no language for talking about discharge of assumptions. }

قال قوم إنّه لا حاجة إلى بيان هذا بالعكس والخلف، وإنّ هذا

[2.4.19] One person said: 115.5

There is no need to prove this by conversion or absurdity, since it

بيّن بنفسه. فمن البيّن أنّ بَ لمّا كانت مسلوبة عن شيء موجبة لشيء آخر

is self-evident. It is clear that when B is [truthfully] denied of one thing and affirmed of another thing,

فالشيئان متباينان، إذا كان آ مباينا ل بَ وكان جَ غير مباين له. فأمّا من جعل

then the two things are disjoint, since A is disjoint from B and C is not disjoint from B.

The person who took
{It's tempting to delete from *'iḏā* to *lahu*, since the comment was made by somebody who didn't understand the argument. But Ibn Sīnā is quoting, and for all we know, the error was made by a translator into Arabic and not the person being quoted.}

هذا الأمر بيّنا بنفسه، فليس يفرق بين البيّن بنفسه وبين القريب من البيّن بنفسه.

this to be self-evident is failing to distinguish between what is self-evident and what is nearly self-evident.

وأمّا من إحتجّ بما أحتجّ به، فلم يجعل الحجّة غير الدعوى نفسها، فإنّ المتباينين

The person who stated this argument failed to distinguish between the argument and the claim itself. It's true that two things being disjoint

والمسلوب أحدهما عن الآخر معنى واحد، كما علمت. ولكنّ الذهن يلتفت

is equivalent to one of them being [truthfully] denied of the other, as you know. But the mind necessarily pays attention 115.10

ضرورة إلى أن يقول: إنّ جَ لمّا كانت بَ المباينة ل آ أو الّتي لا توصف

to the fact that what [the premise-pair] says is

(21) When C is B which is disjoint from A (or which doesn't fit the description A).

ب آ ، فيكون قد ردّه إلى البيّن إنتاجه بنفسه. وقد ناقضه بعض من يعبّر عن
So its reduction to something evident can be the actual implication. This person has already been contradicted by a person who understands

المتباين مناقضة سحيحة. وفي هذا كلام طويل الفصل في اللّواحق.
'disjoint' to mean genuinely contradictory. There is a long discussion of this in the section of Appendices.

وهذا ينتج

[2.4.20] This [premise-pair] is also productive

أيضا إن جعل المطلوب الكلّي ما ظنّه قوم أنّ قولنا: كلّ ج ب بالإطلاق،
if one takes the universally quantified goal in the way that some people think, that the sentence 'Every C is a B, with absoluteness'

أنّ كلّ الحيمات الموجودة في وقت ما، فهي ب ، بعد أن يكون الوقت في السالب
means that all the existing Cs at some time are Bs, given that the time is the same in both the negative 115.15

والموجب واحدا. والأصوب أن لا يلتفت إلى هذا.
and the affirmative premises. The best response to this is to ignore it.

الضرب الثاني: من كلّيّتين والصغرى سالبة ينتج كلّيّة سالبة. مثاله:

[2.4.20] The second mood: From two universally quantified premises, where the minor premise is negative, there follows a universally quantified negative conclusion. For example: 115.17

لا شيء من ج ب ، وكلّ آ ب ، فلا شيء من ج آ . فإنّا إذا عكسنا

No C is a B;
(22) and every A is a B;
so no C is an A.

Thus when we convert
{CAMESTRES}

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الصغرى وأضفناها إلى الموجبة أنتج لا شيء من ا ج ، ثمّ يعكس النتيجة إلى
the minor premise and we add it to the affirmative premise, they entail 'No A is a C', and then the conclusion is converted as required.
{By Celarent. }

حقّها. وبالخلف أيضا أنّه إن كان بعض ج ا ، وكلّ ا ب ، فبعض ج ب .
[It can also be proved] by absurdity: if some C is an A and every A is a B, then some C is a B.
{Major plus negation of conclusion gives negation of minor by Darii. }

الضرب الثالث: من صغري جزئيّة موجبة وكبرى سالبة كلّيّة. مثاله:

[2.4.21] The third mood: From an existentially quantified affirmative minor premise and a negative universally quantified major premise. For example: 116.3

بعض ج ب ، ولا شيء من ا ب ، فليس كلّ ج ا . يتبيّن بعكس السالبة.

