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# في القياسات المؤلّفة من الحمليّة والشرطيّة في الشكل الأوّل: والحمليّة مكان الكبرى في الأشكال الثلاثة

# vi.4 On syllogisms constructed out of predicative propositions and propositional compounds in the first figure: and with the predicative premise serving as major premise in the three figures

هذا القياسات لا يخلو إمّا أن يكون فخا الحملي مكان الأعظم، أو مكان الأصغر.

[6.4.1] These syllogisms divide into two groups. In the first group the predicative proposition serves as the major premise, and in the second group it serves as the minor premise. 325.5

ولا يخلو إمّا أن تكون الشركة للحملي مع تالي المقدّم، أو مع مقدّمه. فلنبدأ أوّلا

Another dividing line is that in some of them the predicative premise shares a term with the consequent of the first premise, while in others it shares a term with the antecedent of the first premise. Let us start with

{'First premise' is wrong; he means the propositional compound premise, which is first only in the 'first group' just described. }

ممّا تكون الشركة فيه مع التالي، والحملي مكان الأكبر. ولا محالة أنّ الشركة

the case where the predicative premise shares a term with the consequent, and the predicative proposition serves as the major premise. Certainly the overlap

بين التالي والحملي تكون على إحدى الهيئات الّتي للأشكال الثلاثة. ومن عزمنا

between the consequent and the predicative premise must take one of the forms that occur in the three [predicative] figures. So our plan is

أن نحصي القياسات المنتجة من ذي قبل، ولا نطوّل الكتاب بذكر العقيمات بعد

to list those syllogisms where we already [know that the underlying predicative syllogism] is productive. We will not lengthen the book by mentioning the sterile ones, given

{NB Explicit that he will look only at those moods that are productive in their absolute form. }

{The enumeration is as in *Qiyās* ii.4. }

أن هدينا السبيل إلى الإكتساب الحدود فيها.

that we have indicated [in the predicative case] how to find the terms that prove their sterility. 325.10

{The implication is that the terms proving sterility of the predicative syllogisms also serve for the corresponding ones here. }

ضروب ذلك والتأليف على هيئة الشكل الأوّل: إذا كان التأليف على هذه

[6.4.2] [We begin with] those moods of the first group where the form of the composition is in the first figure. For compositions of this 325.11

{The second group appears at 331.9 below. Note *ḏālika* for first and *hāḏihi* for second. }

الصورة، فالشريطة في الإنتاج أن يكون الحملي والتالي على النسبة المذكورة

kind the condition of productivity is that the predicative premise and the consequent [of the other premise] are in the relationship specified earlier

في الشكل الأوّل للحمليّات، فإن كانت المتّصلة موجبة، كانت النتيجة بيّنة

for predicative syllogisms in the first figure. Then if the meet-like premise is affirmative, the conclusion will clearly follow,

{As normal, Ibn Sīnā gives for each mood (i) condition(s) of productivity, i.e. necessary and sufficient conditions for there to be a conclusion, (ii) instructions for deriving the form of the conclusion from those of the premises. Conditions of productivity for the predicative first figure: *Qiyās* 108.8. }

اللّزوم كما في الحمليّات. إلّا أنّ الفرق بين الأمرين أنّ اللّزوم في الحمليّات مطلق،

just as in the predicative syllogisms. The difference between the two cases is that in predicative syllogisms the implication is absolute,

وههنا عند وضع شيء، وتكون النتيجة هي مقدّمة شرطيّة تاليها نتيجة التالي

while in the present case it depends on an assumption. That's to say that the conclusion here is a propositional compound whose consequent is the conclusion of syllogism consisting of the consequent [of the compound premise] 325.15

والحمليّة، ولو كانتا وحدهما. وإن كانت المتّصلة سالبة لم يكن إنتاجها بيدنا،
together with the predicative premise, taking these two as premises on their own. But if the meet-like proposition is negative, then it's not obvious that anything follows,

بل يظهر بالعكس إلى الموجبات.
though it becomes clear when one converts the negative premise into affirmative form.

ضروب ذلك والمتّصلة موجبة: كلّما كان ه ز ، فكلّ ج د ، وكلّ د ا
[6.4.3] The moods of the first group when the meet-like proposition is affirmative are as follows.

(1) Whenever $r$, then every $C$ is a $D$;
every $D$ is an $A$.
[It entails:] Whenever $r$, then every $C$ is an $A$.

{Based on predicative mood i.1 *Barbara*. }
{Ibn Sīnā uses '$H$ is $Z$' to stand for the added antecedent, because he doesn't normally use variables for propositions. Since in this case the form of the antecedent is irrelevant, I write it as $r$.}

وكلّما كان ه ز ، فكلّ ج ا . ول يجب أن يعترض على هذه الضروب وما أشبهها
One shouldn't raise the following objection to these moods and similar ones:

معترض، فيقول: ربّما كانت الحمليّة صادقة في نفسها، ولا تصدق عند وضع

> Sometimes the predicative premise is true in itself but not true under the assumption of the antecedent [of the other premise], so there doesn't have to be a syllogism. For example when you say:

(3)

> (3) Whenever space is empty, spatial distances are absolute;
> but spatial distances are not absolute (or: nothing absolute is a spatial distance).

> Here a true predicative premise has a content that is contradictory to the consequent.

