Non-Contingency Syllogisms in Buridan's *Treatise on Consequences*

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December 15, 2012

Abstract

Whereas his predecessors attempted to make sense of, and if necessary correct, Aristotle's theory of the modal syllogism, John Buridan starts afresh in his *Treatise on Consequences*, treating separately of composite and divided modals, then of syllogisms of necessity, possibility, and with mixed premises. Finally, he comes in the penultimate chapter of the treatise, Book IV ch. 3, to present a concise treatment of syllogisms with premises of contingency, that is, two-sided possibility. The previous modal syllogisms had all been taken with an affirmed mode only, since modal conversion equates negated necessity and possibility with affirmed possibility and necessity, respectively. But in his Conclusions concerning syllogisms of contingency, he also treats those with negated mode. These are the non-contingency syllogisms.

1 Necessity and Possibility

As is well known, much of the work on modal logic in the 1600 years after Aristotle's death was not only determined by the great strides he had made in its creation but also by the attempt to make sense of Aristotle's to some extent puzzling analysis and to find a coherent account of modality consistent with it. John Buridan seems to have been one of the first logicians to move on from this attempt to create his own system of modalities and its foundation. In particular, he abandoned the attempt to provide an account which validates Barbara LXL while invalidating Barbara XLL.[1] For Buridan, both are invalid. But this is not a rejection of Aristotle's view, since arguably Buridan's interpretation of propositions of necessity is different from Aristotle's.

Where Aristotle provides only a brief analysis of modal propositions (in *De Interpretatione* 12-14 and *Prior Analytics* I 3), Buridan devotes the whole of Book II of his *Treatise on Consequences* to a general analysis of modality before embarking in Book IV on his own account of the modal syllogism. He follows Aristotle in restricting attention to modalizations of assertoric syllogisms. He also uses two ideas which Aristotle introduced but which play little part in Aristotle's own analysis. The first

[1]Barbara is a mnemonic for the AAA syllogism in the first figure. See, e.g., Aristotle [1, pp. 67-71], Buridan [2, §5.2.2, pp. 320-1]. L, M. X and Q stand respectively for the modalities necessity, possibility, assertoric and contingency. For the full mnemonic, and discussion of the problem of the two Barbaras, see, e.g., Thom [7].

is the distinction between compounded and divided senses. In applying this to modal propositions, Buridan seems to be following Abelard.[2] Most of Buridan's attention, and my own here, is on divided modal propositions.

At first glance, Aristotle seems to discuss only two modes, necessity and possibility. But this is to overlook a distinction Aristotle makes between two senses of possibility, one-sided and two-sided:

> "After these explanations, let us add that 'being possible' is said in two ways: in one way of what happens for the most part, when the necessity has gaps, such as that a man turns grey or grows or ages, or generally what belongs by nature. For this has no continuous necessity because a man does not exist forever, but while a man exists, it happens either of necessity or for the most part. In another way 'being possible' is said of what is indeterminate, that is, what is possible both this way and not this way, such as that an animal walks or that an earthquake happens while it walks, or, generally, what comes about by chance, for this is by nature no more this way than the opposite way." (*Prior Analytics* I 13, 32b4-14, tr. Gisela Striker in [1].)

That is, 'possible' may be simply the contradictory of 'impossible', in which case, what is necessary is also possible; but 'possible' may also be opposed to 'necessary', so that 'possible' describes not simply what is not impossible but what is also not necessary. The first sense of 'possible' is sometimes called 'one-sided possibility', the latter 'two-sided possibility'. Buridan himself in general reserves 'possible' for the first sense and 'contingent', or sometimes 'contingent each way' (*contingens ad utrumlibet*), for the latter, for if a proposition is contingent then things can be as it signifies and can also fail to be as it signifies.[3] What is contingent is not necessary, and so may possibly fail to obtain. Unfortunately, even though Aristotle has two words for 'possible' (*dunaton* and *endexesthai*), he uses both in both senses, often but not always noting whether he means possible in the weaker sense (not impossible) or stronger (neither impossible nor necessary). This equivocation runs right through Aristotle's discussion of the modal syllogism. As a matter of fact, he only takes possibility premises in the stronger sense (contingency), but often considers possibility conclusions in the weaker sense.