Some C is a B;
(23) and no A is a B;
so not every C is an A.

It is proved by conversion of the negative premise.
{FESTINO, conversion reduces to Darii. }

وبالخلف أنّه إن كان كلّ ج ا ، ولا شيء من ا ب ، فلا شيء من ج ب ،
And by absurdity, if every C is an A and no A is a B, then no C is a B, 116.5
{Reduced to Celarent. }

وكان بعض ج ب .
whereas we had that some C is a B.

الضرب الرابع: من صغرى سالبة جزئيّة، كبراها موجبة كلّيّة. مثاله: ليس

[2.4.22] The fourth mood: From a negative existentially quantified minor premise and an affirmative universally quantified major premise. For example: 116.7
{BAROCO}

كلّ ج ب وكلّ ا ب فليس كلّ ج ا ، والجزئيّة لا تنعكس والموجبة تنعكس

Not every C is a B;
(24) and every A is a B;
so not every C is an A.

The existentially quantified premise doesn't convert. The affirmative premise converts

جزئيّة فلا تقترن بالأخرى الجزئيّة إقترانا منتجا. فلنبيّن بالخلف أنّه إن كان كلّ

to an existentially quantified proposition, so it doesn't combine with the other existentially quantified proposition to yield a productive premise-pair. So let us prove it by absurdity: if every

ج ا، وكلّ ا ب ، فكلّ ج ب ، وكان ليس كلّ ج ب . أو ليفرض بعض ج

C is an A and every A is a B, then every C is a B — but we had that not 116.10
every C is a B. Or [for ecthesis] let some of C
{For absurdity, reduced to Barbara. Then for ecthesis, reduced to Camestres. Instead of saying 'for ecthesis' (*farḍ*) he says *li-yufraḍ*); this is impossible in English since we have no verb 'to ecthesise'. }

الّذي ليس ب ولتعيّنه وليكن د ، فلا شيء من د ب ، وكلّ ا ب ، فلا شيء

which is not a B be chosen; identifying it, let it be D. Then no D is a B, and every A is a B, so no
{*li-tu^{c}ayyin* is a rare *li-* with 2nd person jussive, probably influenced by the mathematical style (*li-yufraḍ* etc.), cf. 117.14 below. }

من د ا ، وبعض ج د ، فيرجع إلى الأوّل.

D is an A. But some C is a D. So it is reduced to the first figure.
{This second reduction is to Ferio. }

الشكل الثالث:

The third figure: 116.13

خاصّيّة هذا الشكل في تأليفه ما علمت، وخاصّيّته في إنتاجه أنّه لا ينتج

[2.4.23] You know the distinctive feature of this figure in terms of its construction. The special feature of its productivity is that it entails only 116.14

إلّا جزئيّا، وشرطه في أن ينتج هو أن تكون الصغرى موجبة وإحداهما كلّيّة.

existentially quantified propositions, and its productivity condition is that 116.15

the minor premise is affirmative and one of the premises is universally quantified.

فإن كانتا سالبتين لم يجب أن يكون الأمران المسلوبان عن شيء واحد متّفقين

If both premises are negative, the two things denied of one thing don't have to be either compatible

{To prove the productivity condition we only need to show that the minor premise is not negative. }

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117

أو مختلفين. وإن كانتا جزئيّتين جاز أن يكون الأمر الواحد يوجب في بعض
or distinct. If both premises are existentially quantified, it's possible that the one thing is affirmed in some
{To rule out an I conclusion we want that they are disjoint, i.e. not compatible. To rule out an O conclusion we want that they are equal, i.e. not distinct. }