{NB This is another take on nonmonotonicity of counterfactual reasoning, I think. }
{Actually the point is not clear. The objector's syllogism is not an example of the format being discussed in this chapter. (It's of the form MTT, which Ibn Sīnā lists at 395.8 below.) That could be Ibn Sīnā's own point at 326.9 below: the form of the argument requires premises $p \rightarrow q$ and $\neg q$, and the underlying predicate argument would have premises $q$ and $\neg q$ which should not be listed at all — whether or not as examples of this format. So the objector's argument illustrates that syllogisms of the overall form $(p \rightarrow \phi)$, $\psi$ can be valid for reasons other than the underlying predicative argument, and that could be Ibn Sīnā's own point at 326.10 where he says that the conclusion does validly follow. But there could also be a reference to the point about nonmonotonicity, bearing in mind that we don't know that similar arguments of the present format couldn't be cooked up. But Ibn Sīnā doesn't mention this aspect in his answers. }

المقدّم، فلا يجب حينئذ قياس. مثاله أنّ قولك: كلّما كان الخلاء موجودا، كان بعد قائم بذاته؛ ثمّ نقول: وكلّ بعد فليس قائما بذاته، أو لا شيء ممّا يقوم بذاته بعد. فتكون الحمليّة الصادقة في قوّة منقض التالي. فالجواب من
There are two ways of answering this objection.

وجهين: أحدهما أنّ لنا أن نحصي الكلام بالقرينة الّتي يصدقان فيها معا؛
The first of them is that we should list [only] the premise-pairs in which the two premises are compatible.
{The first answer misses the main point. What is enumerated is not syllogisms but moods, which are forms that hold infinitely many different syllogisms. The implication of this answer is that no mood that allows a syllogism like the quoted one should be included in the list. }

والثاني أنّ اللّازم عن المقدّمتين حقّ. فإنّه إذا كان الخلاء موجودا لزم أن يكون
The second is that what follows from these two premises is in fact true. In fact if space was empty then it would follow 326.10

البعد غير لزوم الخلف، وأن كان التالي لا يصادق الحمليّة.
was other than what follows from the absurdity, and that the consequent wouldn't allow the predicative premise to be true.

{I think it has to be *wa-'an* in place of the Cairo *wa-'in*, though that looks implausible. Normally one would automatically read *wa-an kāna* as *wa-'in kāna* — though *wa-'an kāna* seems to be right at *Qiyās* 547.16. Ibn Sīnā's answer here is unhelpful; he should have said simply that the consequence is that space is not empty. }

الضرب الثاني: كلّما كان ه ز ، فكلّ ج د ، ولا شيء من د ا . فكلّما

[6.4.4] The second mood: 326.12

(4) Whenever $r$, then every $C$ is a $D$;
and no $D$ is an $A$;
so whenever $r$ then no $C$ is an $A$.

{This is based on predicative syllogism i.2 *Celarent*. }

كان ه ز ، فلا شيء من ج ا . كلّما كان ه ز ، فبعض ج د ، وكلّ د ا . فكلّما

[The third mood:]

(5) Whenever $r$, then some $C$ is a $D$;
and every $D$ is an $A$;
so whenever $r$, then some $C$ is an $A$.

{This is based on predicative mood i.3 *Darii*. }

كان ه ز ، فبعض ج ا . كلّما كان ه ز ، فبعض ج د ، ولا شي من د ا .

[The fourth mood:]

(6) Whenever $r$, then some $C$ is a $D$;
and no $D$ is an $A$;
so whenever $r$, then not every $C$ is an $A$.

فكلّما كان ه ز ، فليس كلّ ج ا .

وأربعة أخرى متّصلاتها جزئيّة.

There are four other moods; the [time] quantifier in their meet-like premises is existentially quantified. 326.16

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ضروب ذلك والمتّصلة سالبة: إذا كانت المتّصلة سالبة، فالشرط فيها أن

[6.4.5] We consider the moods of the first group where the meet-like premise is negative. For these a necessary condition for productivity is that

تكون التوالي سالبة، والحمليّات كلّيّة، وإلّا لم تنتج. مثالها: ليس البتّة إذا

the consequents of the propositional premises are negative and the predicative premises are universally quantified. For example:

It is never the case when $r$ that not every $C$ is a $D$;
(7) and every $D$ is an $A$.
It entails: It is never the case when $r$ that not every $C$ is an $A$.

{Based on *Barbara*. }

كان ه ز، فلا كلّ ج د، وكلّ د ا. ينتج: ليس البتّة إذا كان ه ز،

فلا كلّ ج ا. برهان ذلك أنّ المتّصلة يلزمها: كلّما كان ه ز، فكلّ ج د،

This is demonstrated as follows: From the meet-like premise it follows that

(8) Whenever $r$ then every $C$ is a $D$.

وكلّ د ا. ينتج: كلّما كان ه ز، فكلّ ج ا. ويلزمه: ليس البتّة إذا كان ه ز،

Also

(9) Every $D$ is an $A$.

So (8) and (9) entail [(as in (1))]: 327.5

(10) Whenever $r$, then every $C$ is an $A$.

From (10) it follows that

(11) It is never the case when $r$ that not every $C$ is an $A$.

فليس كلّ ج ا. وأنت تعلّم حال البواقي من هذا الواحد، وهي هذه: ليس البتّة

[6.4.6] Now you can learn the facts about the remaining moods from this single case. They are:

(12)
It is never the case that when $r$ then no $C$ is a $D$;
and every $D$ is an $A$.
It entails: It is never the case when $r$ that no $C$ is an $A$.

{This is based on *Darii*. NB the one based on *Celarent* has gone missing. }

إذا كان ه ز ، فلا شيء من ج د ، وكلّ د ا . ينتج: ليس البتّة إذا كان ه ز ، فلا شيء من ج ا . ليس البتّة إذا كان ه ز ، فلا شيء من ج د ، ولا شيء من د ا .

(13)
It is never the case when $r$ that no $C$ is a $D$;
and no $D$ is an $A$.
It entails: It is never the case when $r$ that every $C$ is an $A$.