The other idea which Buridan takes from Aristotle but unlike Aristotle extends throughout his account of modal propositions is that of ampliation of the subject. At *Prior Analytics* I 13, Aristotle suggests that the subject of propositions of contingency is ampliated to the contingent:

> "Given that 'this possibly belongs to that' may be understood in two ways—either of what that belongs to, or of what that may belong to (for 'A possibly belongs to what B belongs to' signifies one or the other of these, either that A may belong to what B is said of, or that it may belong to what B may be said of)—and that there is no difference between 'A

[2]See, e.g., Thom [8, p. 169].

[3]See also Buridan, *Summulae de Dialectica* [2, §1.8.5, p. 76].

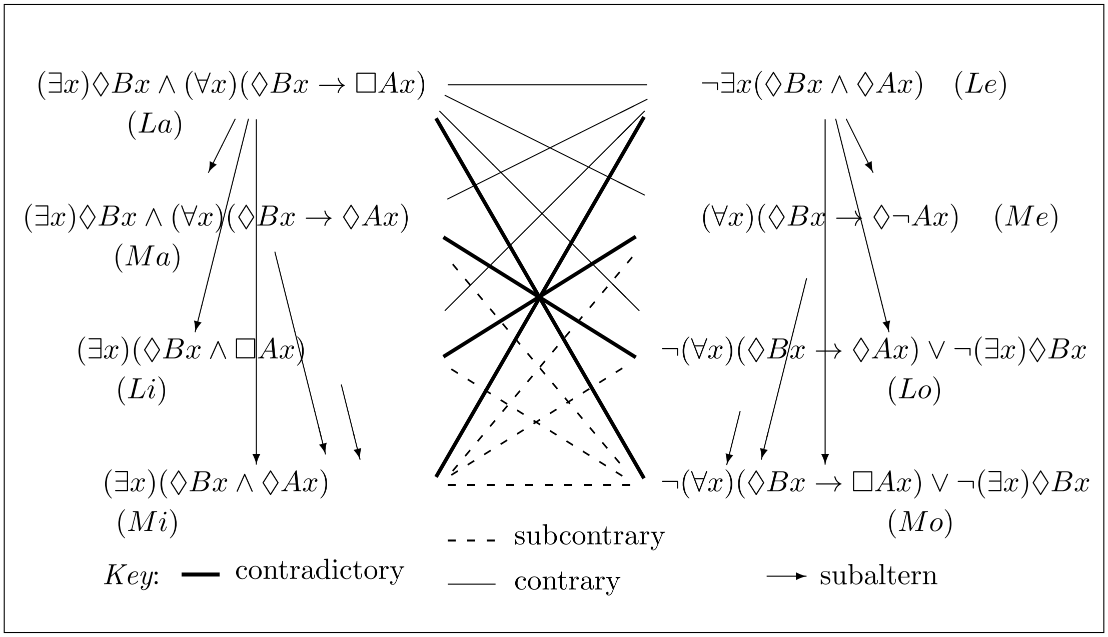

Figure 1: Buridan's Modal Octagon of Opposition

> possibly belongs to what B is said of' and 'A possibly belongs to every B', it is evident that 'A possibly belongs to every B' would be said in two ways." (32b25-30)

It seems clear that Aristotle means 'contingent' by 'possible' in this passage, so he is suggesting that the subject of contingency propositions is ampliated to the contingent. Buridan notes in the *Treatise on Consequences* [3, IV 3] ([4, p. 130]) that this is mistaken:

> "In this connection, moreover, it should be realised that in a proposition of contingency the subject is ampliated to supposit for those which are and for those which can be, and it is not required that the subject supposit for those which are contingently. For God is contingently creating, but nothing which is contingently God is contingently creating, because nothing is contingently God, indeed, everything is necessarily God or necessarily fails to be God."

Rather, the subject of propositions of contingency is ampliated to the possible, just as are the subjects of propositions of necessity and possibility.