شيء، وأن يكون يوجب في بعض ويسلب عن بعض. وجاز أن يكون المختلفان
thing, and that it is affirmed in some and denied of some; and it's possible that two disjoint things } {So A and C can be equal, since we can have the same thing true of some B and of some B, and also true of some B and false of some B. We don't need both false since the case of two negatives has already been excluded.}

كلّ يوجب في بعض، أو واحد يوجب في بعض والآخر يسلب عن بعض.
are both [truthfully] affirmed of some [B], or one is [truthfully] affirmed of some [B] and the other is [truthfully] denied of some [B].
{It should be not different but disjoint. The simplest correction, though no evidence for it in the mss, is to replace *muḵtalifāni* at the end of line 2 by *muḵālifāni*. }

وإن كانت الصغرى سالبة لم يجب إذا سلب شيء عن أمر أن يوجد له ما يوجد
If the minor premise is negative and [B] is [truthfully] denied of [A] and [B] is true of [C], it doesn't have to be either that [C] is true

لذلك الآخر أو يسلب عنه. وعليك أن تطلب الحدود:
of [A] or that it is false of [A]. You should look for terms [to prove these statements]. 117.5

الضرب الأوّل: من كلّيّتين موجبتين ينتج جزئيّة موجبة، مثاله: كلّ ب ج ، 117.6
[2.4.24] The first mood: from two universally quantified affirmatives there follows an existentially quantified affirmative, as in

(25) Every B is a C;
and every B is an A.

{DARAPTI}

وكلّ ب ا ، لا يلزم من هذا أنّ كلّ ج ا . فإنّه يجوز أن يكون ج أعمّ من ب
It doesn't follow from this that every C is an A. In fact it can be that C is broader than B

ويكون الموجود لكلّ ب إمّا مسلوبا ل ج وإمّا دون ج في العموم. ولكن
and a thing which is true of every B is either false of [some] C or entirely outside C. But
{The 'or' case is clearly impossible here, so why does he mention it? }

يجب أن يكون بعض ج ا وليكن ذلك البعض هو ب . فهذا هو إفتراض.
it does have to be the case that some C is an A — let this some be B. This is an ecthesis.
{NB Here Ibn Sīnā takes ecthesis to be the inference $\phi(a)$ so $\exists x\phi(x)$, not the $\exists$-elimination. Not really; he could be referring to the whole argument.}

أو لنعكس الصغرى فيكون بعض ج ب ، وكلّ ب ا ، أو لنقل إن كان لا شيء
Or let us convert the minor premise, so that [the premise-pair] becomes 117.10
'Some C is a B' and 'Every B is an A'. Or let us say: If no
{Uses conversion and Darii. }

من ج ا ، وكلّ ب ج ، فلا شيء من ب ا ، وكان كلّ ب ا ، هذا خلف
C is an A and every B is a C, then no B is an A, whereas we had that every B is an A, which is an absurdity
{For absurdity, reduces to Celarent. }

وعلى الصورة المذكورة.
of the kind we mentioned.

الضرب الثاني: من كلّيّتين والكبرى سالبة ينتج جزئيّة سالبة. مثاله:
[2.4.25] The second mood: From two universally quantified premises, 117.13
of which the major premise is negative, there follows an existentially quantified negative conclusion. For example:
{FELAPTON}

كلّ ب ج ، ولا شيء من ب ا ، لا يلزم من هذا أن لا شيء من ج ا ،

(26) Every B is a C;
and no B is an A.

It doesn't follow from this that no C is an A,

فربّما كان ج̄ أعمّ منهما. لكن ينتج فليس كلّ ج̄ ا̄ . فلتعيّن ب̄ ذلك البعض،

because C can include both the other terms. But it does follow that not 117.15
every C is an A. For this, identify as B the 'some' [C which is not an A],
{NB Curious counterexample to an example of Partee and others. }

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أو لنعكس الصغرى، أو لنقل إن لم يكن كذلك، وكلّ ج ا ، ولا شيء من

Or let us convert the minor premise. Or let us say 'Otherwise every C is an A, but no

{Converting the minor premise would reduce to first figure Ferio. }

ب ا فلا شيء من ب ج ، وقد كان كلّ ب ج ، هذا خلف.