{This is based on *Ferio*. }

ينتج: ليس البتّة إذا كان ه ز ، فكلّ ج ا .

وأربعة أخرى متّصلاتها جزئيّة سالبة.

And there are four other moods where the meet-like premises are negative 327.10
and carry an existential [time] quantifier.

التأليفات على هيئة الشكل الثاني.

[6.4.7] We consider the premise-pairs [whose underlying predicative 327.10
mood] has the form of the second figure,

ضروب ذلك والمتّصلة موجبة، والشرط بين التالي، والحملي في إنتاجها هو

starting with the moods of the first group with the meet-like premise affirmative. A necessary condition for productivity is that the productivity 327.11
condition for predicative syllogisms holds

الشرط الّذي يجب أن يكون في الحمليّات حتّى ينتج.

between the consequent of the propositional premise and the predicative premise.

الضرب الأوّل: كلّما كان ه ز ، فكلّ ج د ، وليس ولا شيء من د ا .

The first mood: 327.13

(14)
Whenever $r$, then every $C$ is a $D$;
and no $A$ is a $D$.
So whenever $r$, then no $C$ is an $A$.

{Correct $\bar{d}$ $\bar{a}$ to $\bar{a}$ $\bar{d}$ (as Shehaby), though there is no supporting ms evidence. This mood is based on predicative mood ii.1 *Cesare*, *Qiyās* 114.5. }

فكلّما كان ه ز ، فليس ولا شيء من ج ا . برهانه أن نعكس الحمليّة، وأيضا برهانه

It can be demonstrated by converting the predicative premise. It can also be demonstrated

أن نقول: كلّما كان ه ز ، فج د حقّ، وأنّه لا شيء من ا د حقّ. وكلّما كان

as follows: 327.15

(15)
Whenever $r$, then $C$ is a $D$;
and no $A$ is a $D$.
But whenever $C$ is a $D$ and no $A$ is a $D$, then no $C$ is an $A$.
It entails: Whenever $r$, then no $C$ is an $A$.

{In this line he says not 'Every $C$ is a $D$' but 'It is true that $C$ is $D$'. I omit the 'It is true that' and add the missing quantifier, since there is no evidence that either of these changes are more than stylistic variants. } {A further point: the two demonstrations differ in that one (the second) establishes predicative *Cesare* and then applies the condition, whereas the other applies the conversion proving *Cesare* to premises with the condition attached. This seems to show that Ibn Sīnā himself thought of adding the condition as a proof operation. Technically, note that *Cesare* is introduced as a single proposition with a 'Whenever' quantifier. }

ج د حقّا، ولا شيء من ا د حقّا، فلا شيء من ج ا حقّ. ينتج، كلّما كان

ه ز، فلا شيء من ج ا حقّ.

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الضرب الثاني: كلّما كان ه ز ، فلا شيء من ج د ، وكلّ ا د . ينتج كالأوّل

The second mood: 328.1

(16) Whenever $r$, no $C$ is a $D$;
and every $A$ is a $D$.

It entails the same conclusion the first mood.
{Based on predicative mood ii.2 *Camestres*, *Qiyās* 115.17.}

وبرهانه بعكس التالي.

This can be demonstrated by converting the consequent of the propositional premise.

الضرب الثالث: كلّما كان ه ز ، فبعض ج د ، ولا شيء من ا د . ينتج:

The third mood: 328.3

(17) Whenever $r$, then some $C$ is a $D$;
and no $A$ is a $D$.
It entails: Whenever $r$, then not every $C$ is a $D$.

{Based on predicative mood ii.3 *Festino*, *Qiyās* 116.4. }

كلّما كان ه ز ، فليس كلّ ج د . ويبيّن بعكس الحمليّة.

This can be proved by converting the predicative premise.

الضرب الرابع: كلّما كان ه ز ، فليس كلّ ج د ، وكلّ ا د . ينتج كالثالث،

The fourth mood: 328.5

(18) Whenever $r$, then not every $C$ is a $D$;
and every $A$ is a $D$.

It entails the same conclusion as the third mood.
{Based on predicative mood ii.4 *Baroco*, 116.7. }

وبرهانه: أنّه كلّما كان ه ز ،فحقّ أنّه ليس كلّ ج د ، وحقّ أنّ كلّ ا د .

The demonstration is that

وكلّما كان حقّا أنّه ليس كلّ ج د ، وأنّ كلّ ا د ،فحقّ أنّه ليس كلّ ج ا .

(19) Whenever not every $C$ is a $D$, but every $A$ is a $D$, then not every $C$ is an $A$.

ينتج: وكلّما كان ه ز ، فليس كلّ ج ا .
Then by this and the premises in (18),

(20) Whenever $r$, then not every $C$ is an $A$.

وأربعة ضروب أخرى والمتّصلة جزئيّة.
And there are four other moods where the meet-like premise carries an existential [time] quantifier. 328.9

ضروب ذلك والمتّصلة سالبة، والشريطة فيها أن يتّفق الحملي والثاني في الكيف.
[6.4.8] We consider the moods of the first group which have a negative meet-like premise. Their productivity condition is that the predicative premise has the same quality as the consequent of the propositional premise, 328.10

وأن تكون الحمليّة كلّيّة.
and the predicative premise is universally quantified.

الضرب الأوّل: ليس البتّة إذا كان ه ز ، فلا كلّ ج د ، ولا شيء من ا د .
The first mood: 328.12

(21) It is never the case when $r$ that not every $C$ is a $D$;
and no $A$ is a $D$.
It entails: It is never the case when $r$ that some $C$ is an $A$.

{Based on *Cesare*. }

ينتج: ليس البتّة إذا كان ه ز ، فبعض ج ا . لأنّ الشرطيّة يلزمها: كلّما كان
This is because it follows from the propositional premise that

(22) Whenever $r$, then every $C$ is a $D$.