That the subject of propositions of necessity is ampliated to the possible is crucial to Buridan's account, and forms the basis of his octagons of opposition.[4] Buridan's main discussion of modal syllogisms concerns only modal propositions of necessity and (one-sided) possibility (possibly mixed with assertorics). Applying these two modes to the four types of assertoric proposition yields eight modal types, in symbols: $La, Le, Li, Lo, Ma, Me, Mi$ and Mo. Buridan's idea is that the duality of necessity

[4]So-called by George Hughes [5]; Buridan himself calls them 'great figures'—*magnae figurae*.

and possibility, that is, that 'not necessary' is equivalent to 'possibly not' and so on, means that, e.g., La should be the contradictory of Mo, Le of Mi and so on. But given that in possibility-propositions, the subject is naturally ampliated to the possible, that is, for example, 'Some B is possibly A' means that something which is or can be B can be A, the subject of the necessity-proposition which is its contradictory must similarly be ampliated to the possible. See Figure 1. Note that, e.g., $(\exists x)(\Diamond Bx \wedge \Box Ax)$ is equivalent to $(\exists x)((Bx \vee \Diamond Bx) \wedge \Box Ax)$, since what is B can be B, a principle Aristotle endorses at *De Interpretatione* 23a21-2. Note also that Buridan, like most other medievals, and arguably like Aristotle himself, took affirmatives to have existential import, negatives to be true if the subject is empty.

I intend in what follows to make use of a concise formalization introduced by Paul Thom, which used carefully allows both more compact expression of each of the eight proposition types and also a compact method of proof. See Figure 2.

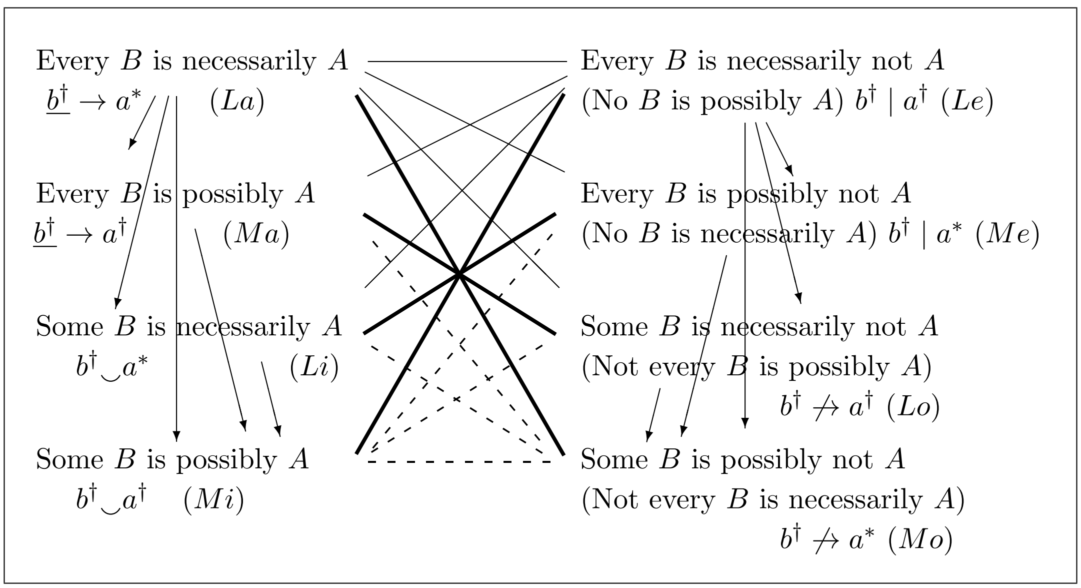

Figure 2: Buridan's Octagon in Thom's Notation

Key

'Every B is A':	$\underline{b} \to a$ (inclusion)	$\underline{b}$:	indicates existential import
'No B is A':	$b\|a$ (exclusion)	$b^\dagger$:	what is B or possibly B
'Some B is A':	$b \smile a$ (overlap)	b^*:	what is necessarily B
'Not every B is A':	$b \not\to a$ (non-inclusion)		

Particular care is needed with Thom's use of underline to capture existential import.[5] Thom presents the following eight axioms,[6] which capture the idea that $\to$ means inclusion, $\smile$ indicates overlap and $|$ exclusion. 1.3 and 1.4 capture the *dictum de omni et nullo*:

[5]Note that, where $\underline{b} \to a$ adds to $b \to a$ the requirement that b is non-empty, $b \not\to a$ not only denies $b \to a$ but disjoins the possibility of emptiness of b, as shown by axiom 1.5.

[6]I've amended 1.5 and 1.6 somewhat from Thom's formulation.

