Non-normal Propositions in Buridan's Logic*

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Abstract

John Buridan's introduction of the notion of non-normal propositions (*propositiones de modo loquendi inconsueto*) in his theory of the syllogism is a marked example of the influence of vernacular languages on the use of Latin in medieval logic and the regimentation of the language used. Classical Latin is an SOV language, in which the word order of the simplest sentence form is subject-object-verb, in contrast to the SVO order of the vernacular languages of the later Middle Ages. Buridan's so-called non-normal propositions arise from deeming the normal order to be the SVO of the vernacular, and so taking SOV, where the object-term precedes the verb, to be non-normal. In particular, introducing O-propositions of non-normal form permits conversion of normal O-propositions, meaning that all four propositions of the traditional square of opposition can be converted, thereby adding further possibilities to the theory of the assertoric syllogism.

1 Dante and the Accusative

In Prue Shaw's 1995 edition of Dante's *Monarchia*, we read:

> "*Et nota quod argumentum sumptum a destructione consequentis, licet de sua forma per aliquem locum teneat, tamen vim suam per secundam figuram ostendit, si reducatur sicut argumentum a positione consequentis per primam.*
>
> *Reducitur enim sic: omne iniustum persuadetur iniuste: Cristus non persuasit iniuste: ergo non persuasit iniustum. A positione consequentis sic: omne iniustum persuadetur iniuste: Cristus persuasit quoddam iniustum: ergo persuasit iniuste.*"[1]

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[1] Shaw (1995a, pp. 94-95): "And note that our argument, which is based on denying the consequent, although valid in its form by virtue of a common-place, yet reveals its full

This is part of Dante's attempt to show that the Holy Roman Empire was part of God's plan, to which Christ assented by being born under the Roman aegis. Dante is not known for his work on logic, but he appears here to be committing the fallacy of affirming the consequent. However, the two occurrences of '*consequentis*' are "corrections" by the editor. Ricci's edition of 1965 (Ricci, 1965) has '*antecedentis*' in both places, so that Dante is correctly reducing the argument to the first figure—affirming the antecedent, not the consequent.

Indeed, Dante is arguing correctly in this passage, reducing second-figure Camestres to first-figure Barbara (*sic*). In fact, altering '*antecedentis'* to '*consequentis*' is not the only "correction" which Shaw makes in this passage. She notes that what she gives as '*argumentum sumptum a destructione consequentis*' reads differently in Ricci, viz: '*argumentum sumptum ad destructionem consequentis*'. In defending her alterations to the text, Shaw (1995b) translates '*argumentum sumptum ad destructionem consequentis*' as 'the argument used to disprove or refute the consequent'. But in her edition and translation, she realises that Dante is arguing **from** the denial of the consequent, rather than towards it:

All injustice is assented to unjustly	PaM
Christ did not assent unjustly	neM
therefore he did not assent to an injustice	neP

Key n: Christ; M: assent unjustly; P: assent to injustice

The argument is by Camestres, in the second figure.

Aristotle himself reduces Camestres to Celarent, in the first figure, by simple convertion of the second premise and the conclusion, and then inverting the premises:

$$\frac{\begin{array}{c}PaM\\SeM\end{array}}{SeP} \Leftarrow \frac{\begin{array}{c}PaM\\MeS\end{array}}{PeS} \Leftarrow \frac{\begin{array}{c}MeS\\PaM\end{array}}{PeS} \Leftarrow \frac{\begin{array}{c}MeP\\SaM\end{array}}{SeP}$$

However, Dante reduces it to Barbara, by *reductio per impossibile*:

$$\frac{\begin{array}{c}PaM\\neM\end{array}}{neP} \Leftarrow \frac{\begin{array}{c}PaM\\naP\end{array}}{naM} \Leftarrow \frac{\begin{array}{c}MaP\\naM\end{array}}{naP}$$

He has to do so because the minor premise cannot be converted simply, for

force as a second figure syllogism, if it is then reduced to the first figure as an argument based on affirming the consequent. This reduction runs as follows: all injustice is assented to unjustly; Christ did not assent unjustly; therefore he did not assent to an injustice. Affirming the consequent, we get: all injustice is assented to unjustly; Christ assented to an injustice; therefore he assented unjustly."

its subject is a singular term, and singular terms cannot appear as predicates. Moreover, it reduces to Barbara because Aristotle treats singular propositions as universals, so that the contradictory of, e.g., neM is naM. Barbara works by affirming the antecedent:

All injustice is assented to unjustly
Christ assented to an injustice
so he assented unjustly.