ه ز، فكلّ ج د . ينتج: كلّما كان ه ز ، فلا شيء من ج ا . ويلزمها: ليس
Then it follows [from (22) and the second premise in (21) that

(23) (Whenever $r$ then no $C$ is an $A$.

And it follows from (23) that

(24) It is never the case when $r$ that some $C$ is an $A$.

البتّة إذا كان ه ز ، فبعض ج ا .

الضرب الثاني ليس البتّة إذا كان ه ز ، فبعض ج د ، وكلّ ا د . ينتج

The second mood: 328.16

(25) It is never the case when $r$ that some $C$ is a $D$;
and every $A$ is a $D$.

It entails
{Based on *Camestres*. }

كالأوّل.

the same conclusion as the first mood.

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الضرب الثالث: ليس البتّة إذا كان ه ز ، فلا شيء من ج د ، ولا شيء من

The third mood: 329.1

(26) It is never the case when $r$ that no $C$ is a $D$;
and no $A$ is a $D$.
It entails: It is never the case when $r$ that every $C$ is an $A$.

{Based on *Festino*. }

ا د. ينتج: ليس البتّة إذا كان ه ز ، فكلّ ج ا .

الضرب الرابع: ليس البتّة إذا كان ه ز ، فكلّ ج د ، وكلّ ا د . ينتج: ليس

The fourth mood: 329.3

(27) It is never the case when $r$ that every $C$ is a $D$;
and every $A$ is a $D$.
It entails: It is never the case when $r$ that every $C$ is an $A$.

{Based on *Baroco*. }

البتّة إذا كان ه ز ، فكلّ ج ا .

التأليفات على هيئة الشكل الثالث.

[6.4.8] We consider the premise-pairs [whose underlying predicative syllogism] has the form of the third figure, 329.5

ضروب ذلك والمتّصلة موجبة.

starting with the moods of the first group whose meet-like premise is affirmative. 329.6

الضرب الأوّل: كلّما كان ه ز ، فكلّ ج د ، وكلّ ج ا . ينتج: كلّما كان

The first mood: 329.7

(28) Whenever $r$, then every $C$ is a $D$;
and every $C$ is an $A$.
It entails: Whenever $r$, then some $D$ is an $A$.

{Based on predicative mood iii.1 *Darapti*, *Qiyās* 117.6. }

ه ز، فبعض د ا . يبيّن بعكس التالي.

This is proved by conversion of the consequent of the propositional premise.

الضرب الثاني: كلّما كان ه ز ، فكلّ ج د ، ولا شيء من ج ا . ينتج:

The second mood: 329.9

(29) Whenever $r$, then every $C$ is a $D$;
and no $C$ is an $A$.
It entails: Whenever $r$, then not every $D$ is an $A$.

{Based on predicative mood iii.2 *Felapton*, *Qiyās* 117.13. }

كلّما كان ه ز ، فليس كلّ د ا . ويبيّن بعكس التالي.

This is proved by conversion of the consequent of the propositional premise. 329.10

الضرب الثالث: كلّما كان ه ز ، فبعض ج د ، وكلّ ج ا . ينتج كالأوّل،

The third mood: 329.11

(30) Whenever $r$, then some $C$ is a $D$;
and every $C$ is an $A$.

It entails the same conclusion as the first mood,
{Based on predicative syllogism iii.3 *Datisi*, *Qiyās* 118.3. }

ويبيّن بعكس التالي.

This is proved by conversion of the consequent of the propositional premise.

الضرب الرابع: كلّما كان ه ز ، فكلّ ج د ، وبعض ج ا . ينتج كالأوّل،

The fourth mood: 329.13

(31) Whenever $r$, then every $C$ is a $D$;
and some $C$ is an $A$.

It entails the same conclusion as the first mood,
{Based on predicative mood iii.4 *Disamis*, *Qiyās* 118.6. }

ويبيّن هكذا: كلّما كان ه ز ، فحقّ أنّ كلّ ج د ، وحقّ أنّ بعض ج ا . وكلّما

This is proved as follows.

(32) Whenever every $C$ is a $D$ and some $C$ is an $A$, some $D$ is an $A$.

كان كلّ ج د ، وبعض ج ا ، يكون بعض د ا . وكلّما كان ه ز ، فبعض د ا .

Then [by the premises of (31) together with (32)]:

(33) Whenever $r$, then some $D$ is an $A$.

الضرب الخامس: كلّما كان ه ز ، فكلّ ج د ، وليس كلّ ج ا . ينتج:

The fifth mood: 329.16

Whenever $r$, then every $C$ is a $D$;
(34) and not every $C$ is an $A$.
It entails: Whenever $r$, then not every $D$ is an $A$.

{Based on predicative mood iii.5 *Bocardo*, *Qiyās* 118.13. }

كلّما كان ه ز ، فليس كلّ د ا . ويبيّن بمثل ما بان به الرابع.

This is proved in the same way as the fourth mood.

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الضرب السادس: كلّما كان ه ز ، فبعض ج د ، ولا شيء من ج ا . ينتج
The sixth mood: 330.1

(35)
Whenever $r$, then some $C$ is a $D$;
and no $C$ is an $A$.
It entails the same conclusion as the fifth mood.

{Based on predicative mood iii.6 *Ferison*, *Qiyās* 119.5. }

كالخامس، ويبيّن بعكس التالي.
This is proved by conversion of the consequent of the propositional premise.