1.1	if $\underline{b} \to a$ then $b \smile a$	1.2	if $b \mid a$ then $a \mid b$
1.3	if $c \to b \to a$ then $c \to a$	1.4	if $c \to b \mid a$ then $c \mid a$
1.5	$b \not\to a$ iff $\Sigma d, b \leftarrow d \mid a$	1.6	$b \smile a$ iff $\Sigma d, b \leftarrow \underline{d} \to a$
1.7	$a^* \to a$	1.8	$a \to a^\dagger$

Note that the terms a, b here may be empty terms, so we have substitutional quantification in 1.5 and 1.6, hence the different style of quantifier.[7] Only in 1.6 is d taken actually to exist, as indicated by the underline; the counter-instance in 1.5 may be an empty term. We need an additional principle which appears not to follow from Thom's axioms, viz:[8]

$\sigma.1$ if $\underline{b} \to a$ then $b \to a$

The natural expression of the negative modal propositions in Figure 2 deserves comment. Take, e.g., *Le*-propositions: these apply the mode 'necessary' to the E-proposition 'No B is A', or equivalently, 'Every B fails to be A'. But since we are taking the divided sense of the modality, the mode has to be applied to the predicate, yielding 'Every B necessarily fails to be A', that is, 'Every B is not possibly A' (given the duality of 'necessary' and 'possible'), i.e., 'No B is possibly A'. Similarly, *Me*-propositions apply 'possibly' divisively to 'Every B fails to be A' yielding 'Every B possibly fails to be A', that is, 'Every B is not necessarily A', i.e., 'No B is necessarily A'. A similar somewhat unintuitive duality affects *Lo*- and *Mo*-propositions, so that the mode 'possibly' appears in the natural expression of *Lo*-propositions, 'Not every B is possibly A' and 'necessarily' in the natural expression of *Mo*-propositions, 'Not every B is necessarily A'. O-propositions are expressed here, following Aristotle, as the explicit contradictory of A-propositions, 'Not every B is A', rather than in the perhaps more familiar existential form, 'Some B is not A', to emphasize their lack of existential import.

2 Contingency and Non-Contingency

In chapter 3 of Book IV of his Treatise on Consequences, Buridan discusses syllogisms with premises and conclusions of contingency. Recall that 'is contingent' means 'is neither necessary nor impossible', that is, 'is possibly and possibly fails to be'. Thom represents the contingency of B by $a^\ddagger$, and it is immediate that

1.9 $$a^\ddagger \to a^\dagger,$$

as Buridan observes in Conclusion 8 of Book II, and that

1.10 $$a^\ddagger \mid a^*,$$

as he says in IV 3.

Aristotle claimed at *Prior Analytics* I 13 that

> "all possible [that is, contingent][9] premises convert to one another. I do not mean that affirmative ones convert to negatives, but that those that

[7] Thom [8, p. 17] writes, e.g., "for some 'd', $b \leftarrow d \mid a$".

[8] Note that $\underline{b} \to a$ does not say that every existing B is A, but that every B is A *and* there are Bs.

[9] The word Aristotle uses here is *endechesthai*.

Every B is contingently A	(Qa)	$\underline{b^\dagger} \to a^\ddagger$	(Qe)	Every B contingently fails to be A
Some B is contingently A	(Qi)	$b^\dagger \smile a^\ddagger$	(Qo)	Some B contingently fails to be A

Figure 3: Representation of Contingency Propositions in Thom's Notation

> are affirmative in form convert with respect to opposites. So, for example, 'possibly belonging' converts to 'possibly not belonging', 'possibly belonging to all' converts to 'possibly belonging to none' or 'not to all', and 'possibly belonging to some' converts to 'possibly not belonging to some'." (32a30-35)

What Aristotle seems to mean is that Qa-propositions are equivalent to Qe and Qi to Qo, as Buridan observes in Conclusion 7 of Book II. Thom (p. 171) represents divided A- and E-propositions of contingency as $b^\dagger \to a^\ddagger$, I- and O-propositions as $b^\dagger \smile a^\ddagger$. Note, however, that Qa-propositions have existential import. According to the *Summulae* [2, §1.8.3, p. 73], 'B is contingently A' is "hypothetical", so neither affirmative nor negative, but with affirmative and negative parts. Moreover, Qa-propositions are not simply conjunctive, nor equivalent to a conjunction:

> "But it should be noted that a particular or indefinite of contingency is not equivalent to a conjunction made up of an affirmative and a negative of possibility unless the second [conjunct] of possibility is taken with a relative of identity. For this conjunction is true, 'Some planet can be the moon and some planet can fail to be the moon', but this is false, 'Some planet is contingently the moon'." (*Treatise on Consequences* [3]: IV 3, [4, pp. 129-30])

Rather, Qa-propositions have a conjunctive predicate, and what makes a proposition affirmative or negative is the quality of its predicate, which in this case is neither simply one or the other. That is, 'Every B is contingently A' is equivalent to 'Every B is possibly A and possibly fails to be A', and so entails the Ma-proposition 'Every B is possibly A'. But Ma-propositions, being affirmative, have existential import, and so Qa-propositions must have existential import too, and indeed imply Qi-propositions. This is shown in Figure 3.

In Book II (on modal propositions in general),[10] Buridan said that he will concentrate on premises and conclusions concerning possibility and necessity with an affirmed mode, since, as we noted, 'not possibly' is equivalent to 'necessarily not' (that is, 'necessarily fails to be'), and 'not necessarily' to 'possibly not' (that is, 'possibly fails to be'). However, he speaks in Conclusions 22-25 of Book IV of syllogisms with premises with a negated mode. He writes, earlier in IV 3 [4, p. 130]:

> "From every proposition of necessity with an affirmed mode, whether affirmative or negative, there follows a proposition of contingency with a negated mode. For it follows, 'B is necessarily A', or also 'B necessarily fails to be A', 'so B is not contingently A', and 'so B does not contingently

[10] [4, II 5, p. 62].

fail to be A'. So 'No B is contingently A' is equivalent to 'Every B is necessarily A or necessarily fails to be A'."[11]

In order to continue to concentrate on modal premises and conclusions with an affirmed mode, what Buridan needs here is a notion dual to 'contingently', just as 'possibly' is dual to 'necessarily'. The obvious choice is 'non-contingently', for 'is non-contingently A' means 'either is necessarily A or necessarily fails to be A'. Just as 'contingently' is equivalent to 'contingently not', so too 'non-contingently' is equivalent to 'non-contingently not', so 'not contingently' is equivalent to 'non-contingently not' and hence 'contingently' and 'non-contingently' are dual.

Accordingly, Buridan reads 'No B is contingently A' not as

(Qe) Every B contingently fails to be A

but as

($\overline{Q}a$) Every B is not contingently A

(that is, 'Every B non-contingently fails to be A', equivalently, 'Every B is non-contingently A'). (Qe) is correctly represented as $\underline{b^\dagger} \to a^\ddagger$, that is, 'Every B is contingently A', which is equivalent to 'Every B contingently fails to be A', as noted in Figure 3. In contrast, ($\overline{Q}a$) has the negated mode to which Buridan refers in the above quotation, and which interprets 'No B is contingently A' in parallel to Buridan's interpretation of 'No B is necessarily A' and 'No B is possibly A'.

Buridan emphasizes in IV 3 that 'B is necessarily A or necessarily fails to be A' is similarly not equivalent to a disjunctive proposition:

> "But we should not accept that a universal of contingency with a negated mode is equivalent to a disjunction made up of an affirmative and a negative of necessity with an affirmed mode. For this is true, 'No planet is contingently the moon', but this is false, 'Every planet is necessarily the moon or every planet necessarily fails to be the moon'." [4, p. 130]

To represent ($\overline{Q}a$), it helps (but is not essential) to supplement Thom's notation with a further symbol for non-contingency: let us represent the non-contingency of A by a°. It is axiomatic that

σ.2 $$a^\ddagger \mid a^\circ$$

and that

σ.3 $$a^* \to a^\circ$$

Then ($\overline{Q}a$) 'Every B is not contingently A' is $b^\dagger \to a^\circ$, that is, every B is necessarily A or necessarily fails to be A, equivalently, $b^\dagger \mid a^\ddagger$, since $a^\ddagger$ and a° exhaust the possibilities.