B is an A, so no B is a C. But we had that every B is a C, and this is absurd.

{Reduced to Camestres, so we have third figure reduced to second. }

الضرب الثالث: من جزئيّة موجبة صغرى وكلّيّة موجبة كبرى. مثاله:

[2.4.26] The third mood: From an existentially quantified affirmative minor premise and a universally quantified affirmative major premise: 118.3

{DATISI}

بعض ب ج . وكلّ ب ا ، ينتج بعض ج ا . ويبرهن عليه بما علّمت

Some B is a C;
(27) and every B is an A;
it follows that some C is an A.

It is proved in the way you learned

في الضرب الأوّل.

for the first mood. 118.5

الضرب الرابع: من كلّيّة موجبة صغرى وجزئيّة موجبة كبرى. مثاله:

[2.4.27] The fourth mood: From a universally quantified affirmative minor premise and an existentially quantified affirmative major premise. For example: 118.6

{DISAMIS}

كلّ ب ج ، وبعض ب ا ، فبعض ج ا . يتبيّن بالإفتراض بأن يعيّن البعض

Every B is a C;
(28) and some B is an A;
so some C is an A.

It is proved by ecthesis, by identifying the some

الّذي هو بَ ، وهو اَ فليكن ذلك دَ فيكون كلّ دَ اَ يكن كلّ دَ بَ وكلّ بَ جَ ،
B which is an A, and letting it be D. So every D is an A; and every D be a B and every B be a C,
{*yakun* should surely be *wa-yakūnu*, though there is no ms evidence for this. }

فكلّ د جَ وكان كلّ د ا فبعض جَ اَ . ويبيّن بأن تعكس الكبرى ثمّ تعكس
so every D is a C, while every D was an A, so some C is an A. Also it can be proved by converting the major premise and then converting
{The ecthesis reduces to Darapti! }

النتيجة فيكون: بعض اَ بَ وكلّ بَ جَ ، فينتج بعض اَ جَ ، فينعكس بعض
the conclusion so that we have: Some A is a B and every B is a C, so it 118.10
follows that some A is a C, which converts to: Some
{Conversion reduces to Darii. }

جَ اَ. ويتبيّن أيضا بالخلف أنّه إن كان لا شيء من جَ اَ ، وكلّ بَ جَ ،
C is an A. It can also be proved by absurdity, namely if no C is an A and every B is a C,
{Absurdity reduces to Celarent. }

فلا شيء من بَ اَ ، وكان بعض بَ اَ . هذا خلف.
then no B is an A, while some B was an A. This is absurd.

والضرب الخامس: من كلّيّة موجبة صغرى وجزئيّة سالبة كبرى. مثاله:
[2.4.28] And the fifth mood is from a universally quantified affirmative 118.13
minor premise and an existentially quantified negative major premise.
{BOCARDO}

كلّ بَ جَ وليس كلّ بَ اَ فليس كلّ جَ اَ . لا يتبيّن هذا بالعكس إذ الكبرى
An example is:

(29)
Every B is a C;
and not every B is an A;
so not every B is an A.

This is not proved by conversion, because the major premise

119

لا تنعكس والصغرى تنعكس جزئيّة. وتبيّن بالإفتراض، بأن يفرض الشيء الّذي
doesn't convert and the minor premise converts to an existentially quantified proposition. It can be proved by ecthesis, by stipulating that the idea

هو ب̄ وليس ا̄ وليكن د̄ ، فيكون كما علمت كلّ د̄ ج̄ ، ولا شيء من د̄ ا̄.
[B AND NOT A] is D; then as you know, we have that every D is a C, and no D is an A.
{This reduces to Felapton. }

وبالخلف أنّه إن كان كلّ ج̄ ا̄ وليس كلّ ب̄ ا̄ فليس كلّ ب̄ ج̄ . هذا خلف.
And [it can be proved] by absurdity; namely if every C is an A and not every B is an A, then not every B is a C. This is absurd.
{Reduces to Baroco. }

الضرب السادس: من جزئيّة موجبة صغرى وكلّيّة سالبة كبرى. مثاله:
[2.4.29] The sixth mood: From an existentially quantified affirmative minor premise and a universally quantified negative major premise. For example: 119.4

بعض ب̄ ج̄ ، ولا شيء من ب̄ ا̄ ، فليس كلّ ج̄ ا̄ . تبيّن بعكس الصغرى بأن

Some B is a C;
(30) and no B is an A;
so not every C is an A.