وضروب ستّة أخرى والمتّصلة جزئيّة.
And there are six other moods whose meet-like premise carries an existential [time] quantifier. 330.3

ضروب ذلك والمتّصلة سالبة، والشرائط أن يكون التالي سالبا، ويكون
[6.4.9] We consider the moods of the first group where the meet-like premise is negative. The conditions of productivity are that the consequent 330.4
of the propositional premise is negative, and

إحداهما كلّيّة لا محالة، أعني التالي أو الحملي.
of course that one of the two propositions — I mean the consequent of the 330.5
propositional premise or the predicative premise — is universally quantified.

الضرب الأوّل: ليس البتّة إذا كان ا ب ، فلا كلّ ج د ، وكلّ ج ه .
The first mood: 330.6

(36)
It is never the case when $p$ that not every $C$ is a $D$;
and every $C$ is an $H$.
It entails: It is never the case when $p$ that not every $D$ is an $H$.

{Based on *Datisi*. Replace *fa-lā šay'a min* by *fa-kullu* as in some mss. The present Cairo reading makes this mood identical with the third one below. }

ينتج: ليس البتّة إذا كان ا ب ، فلا شيء من د ه . ويبيّن بعكس المتّصلة إلى
This is proved by conversion of the meet-like premise to

الإيجاب، وعكس تاليها، ثمّ أخذ لازم النتيجة.
an affirmative proposition, together with conversion of its consequent, and then one takes a consequence of the conclusion of the resulting syllogism.

الضرب الثاني: ليس البتّة إذا كان ا ب ، فلا شيء من ج د ، ولا شيء من ج ه .
The second mood: 330.9

(37)
It is never the case when $p$ that no $C$ is a $D$;
and no $C$ is an $H$.
It entails: It is never the case when $p$ that every $D$ is an $H$.

{Based on *Ferison*. Replace the Cairo *lā kullu* by *lā šay'a min* as in *s*. }

ينتج: ليس البتّة إذا كان ا ب ، فكلّ د ه . ويبيّن بردّ المتّصلة إلى الإيجاب،
This is proved by reduction of the meet-like premise to an affirmative proposition,
{The reduction is presumably to 'It is always the case when $p$ that some $C$ is a $D$'. In fact the form 'Never when $p$ then $q$' is misleading, since it is read as giving the temporal quantifier wide scope: 'Whenever $p$ then not $q$'. }

وعكس تاليها.
together with conversion of its consequent.

الضرب الثالث: ليس البتّة إذا كان ا ب ، فلا شيء من ج د ، وكلّ ج ه .
The third mood: 330.12

(38)
It is never the case when $p$ that no $C$ is a $D$;
and every $C$ is an $H$.
It entails: It is never the case when $p$ that no $D$ is an $H$.

{Based on *Datisi*.}

ينتج: ليس البتّة إذا كان ا ب ، فلا شيء من د ه . ويتبيّن بردّ المتّصلة إلى
This is proved by reduction of the meet-like premise to

الإيجاب، وعكس تاليها.
an affirmative proposition, together with conversion of its consequent.

331

الضرب الرابع: ليس البتّة إذا كان ا ب ، فلا كلّ ج د ، وبعض ج ه .
The fourth mood: 331.1

(39) It is never the case when $p$ that not every $C$ is a $D$;
and some $C$ is an $H$.
It entails: It is never the case when $p$ that no $D$ is an $H$.

{This is from *Disamis*. }

ينتج: ليس البتّة إذا كان ا ب ، فلا شيء من د ه . ويتبيّن بعكس المتّصلة
This is proved by conversion of the meet-like premise

إلى الإيجاب، وعكس تاليها. ثمّ أخذ لازم النتيجة.
to an affirmative proposition, together with conversion of its consequent. Then one takes a consequence of the conclusion of the resulting syllogism.

الضرب الخامس: ليس البتّة إذا كان ا ب ، فلا كلّ ج د ، وليس كلّ
The fifth mood: 331.4

(40) It is never the case when $p$ that not every $C$ is a $D$;
and not every $C$ is an $H$.
It entails: It is never the case when $p$ that every $D$ is an $H$.

{From *Bocardo*. }

ج ه. ينتج: ليس البتّة إذا كان ا ب ، فكلّ د ه ، ويتبيّن بعكس المتّصلة
This is proved by conversion of the meet-like premise

إلى الإيجاب ثمّ أخذ لازم النتيجة.
to an affirmative proposition, and then taking a consequence of the conclusion of the resulting syllogism.

الضرب السادس: ليس البتّة إذا كان ا ب ، فلا كلّ ج د ، ولا شيء
The sixth mood: 331.7

(41) It is never the case when $p$ that every $C$ is a $D$;
and no $C$ is an $H$.

It entails the same conclusion as the second mood.
{Based on *Ferison*. }

من جَ هَ. ينتج كالثاني ويبيّن بعكس المتّصلة إلى الإيجاب، ثمّ أخذ لازم النتيجة.
This is proved by conversion of the meet-like premise to an affirmative proposition, and then taking a consequence of the conclusion of the resulting syllogism.

وستّة ضروب أخرى والمتّصلة جزئيّة.
There are six other moods, whose meet-like premise carries an existential [time] quantifier. 331.9

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فلنحص أصناف هذه الإقترانات،
[6.4.10] Next let us enumerate the types of the second group of premise pairs, 331.9
{He refers here to 'the latter ones' (*hāḏihi*). This picks up from 325.11. }

والمتّصل مكان الكبرى، ولنبدأ بما يكون على قياس الشكل الأوّل.
where the meet-like premise serves as the major premise, and let us begin with the analogue of the first figure [of predicative syllogisms]. 331.10

ضروب ذلك والمتّصلة موجبة والشرائط في أن تنتج هي أن يكون بين الحملي
We consider the moods of the first group where the meet-like premise is affirmative. The conditions for productivity are that the relation between the predicative premise 331.11

والتالي من النسبة ما هو الشرط في إنتاج قرائن الشكل الأوّل في الحمليّات، ثمّ
and the consequent of the propositional premise meets the productivity condition for premise-pairs of the first figure in predicative syllogisms.