[11] Cf. *Summulae de Dialectica* [2, §1.8.3, p. 73]: "But a proposition about contingency with a negated mode can be said to be about necessity and impossibility disjunctively, for 'B is not contingently A' is equipollent to 'B has to be A or B cannot be A'. (*Sed illa de contingenti de modo negato potest dici de necessario et impossibili disiunctiue; nam istae aequipollent 'B non contingit esse A' et 'B necesse est esse A uel impossibile est esse A'.*) See also §1.8.10, p. 99.

Qa/Qe: $\underline{b^\dagger} \to a^\ddagger$ $(\forall x)(\Diamond Bx \to (\Diamond Ax \wedge \Diamond\neg Ax))$ $\wedge\ (\exists x)\Diamond Bx$	contrary	$\overline{Q}a/\overline{Q}e$: $b^\dagger \to a^\circ$ (i.e., $b^\dagger \mid a^\ddagger$) $(\forall x)(\Diamond Bx \to \neg(\Diamond Ax \wedge \Diamond\neg Ax))$
subalternate	contradictory	subalternate
Qi/Qo: $b^\dagger \smile a^\ddagger$ $(\exists x)(\Diamond Bx \wedge (\Diamond Ax \wedge \Diamond\neg Ax))$	subcontrary	$\overline{Q}i/\overline{Q}o$: $b^\dagger \not\to a^\ddagger$ $(\exists x)(\Diamond Bx \wedge \neg(\Diamond Ax \wedge \Diamond\neg Ax))$ $\vee\ \neg(\exists x)\Diamond Bx$

Figure 4: Square of Opposition for Contingency Propositions

Note that the $\overline{Q}a$-proposition 'Every B is not contingently A' is equivalent to the $\overline{Q}e$-proposition 'Every B does not contingently fail to be A', just as Qa and Qe were equivalent. Once again, we read in *Summulae* §1.8.3 that 'B is not contingently A' is "hypothetical", in this case, disjunctive, so again neither affirmative nor negative, but with affirmative and negative parts. In fact, the $\overline{Q}a$-proposition lacks existential import, for it is entailed by the clearly negative Le-proposition 'Every B necessarily fails to be A': if $b^\dagger \mid a^\dagger$ then $b^\dagger \mid a^\ddagger$, so $b^\dagger \to a^\circ$. Hence its contradictory is the Qi-proposition $b^\dagger \smile a^\ddagger$. Qi-propositions (equivalent as we know to Qo-propositions) are in turn entailed by Qa-propositions, whose contradictory will be the $\overline{Q}i$-proposition 'Not every B is contingently A': $b^\dagger \not\to a^\ddagger$. Thus we have a new Square of Opposition for affirmed and negated modes of contingency. See Figure 4.

I want to concentrate in what follows on Buridan's claims about contingency propositions with negated mode, since Paul Thom [8] and others ([5], [6]) have discussed the Conclusions of IV 3 as far as they concern affirmed modes. However, only in the *Treatise on Consequences* does Buridan treat of contingency syllogisms with negated mode, and he clearly means $\overline{Q}$-propositions when he speaks of contingency-propositions with negated mode in Conclusions 22 - 25:

Conclusion 22 ""From whatever premises there follows a conclusion of necessity with an affirmed mode there [also] follows a conclusion of contingency with a negated mode.

This Conclusion is proved by the fourth Conclusion of Book I, just as the previous one,[12] for [propositions] of necessity imply [propositions]

[12] The fourth Conclusion of I 8 reads: "In any good consequence whatever follows from the consequent follows from the antecedent, and the consequent follows from whatever the antecedent follows from, and similarly, put in the negative, whatever does not follow from the antecedent does not follow from the consequent, and the antecedent does not follow from whatever the consequent does not follow from." (*Omnis bonae consequentiae quidquid sequitur ad consequens sequitur ad antecedens et ad quodcumque sequitur antecedens ad illud sequitur consequens; et similiter, negatiue, quidquid non sequitur ad antecedens non sequitur ad consequens et ad quodcumque non sequitur consequens ad illud non sequitur antecedens.* [4, pp. 33-4])

of contingency [with negated mode]."[13]

The fourth Conclusion of Book I says *inter alia* that what follows from the conclusion of a syllogism follows from its premises. Suppose first that a universal necessity conclusion of the form La follows, i.e., 'Every B is necessarily A': $\underline{b^\dagger} \to a^*$. Then $b^\dagger \to a^* \to a^\circ$, by axioms $\sigma.1$ and $\sigma.3$, so $b^\dagger \to a^\circ$ by 1.3, that is, 'No B is contingently A', a contingency-conclusion of the form $\overline{Q}a$ with negated mode.