It can be proved by conversion of the minor premise, namely 119.5
{FERISON}

يقال بعض ج̄ ب̄ ولا شيء من ب̄ ا̄ فبعض ج̄ ليس ا̄ . وهذا من الشكل
one says: Some C is a B and no B is an A, so some C is not an A by the
{In fact by Ferio.}

الأوّل. وبالخلف بأن يقال: وإلّا فكلّ ج̄ ا̄ ، وكان لا شيء من ب̄ ا̄ ،
first figure. And by absurdity, namely one says: Otherwise every C is an A, and we had that no B is an A,

فلا شيء من ب̄ ج̄ ، وكان بعض ب̄ ج̄ ، وهذا خلف.

so no B is a C; whereas we had that some B is a C, and this is absurd.
{Reduction to Camestres in second figure. }

وإعلم أنّ الشكل الأوّل وإن كان يرجع إليه هذان الشكلان فلهذين الشكلين

[2.4.30] Know that although the other two figures are reduced to the 119.9
first figure, those two figures do have

ـ خاصّة ـ فائدة، وهي أنّ بعض السوالب إنّما الطبيعي فيها والسابق إلى الذهن

their own special use, namely that with some negative propositions, the 119.10
way that they naturally come first into the mind

منها أوّلا، هو أن يكون أحد الأمرين فيها محمولا والآخر موضوعا. فإن عكس

is with a particular one of the two ideas in them as the predicate and the other as the subject. But if the proposition is converted,

لم يكن طبيعيّا، وكان غير السابق إلى الذهن. مثال ذلك أن تقول: ليس

the result is not what naturally comes first into the mind. An example of this is the sentence

السماء بخفيفة أو ثقيلة، فإنّ هذا سلب طبيعي سابق إلى الذهن. وكذلك الحال

(31) The sky is neither light nor heavy.

which is a denial in the form that naturally comes first into the mind. The same holds
{As opposed to 'Nothing light or heavy is the sky.' See below.}

في قولنا: ليست النفس بمائتة، أو ليست النار المجرّدة بمرئية. فأمّا عكوس

of the sentences

(32) The soul is not mortal.

(33) Naked fire is not visible.

And the conversions

هذه فمثل قولنا: لا شيء من الخفيف أو الثكيل بسماء، أو ليس شيء من

of these are for example: 119.15

(34) Nothing light or heavy is the sky.

or

(35) Nothing mortal is a soul.

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المائت بنفس، أو ليس المرئيّ بنار. وإن كانت حقّا، فإنّها ليست على الأمر

or

(36) Nothing visible is fire.

Even if these [converted] forms are true, they are not the natural forms in which

الطبيعي والسابق إلى الذهن. فإنّ النار أولى بأن تكون موضوعة يسلب عنها

the proposition first comes into the mind. Fire comes first because it is the subject of which one denies

المرئي من المرئي أن يكون موضوعا ويسلب عنه النار. وكذلك في أمثالها.

visibility, rather than visibility being the subject of which one denies fire. Likewise in the other examples.

وأيضا فإنّ الجزئيّات هذه أحوالها، فإنّا إذا وضعنا الحيوان والإنسان وسورا

In fact the situation is the same with existentially quantified propositions. Thus when we posit 'animal' and 'human' and an

جزئيّا، كان الأولى حينئذ أن يكون الحيوان موضوعا في القضيّة والإنسان محمولا،

existential quantifier, the best arrangement in this case is that 'animal' is 120.5
the subject in the proposition and 'human' is the predicate,

لا عكسه. وإن كان حقّا مثل قولنا: بعض الناس حيوان.

not the other way round, even though it is true that

(37) Some people are animals.