تكون النتيجة متّصلة تاليها نتيجة الحمليّتين لو إنفردتا.
The conclusion will be a meet-like proposition whose consequent is what would be the conclusion from the two predicative propositions if one separated them out [from the premises].

الضرب الأوّل: كلّ جَ بَ ، وكلّما كان هَ زَ ، فكلّ بَ اَ . فكلّما كان
The first mood: 331.14

(42) Every $C$ is a $B$;
and whenever $r$ then every $B$ is an $A$.
So whenever $r$, then every $C$ is an $A$.

ه ز، فكلّ ج ا .

الضرب الثاني: كلّ ج ب ، وكلّما كان ه ز ، فلا شيء من ب ا . فكلّما

The second mood: 331.16

(43) Every $C$ is a $B$;
and whenever $r$ then no $B$ is an $A$.
So whenever $r$ then no $C$ is an $A$.

كان ه ز فلا شيء من ج ا .

332

الضرب الثالث: بعض ج ب ، وكلّما كان ه ز ، فكلّ ب ا . فكلّما كان

The third mood: 332.1

(44) Some $C$ is a $B$;
and whenever $r$ then every $B$ is an $A$.
So whenever $r$ then some $C$ is an $A$.

ه ز، فبعض ج ا .

الضرب الرابع: بعض ج ب ، وكلّما كان ه ز ، فلا شيء من ب ا . فكلّما

The fourth mood: 332.3

(45) Some $C$ is a $B$;
and whenever $r$ then no $B$ is an $A$.
So whenever $r$, then some $C$ is not an $A$.

كان ه ز ، فليس كلّ من ج ا .

{Following ms *s*, read *fa-laysa kullu* for the Cairo edition's *fa-lā šay'a*, as the logic requires. }

وأربعة ضروب أخرى والمتّصلات جزئيّة.

There are four other moods; in them the meet-like premise carries an existential [time] quantifier. 332.5

ضروب ذلك والمتّصلة سالبة. شريطته أن يكون التالي جزئيّا.

[6.4.11] We consider the moods of the first group where the meet-like premise is negative. The productivity condition is that the consequent of the propositional premise is existentially quantified. 332.6

الضرب الأوّل: كلّ ج ب ، وليس البتّة إذا كان ه ز ، فليس كلّ ب ا .

The first mood: 332.7

(46) Every $C$ is a $B$;
and it is never the case when $r$ that not every $B$ is an $A$.
So it is never the case when $r$ that not every $C$ is an $A$.

فليس البتّة إذا كان ه ز ، فليس كلّ ج ا . ويتبيّن بعكس المتّصلة إلى الإيجاب.

This is proved by conversion of the meet-like premise to an affirmative proposition,

ثمّ أخذ لازم النتيجة.

and then taking a consequence of the conclusion of the resulting syllogism.

الضرب الثاني: كلّ ج ب ، وليس البتّة إذا كان ه ز ، فبعض ب ا .

The second mood: 332.10

(47) Every $C$ is a $B$;
and it is never the case when $r$ that some $B$ is $A$.
So it is never the case when $r$ that some $C$ is $A$.

فليس البتّة إذا كان ه ز ، فبعض ج ا .

والضرب الثالث: بعض ج ب ، وليس البتّة إذا كان ه ز ، فليس كلّ

And the third mood: 332.12

(48) Some $C$ is a $B$;
and it is never the case when $r$ that not every $B$ is an $A$.
So it is never the case when $r$ that no $C$ is an $A$.

ب ا. فليس البتّة إذا كان ه ز ، فلا شيء من ج ا . ويبيّن كذلك.

This is proved as before.
{Again correct as in ms *s* as required by the logic; the Cairo *laysa kullu* should read *lā šay'a min*. }

الضرب الرابع: بعض ج ب ، وليس البتّة إذا كان ه ز ، فبعض ب ا .

The fourth mood: 332.14

(49) Some $C$ is a $B$;
and it is never the case when $r$ that some $B$ is an $A$.
So it is never the case when $r$ that every $C$ is $A$.

{At the end of line 14 the Cairo *j̄ ā* should be *b̄ ā*, not noticed in the mss; Shehaby has it right. }

فليس البتّة إذا كان ه ز ، فكلّ ج ا . ويبيّن كذلك.

This is proved as before.
{Again correct for the logic, this time following mss *s*, *sā*, *h*; the Cairo *ba*$^{c}$*ḍ* should be *kull*. }

333

وأربعة ضروب أخرى، والمتّصلات جزئيّة.

There are four other moods; in them the meet-like premise carries an existential [time] quantifier. 333.1

تأليفات ذلك على منهاج الشكل الثاني.

[6.4.12] We consider the premise-pairs that follow the schedule of the second figure, 333.2

ضروب ذلك والمتّصلة موجبة، والشرائط بين الحمليّة والتالي تلك الّتي

starting with the moods where the meet-like premise is affirmative. The [productivity] conditions relating the predicative premise and the consequent of the other premise are the same 333.3

في الحمليّات.

as for predicative syllogisms.

الضرب الأوّل: كلّ ج ب ، وكلّما كان ه ز ؛ فلا شيء من ا ب . ينتج:

The first mood: 333.5

(50)
Every $C$ is a $B$;
and whenever $r$ then no $A$ is a $B$.
It entails: Whenever $r$, then no $C$ is an $A$.