Now suppose we have an Le-conclusion, 'No B is possibly A': $b^\dagger \mid a^\dagger$. Then every B necessarily fails to be A, so no B contingently fails to be A, i.e., $b^\dagger \mid a^\ddagger$, by 1.6 and $\sigma.3$, and we have a contingency-conclusion of the form $\overline{Q}e$ with negated mode.

Thirdly, suppose we have an Li-conclusion, 'Some B is necessarily A': $b^\dagger \smile a^*$. Then $\Sigma d, b^\dagger \leftarrow \underline{d} \to a^* \to a^\circ$, by 1.6 and $\sigma.3$, i.e., $b^\dagger \smile a^\circ$, that is, some B is non-contingently A. Thus we can conclude by $\sigma.2$ and 1.5 that not every B is contingently A: $b^\dagger \not\to a^\ddagger$, a contingency-conclusion of the form $\overline{Q}i$ with negated mode.

Finally, suppose we have an Lo-conclusion, 'Not every B is possibly A': $b^\dagger \not\to a^\dagger$. Then $\Sigma d, b^\dagger \leftarrow d \mid a^\dagger$. But $a^\ddagger \to a^\dagger \mid d$ so $d \mid a^\ddagger$ by 1.4, whence $\Sigma d, b^\dagger \leftarrow d \mid a^\ddagger$. So by 1.5, $b^\dagger \not\to a^\ddagger$, that is, not every B contingently fails to be A, a $\overline{Q}o$-proposition with negated mode.

Conclusion 23 "In the first and third figures from a major [premise] of contingency, whether with an affirmed mode or a negated mode, there follows a similar conclusion of contingency if the minor [premise] is of necessity or of possibility or of contingency.

This Conclusion, in the case of the first figure, is shown by the *dictum de omni et nullo*, just as the fourth Conclusion of this book was shown.

But as regards the third figure, it can be shown by expository syllogisms and per impossibile, just as the sixth Conclusion of this book was shown."[14]

Take a first-figure syllogism with a major premise with negated mode, 'No B is contingently A' using (Qe). That is, we have $b^\dagger \to a^\circ, \underline{c^\dagger} \to b^\dagger$, so $\underline{c^\dagger} \to a^\circ$, by 1.3 (that is, the *dictum de omni*), and hence Barbara $\overline{\mathrm{Q}}\mathrm{M}\overline{\mathrm{Q}}$ is indeed valid.

[13][4, p. 131]: *Ad quascumque praemissas sequitur conclusio de necessario de modo affirmato ad easdem sequitur conclusio de contingenti de modo negato.*

Haec conclusio probatur per quartam conclusionem primi libri, sicut praecedens. Quia tales de necessario antecedunt talibus de contingenti.

[14][4, p. 131]: *In prima figura et in tertia ex maiore de contingenti, siue de modo affirmato siue de modo negato, sequitur conclusio similiter de contingenti si minor sit de necessario uel de possibili uel de contingenti.*

Haec conclusio, quantum ad primam figuram, manifesta est per dici de omni uel de nullo, sicut manifesta erat quarta conclusio huius libri.

Sed quantum ad tertiam figuram manifestari potest per syllogismos expositorios et per impossibile, sicut manifestabatur sexta conclusio huius libri.

Similarly, in the third figure, consider Disamis $\overline{\mathrm{Q}}\mathrm{M}\overline{\mathrm{Q}}$, say. Then we have $b^\dagger \not\to a^\ddagger, \underline{b^\dagger} \to c^\dagger$ as premises. Thus $\Sigma d, b^\dagger \leftarrow d \mid a^\ddagger$, so $c^\dagger \leftarrow d \mid a^\ddagger$, whence $c^\dagger \not\to a^\ddagger$ as required, showing that Disamis $\overline{\mathrm{Q}}\mathrm{M}\overline{\mathrm{Q}}$ is valid.

Conclusion 24 "From a major [premise] of contingency and an assertoric minor the first figure is valid to a particular conclusion of contingency, but not a universal.