فيجوز في كثير

[2.4.31] Then it is possible in many 120.6

من المواضع أن يكون التأليف الكائن من سالب وموجب، ويراعي من حال

places that a premise-pair consisting of one negative proposition and one affirmative, and the result of taking care to put the negative proposition

السالب أن يكون على ما هو طبيعي وعلى ما هو أولى إنّما يستقيم على هيئة

into the natural and preferable form is just that the premise-pair takes shape as a

الشكل الثاني. فيكون تأليفهما على هيئة الشكل الثاني أقرب إلى الطبيعي.
syllogism in the second figure. So the premise-pair consisting of these two propositions will be more natural if it is put in the second figure.

وكذلك يكون تأليف الجزئي وهو طبيعي مع الكلّي إنّما يقع على هيئة الشكل
And likewise a premise-pair consisting of an existentially quantified proposition in its natural form and a universally quantified proposition may just turn out to have the form of 120.10

الثالث. وإذا عكسنا حتّى يرجع التأليف إلى الأوّل، صار السلب على الوجه
a third figure syllogism. Then when we convert so that the premise-pair reduces to the first figure, the negative proposition comes to have a form

الّذي ليس بطبيعي ولا سابق إلى الذهن، وصار الجزئي الطبيعي غير طبيعي.
which is not what naturally comes first comes to mind, and an existentially quantified proposition in its natural form becomes unnatural.

فالشكل الثاني والثالث إذن ليسا بمستغنى عنهما.
So we do need the second and third figures.

ومن ظنّ أنّ القضايا المطلقة
[2.4.32] The person who thought that absolute propositions 120.13

لا تستعمل فقد أخطأ. فإنّ أكثر العلوم تستعمل فيها القضايا المطلقة من كلّ
are not used in practice was mistaken. In fact absolute propositions of every sort are used in most of the sciences,

جنس من المطلقات، وخصوصا في العلم الّذي هو صناعة الرجل الّذي حكم
and particularly in the science which is the art of the man who voiced 120.15
{From next line, this logician was a philosopher. al-Fārābī? }

بهذا الظنّ. على أنّ الفيلسوف يبحث عن كلّ مطلوب كلّي. فإذا أراد أن يبحث
this opinion. This is because philosophers investigate any universally quantified goal. When a philosopher wants to investigate

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121

عن مطلوب كلّي مطلق كقولهم: هل العفّة خير؟ وهل كلّ جسم متحرّك؟
a goal which is universally quantified and absolute, for example

(38) Is abstinence good?

and

(39) Is every body mobile?

فليس يمكن أن ينتج من الضروريّات.
it may not be possible to deduce these from necessary truths.
{*ḍarūrī* presumably necessary propositions rather than necessity propositions. }

فقد علم إذن حال حذه الأشكال الثلاثة.
[2.4.33] So now the facts about these three figures are known.

وإذ علم ذلك فليعلم أنّ المقدّمات الضروريّة حكمها في إقترانها هذا الحكم ،
[2.4.34] And that being the case, you should know that premise-pairs consisting of necessity premises behave in the same way,

وكذلك في نتائجها. لكنّها تخالف في المواضع الّتي يحتاج في بيانها إلى الخلف.
and the same goes for conclusions [that are necessity propositions]. But they differ in the places where their proofs require one to use absurdity.

وذلك لأنّ نقائض نتائجها لا تكون ضروريّة. وذلك لأنّه إذا كانت النتيجة
This is because the contradictory negations of their conclusions will not be necessity propositions. The reason for this is that if the conclusion 121.5

بالضرورة ليس كلّ ج ا ، إمّا في الشكل الثاني وإمّا في الشكل الثالث، فإذا
is that with necessity not every C is an A — which can happen either in the second figure or in the third figure — then when

قلنا: إن لم يكن هذا حقّا فنقيضه حقّ، لم يخل إمّا أن يوجد نقيضه: ليس
we say 'If this is not true, then its contradictory negation is true', then we have just two options. The first is to take the contradictory negation, which

is

(40) It is not the case that with necessity not every C is an A.