{For the logic, correct the Cairo $\bar{d}$ to $\bar{b}$, as Shehaby but with no supporting mss. }

كلّما كان ه ز ، فلا شيء من ج ا . ويتبيّن بعكس التالي.

This is proved by conversion of the consequent of the propositional premise.

الضرب الثاني: لا شيء من ج ب وكلّما كان ه ز ، فكلّ ا ب . ينتج كذلك،

The second mood: 333.7

(51)
No $C$ is a $B$;
and whenever $r$ then every $A$ is a $B$.

Its conclusion is the same as for the previous mood.

ويتبيّن بعكس الحمليّة، ثمّ عكس التالي والنتيجة.

This is proved by conversion of the predicative premise, and then conversion of the consequent of the propositional premise, together with conversion of the conclusion.

الضرب الثالث: بعض ج ب ، وكلّما كان ه ز ، فلا شيء من ا ب . ينتج:

The third mood: 333.9

(52) Some $C$ is a $B$;
and whenever $r$, then no $A$ is a $B$.
It entails: Whenever $r$, then not every $C$ is an $A$.

كلّما كان ه ز ، فليس كلّ ج ا . ويبيّن بعكس التالي.

This is proved by conversion of the consequent of the propositional premise.

الضرب الرابع: ليس كلّ ج ب ، وكلّما كان ه ز ، فكلّ ا ب . ينتج

The fourth mood: 333.11

(53) Not every $C$ is a $B$;
and whenever $r$, then every $A$ is a $B$.

Its conclusion is the same as that of the third mood.
{Again mss *s* and *h* get the logic right. Correct the first *kullu* in the Cairo edition to *laysa kullu*, and *lā kullu* to *kullu*. The same corrections are needed in lines 12 and 13, unfortunately not supported by the mss except for a misguided attempt in *h*. }

كالثالث، ويبيّن هكذا: كلّما كان ه ز ، فحقّ أنّه كلّ ا ب ، وحقّ

This is proved as follows:

(54) Whenever $r$ then every $A$ is a $B$;
and not every $C$ is a $B$.
Whenever the last two propositions are true, not every $C$ is an $A$.
It entails that whenever $r$ then not every $C$ is an $A$.

أنّه لا كلّ ج ب . وكلّما كان هذان حقّين، فلا كلّ ج ا . ينتج: أنّه كلّما كان
ه ز، فلا كلّ ج ا .

وأربعة ضروب أخرى والمتّصلة جزئيّة.

There are four other moods; their meet-like premise carries an existential [time] quantifier. 333.15

ضروب ذلك والمتّصلة سالبة، والشريطة فيه أن يكون التالي جزئيّا موافقا

[6.4.13] We consider the moods of this group whose meet-like premise is negative. The [productivity] condition is that the consequent of the propositional premise is existentially quantified and agrees 333.16

للحملي في الكيفيّة كذلك.

in quality with the predicative premise.

334

الضرب الأوّل: كلّ ج ب ، وليس البتّة إذا كان ه ز ، فبعض ا ب .

The first mood: 334.1

(55) Every $C$ is a $B$;
and it is never the case when $r$ that some $A$ is a $B$.
It entails: It is never the case when $r$ that some $C$ is an $A$.

ينتج: ليس البتّة إذا كان ه ز ، فبعض ج ا .

الثاني: لا شيء من ج ب ، وليس البتّة إذا كان ه ز ، فلا كلّ ا ب . ينتج

The second: 334.3

(56) No $C$ is a $B$;
and it is never the case when $r$ that not every $A$ is a $B$.

Its conclusion is the same as that of the previous mood.

كذلك.

الثالث: بعض ج ب ، وليس البتّة إدا كان ه ز ، فبعض ا ب . ينتج:

The third: 334.5

(57) Some $C$ is a $B$;
and it is never the case when $r$ that some $A$ is a $B$.
It entails: it is never the case when $r$ that every $C$ is an $A$.

ليس البتّة إذا كان ه ز ، فكلّ ج ا .

الرابع: ليس كلّ ج ب ، وليس البتّة إذا كان ه ز ، فلا كلّ ا ب ، ينتج:

The fourth: 334.7

(58) Not every $C$ is a $B$;
and it is never the case when $r$ that not every $A$ is a $B$.

Its conclusion is the same as that of the third mood.

كالثالث.

وجميع هذه تتبيّن بعكس السالبة إلى الإيجاب، وأخذ لازم النتيجة.

All of this is proved by conversion of the negative premise to an affirmative proposition, and taking a consequence of the conclusion of the resulting syllogism. 334.9

فلها ضروب أربعة جزئيّة المتّصلات.

There are a further four moods in which the meet-like premise carries an existential [time] quantifier. 334.10
{The cases with existential time quantification should be in one-to-one correspondence with those with universal time quantification, and he lists four of these. So we should follow mss *s*, *h* yet again and correct the Cairo *sitta* to *'arba<sup>c</sup>a*. }

تأليفات ذلك على منهاج الشكل الثالث: ضروب ذلك من موجبتين.

[6.4.14] We consider the premise-pairs in the second group which follow the schedule of the third [predicative] figure, starting with the moods 334.11
where both premises are affirmative.

الضرب الأوّل: كلّ جَ بَ ، وكلّما كان هَ زَ ، فكلّ جَ اَ . فكلّما كان

The first mood: 334.12

(59)
Every $C$ is a $B$;
and whenever $r$ then every $C$ is an $A$.
So whenever $r$ then some $B$ is an $A$.

هَ زَ، فبعض بَ اَ . يتبيّن بعكس الحمليّة.

This is proved by conversion of the predicative premise.

الضرب الثاني: كلّ جَ بَ ، وكلّما كان هَ زَ ، فلا شيء من جَ اَ . وكلّما كان

The second mood: 334.14

(60)
Every $C$ is a $B$;
and whenever $r$ then no $C$ is an $A$.
And [the conclusion is that] whenever $r$, then not every $B$ is an $A$.