This Conclusion is demonstrated just as the second part of the tenth Conclusion of this book was demonstrated. For that a universal conclusion does not follow is seen because every human contingently laughs and everything running is a human (assuming it is so), [but] then the universal conclusion would be false. And if the major [premise] has a negated mode there is a counter-instance because no horse contingently laughs, everything running is a horse (assuming it is so), [but] the universal conclusion would also be false."[15]

Barbara QXQ is invalid, as is Barbara $\overline{\mathrm{Q}}\mathrm{X}\overline{\mathrm{Q}}$, for the same reason. Just because everything running is human, or a horse (we suppose), it does not follow that everything which might be running contingently laughs, since some things are not capable of laughter.

Conclusion 25 "From a universal major [premise] of contingency in the third figure and an assertoric minor there follows a conclusion also of contingency, but if the major is particular a conclusion of contingency does not follow.

The first part of the Conclusion is proved because in all moods of the third figure having a universal major [premise], if the minor, which is taken to be assertoric, is converted, the first figure results, which was said to be valid in the previous Conclusion.

But the second part is clear because while someone running is contingently laughing and everything running is a horse, nonetheless no horse is contingently laughing. It's the same if the major [premise] is taken to be negative, because it is equivalent to an affirmative.

But if we speak of a negated mode then there is a counter-instance, for someone thinking is not contingently creating and everyone thinking is God (let us suppose), but it does not follow, so God is not contingently creating."[16]

[15] [4, p. 131]: *Ex maiore de contingenti et minore de inesse ualet prima figura ad conclusionem de contingenti particularem, non ad uniuersalem.*

Haec conclusio declaratur sicut declarabatur secunda pars decimae conclusionis huius libri. Quod enim non sequatur conclusio uniuersalis patet. Quia omnem hominem contingit ridere et omne currens est homo (ponatur ita esse), tunc conclusio uniuersalis esset falsa. Et si maior sit de modo negato instantia est. Quia nullum equum contingit ridere, omne currens est equus (ponatur ita esse), conclusio etiam uniuersalis esset falsa.

[16] [4, p. 132]: *Ex maiore uniuersali de contingenti in tertia figura et minore de inesse sequitur conclusio similiter de contingenti, sed si maior sit particularis non sequitur conclusio de contingenti.*

Prima pars conclusionis probatur. Quia in omnibus modis tertiae figurae habentibus maiorem

The first counterexample in the proof of the second part reads: $b^\dagger \smile a^\ddagger, \underline{b} \to c$ and 'No C is contingently A', to show the invalidity of Disamis QXQ. Thus 'No C is contingently A' must be the contradictory of a Qi-propositon, *viz* the $\overline{Q}e$-proposition $c^\dagger \mid a^\ddagger$, showing that $c^\dagger \smile a^\ddagger$ does not follow.

To appreciate the final counterexample, recall the remark cited earlier from IV 3, where Buridan affirms that God is indeed contingently creating:

> "For God is contingently creating, but nothing which is contingently God [is] contingently creating, because nothing is contingently God, indeed, everything is necessarily God or necessarily fails to be God."[17]

Thus the counterexample has premises $b^\dagger \not\to a^\ddagger, \underline{b} \to c$, which could be true so interpreted. But $c^\dagger \not\to a^\ddagger$ does not follow. It is false, so interpreted. Indeed, $c^\dagger \to a^\ddagger$ is compatible with the premises, so Disamis $\overline{\mathrm{Q}}\mathrm{X}\overline{\mathrm{Q}}$ is invalid.

References

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uniuersalem si minor quae ponitur de inesse conuertatur fiet prima figura, quae ualebat, ut dictum est in conclusione praecedente.

Secunda pars patet. Quia quamuis quendam currentem contingat ridere et omne currens sit equus, tamen nullum equum contingit ridere. Similiter est si maior ponatur negatiua, quia aequiualet affirmatiuae.

Si autem loquamur de modo negato adhuc instatur. Quia quendam intelligentem non contingit creare et omnis intelligens est deus (ponatur hoc), non sequitur "ergo deum non contingit creare".

[17] [4, p. 130]: *Quoniam deum contingit creare, et tamen nihil quod contingit esse deum et contingit creare, quia nihil contingit esse deum, immo omne necesse est esse deum uel necesse est non esse deum.*