بالضرورة ليس كلّ جَ آ ، فلا تجد هذه المقدّمة بحيث يمكن أن يضاف إليها
But then you will find that this premise is not of a kind that can have added to it

شيء ممّا في القياس، وإمّا لازم ذلك وهو أنّه يمكن أن يكون كلّ جَ آ ، فإنّ هذا
one of the premises of the [original] syllogism [so as to make a premise-pair]. The second option is to take a consequence of this proposition, namely that

(41) Possibly every C is an A.

This

اللّازم يكون موجبا جهة الإمكان الأعمّ. وأنت لم تعلّم كيف يتألّف القياس
consequence affirms a modality, namely broad possibility. But you haven't 121.10
yet learned how to compose syllogisms that consist of

من ممكن بالإمكان الأعمّ مع مقدّمة ضروريّة. فإذن لا سبيل إلى تبيينه بالخلف
a possibility premise in the sense of broader possibility, together with a necessity premise. So therefore there is no way to prove the syllogism by absurdity

قبل تعليم الإختلاط من الممكن والضروري.
before one has learned about syllogisms whose premises are a mixture of possible and necessary.

فينبغي أن يتبيّن بالإفتراض. وأمّا
[2.4.35] So one has to prove it by ecthesis. Consider 121.12

الضرب الرابع من الشكل الثاني فيكون هكذا بالضرورة: ليس كلّ جَ بَ ،
the fourth mood of the second figure. In this case we have

With necessity not every C is a B;
(42) and with necessity every A is an B.
This entails that with necessity not every C is an A'.

{BAROCO. In line 121.14 correct *kullu b a* to *kullu a b*, as in several mss.}

وبالضرورة كلّ بَ اَ ، ينتج بالضرورة ليس كلّ جَ اَ . فليعيّن البعض

So let the 'some' which is necessarily a C and not a B be identified
{NB Incomprehensible argument with Ibn Sīnā's text. But as always he means 'There is C that with necessity is not a B'. So his argument confirms the reading of the sentence. }

الّذي هو جَ بالضرورة وليس بَ ، وليكن دَ . فإذا كان بالضرورة لا شيء

and called D. Since it was the case that with necessity no 121.15

من دَ بَ ، وبالضرورة كلّ اَ بَ ، فبالضرورة لا شيء من دَ الّذي هو

D is a B, and with necessity every A is a B, with necessity no D — and D

بعض جَ اَ فبعض جَ ليس اَ .

is some C — is an A, and so some C is not an A.

[2.4.34]

121.14 At face value, Ibn Sīnā is using an inference from 'Necessarily not every C is a B' to 'Some C is necessarily not a B'. This is the Barcan implication. But that makes no sense here with modalities on the predicates rather than the quantifiers.

121.16 The data in this line certainly yield that some C is not an A, as Ibn Sīnā claims here. But in 21.14 he claimed that this conclusion holds with necessity, and that has not been established.

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122

وأمّا الضرب الخامس من الشكل الثالث فيكون هكذا: كلّ بَ جَ بالضرورة،
And the fifth mood of the third figure goes:

Every B is a C with necessity;
(43) and with necessity not every B is an A;
this entails that with necessity, not every C is an A.

{BOCARDO LLL, cf. Najat 48.11 for more details.}

وبالضرورة ليس كلّ بَ اَ ، ينتج بالضرورة: ليس كلّ جَ اَ . فليكن دَ
Let D be

بعض بَ الّذي هو أيضا بعض جَ ، فيكون ذلك البعض جَ ، وهو بالضرورة
[A B WHICH IS WITH NECESSITY NOT AN A]. Then the 'some [C]' is D, and with necessity
{It seems to me the sense requires the second *c* to be *d*, though no ms support for this is given. }

ليس اَ .
no D is an A.

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