هَ زَ، فليس كلّ بَ اَ . ويتبيّن بعكس الحمليّة.

This is proved by conversion of the predicative premise. 334.15

الضرب الثالث: بعض جَ بَ ، وكلّما كان هَ زَ ، فكلّ جَ اَ . فكلّما كان

The third mood: 334.16

(61)
Some $C$ is a $B$;
and whenever $r$ then every $C$ is an $A$.
So whenever $r$, so some $B$ is an $A$.

ه ز، فبعض ب ا . ويبيّن بعكس الحمليّة.

This is proved by conversion of the predicative premise.

335

الضرب الرابع: كلّ جَ بَ ، وكلّما كان هَ زَ ، فبعض جَ اَ . ينتج كالأوّل

The fourth mood: 335.1

(62) Every $C$ is a $B$;
and whenever $r$ then some $C$ is an $A$.

والثالث. ويبيّن بعكس التالي.

This is proved by conversion of the consequent of the propositional premise.

الضرب الخامس: كلّ جَ بَ ، وكلّما كان هَ زَ ، فليس كلّ جَ اَ . ينتج:

The fifth mood: 335.3

(63) Every $C$ is a $B$;
and whenever $r$ then not every $C$ is an $A$.
It entails: Whenever $r$, then not every $B$ is an $A$.

كلّما كان هَ زَ ، فليس كلّ بَ اَ . ويبيّن بأن يقول: كلّما كان هَ زَ ، فليس

This is proved as follows.

(64) Whenever $r$, then not every $C$ is an $A$;
and also every $C$ is a $B$;
and when not every $C$ is an $A$ and every $C$ is a $B$, then not every $B$ is an $A$.
It entails: Whenever $r$, then not every $B$ is an $A$.

كلّ جَ اَ ، وأيضا: كلّ جَ بَ ، وإذا كان ليس كلّ جَ اَ ، وكان كلّ جَ بَ ،
فليس كلّ بَ اَ . ينتج: كلّما كان هَ زَ ، فليس كلّ بَ اَ .

الضرب السادس: بعض جَ بَ ، وكلّما كان هَ زَ ، فلا شيء من جَ اَ .

The sixth mood: 335.7

(65) Some $C$ is a $B$;
and whenever $r$, then no $C$ is an $A$.

Its conclusion is the same as that of the fifth mood.

ينتج كالخامس، ويبيّن بعكس الحمليّة.

This is proved by conversion of the predicative premise.

ضروب ذلك من سالبتين.

[6.4.15] We consider the moods of the second group where the meet-like premise is negative. 335.9
{For the Cairo *min sālibatayni* read *wa-l-muttaṣilatu sālibatun*. This text appears in *s* and *h* but added to *min sālibatayni* rather than replacing it. }

الضرب الأوّل: كلّ ج ب ، وليس البتّة إذا كان ه ز ، فلا كلّ ج ا .

The first mood: 335.10

(66)
Every $C$ is a $B$;
and it is never the case when $r$ that not every $C$ is an $A$.
So it is never the case when $r$ that no $B$ is an $A$.

فليس البتّة إذا كان ه ز ، فلا شيء من ب ا .

الثاني: كلّ ج ب ، وليس البتّة إذا كان ه ز ، فبعض ج ا . فليس البتّة

The second mood: 335.12

(67)
Every $C$ is a $B$;
and it is never the case when $r$ that some $C$ is an $A$.
So it is never the case when $r$ that every $B$ is an $A$.

إذا كان ه ز ، فكلّ ب ا .

الثالث: كلّ ج ب ، وليس البتّة إذا كان ه ز ، فلا شيء من ج ا . فليس

The third: 335.14

(68)
Every $C$ is a $B$;
and it is never the case when $r$ that no $C$ is an $A$.
So it is never the case when $r$ that no $B$ is an $A$.

البتّة إذا كان ه ز ، فلا شيء من ب ا .

336

الرابع: بعض جَ بَ ، وليس البتّة إذا كان هَ زَ ، فلا كلّ جَ اَ . فليس
The fourth: 336.1

(69) Some $C$ is a $B$;
and it is never the case when $r$ that not every $C$ is an $A$.
So it is never the case when $r$ that no $B$ is an $A$.

البتّة إذا كان هَ زَ ، فلا شيء من بَ اَ .

الخامس: كلّ جَ بَ ، وليس البتّة إذا كان هَ زَ ، فكلّ جَ اَ . فليس البتّة
The fifth: 336.3

(70) Every $C$ is a $B$;
and it is never the case when $r$ that every $C$ is an $A$.
So it is never the case when $r$ that every $B$ is an $A$.

إذا كان هَ زَ ، فكلّ بَ اَ .

السادس: بعض جَ بَ ، وليس البتّة إذا كان هَ زَ ، فبعض جَ اَ . فليس
The sixth: 336.5

(71) Some $C$ is a $B$;
and it is never the case when $r$ that some $C$ is an $A$.
So it is never the case when $r$ that every $B$ is an $A$.

البتّة إذا كان هَ زَ ، فكلّ بَ اَ . وجميع هذه تبيّن بردّ المتّصلة إلى الإيجاب،
All of these are proved by reduction of the meet-like premise to an affirmative proposition,

وأخذ لازم النتيجة، وبالعكس إلّا في واحد.
and then taking a consequence of the conclusion of the resulting syllogism. All except one can also be proved by conversion. CHECK THIS.

وكذلك ضروب ستّة جزيّة المتّصلات.
And again there are six moods where the meet-like premise carries an existential [time] quantifier.. 336.8