But was Shaw right to amend '*ad destructionem consequentis*' to '*a destructione consequentis*'? No: the construction '*sequitur ad*' is commonly used by logicians in the fourteenth century to mean 'follows from'. The *Dictionary of Medieval Latin from British Sources* (Latham and Howlett, 1975) notes under the entry for '*ad*': "as in CL [classical Latin], but used more extensively, like Fr. à, esp. in place of dat. or abl." Consider, e.g., Burley's statement of Suffixing:

Quidquid sequitur ad consequens, sequitur ad antecedens

This is not a fallacy. Burley clearly means 'Whatever follows **from** the consequent follows **from** the antecedent'. In the very next line Burley writes:

Quidquid antecedit ad antecedens, antecedit ad consequens

Here, he clearly means 'Whatever is antecedent **to** the antecedent is antecedent **to** the consequent'. Thus Dante's logic was impeccable, as was his expression of it. His syllogism in Camestres works by denial of the consequent ('*ad destructionem consequentis*'), and is reduced to Barbara, which works by affirmation of the antecedent ('*a positione antecedentis*').

What we see here is an influence of the vernacular on medieval Latin. For example, Burley and Ockham use the phrases '*ex impossibili sequitur quodlibet*' and '*necessarium sequitur ad quodlibet*', where the latter clearly means 'the necessary follows **from** anything'.[2] Buridan uses '*ad impossibile sequitur quodlibet'* and '*necessarium sequitur ad quodlibet*' to mean that anything follows from the impossible and the necessary follows from anything. He writes:

"*Prima conclusio est: ad omnem propositionem impossibilem omnem aliam sequi et omnem propositionem necessariam ad omnem aliam sequi.*"

Clearly, he means: 'from any impossible proposition any other follows, and any necessary proposition follows from any other'. We find this influence of the vernacular in many other places in the works of Burley, Ockham and

[2] Green-Pedersen (1980, p. 129) and Ockham (1974, III-3 c. 39, pp. 730-31). See also the editors' note to (Ockham, 1974, p. 730 n. 4).

Buridan. One of them concerns word order, and is used by Buridan to extend Aristotle's account of the assertoric syllogism.

This confusion may also lie behind a puzzle that has beset successive translators of Buridan's *Sophismata*, concerning Buridan's reasoning in the third sophism of ch. 8. Buridan writes:

> "*Hoc probatur per syllogismo in primo modo tertiae figurae sic: 'omnis homo currit; et omnis homo est asinus, prout positum erat; igitur asinus currit'. Unde sit syllogismus ad impossibile, scilicet capiendo positionem adversarii cum aliquo vero, et sic inferimus conclusionem per consequentiam bonam, licet conclusio sit impossibilis. Ideo sic etiam in proposito est bona consequentia.*"[3]

What does Buridan mean by '*syllogismus ad impossibile*'? A natural thought is that he is referring to the syllogism *per impossibile*.[4] Consequently, Hughes (1982, p. 39) renders it: "We argue in a *reductio ad absurdum*." Scott, in (Buridan, 1966, p. 186), translates it as: "a syllogism to an impossible conclusion." Klima (Buridan, 2001, p. 958) doesn't attempt a translation, retaining "syllogism *ad impossibile*", but adds a foonote: "As Joël Biard remarks, it is unclear why the conclusion that a donkey runs should be regarded as impossible." But what Buridan presents is not a syllogism **to** the impossible, but **from** the impossible. Since the premises are impossible, the conclusion may also be impossible ("*licet conclusio sit impossibilis*"), but it equally well may not be, as here.

2 Non-Normal Propositions

In the 14^{th} Conclusion of Book I of his *Tractatus de Consequentiis* (Hubien, 1976), Buridan discusses simple and accidental conversion. These conversions were central to Aristotle's demonstration of syllogistic consequence. Both here and in his *Summulae de Dialectica* (Buridan, 2001), Buridan introduces the notion of negative propositions in non-normal form, namely, where the predicate precedes the negation. This is a particularly extreme example of an increasing regimentation of Latin by medieval thinkers. By the late Middle Ages, Latin was no longer a language of everyday speech, though it was used as a *lingua franca* in intellectual and political circles. As such, it evolved and took on aspects of the character of the new languages of everyday speech, French in particular. For example, the French definite article, '*ly*', was co-opted into the Latin of logic texts in place of '*iste terminus*' to indicate material supposition. '*Iste*' and '*ille*' were increasingly used as definite articles rather than demonstrative adjectives, and 'talis' replaced

[3] Buridan (2004, p. 145).

[4] Buridan (2001, §5.10.6).

them in the latter role. And, as we've seen, '*ad*' and the accusative came to replace the dative and ablative in many cases.

Moreover, the rather free word order of classical Latin (with a preference for subject-object-verb—SOV) was replaced by the subject-verb-object order (SVO) of the vernacular languages. Matthew Dryer writes in *The World Atlas of Language Structures Online* (Dryer, 2011):

> "SVO, now a common order in Europe and around the Mediterranean, was less common in the past: on the one hand, there were SOV languages like Latin and Etruscan in western Europe; on the other hand, there were many VSO languages in what is now the Middle East, represented both by Semitic languages and by Egyptian."

Such a changed word order underlay rules of consequence such as the rule that a universal affirmative sign confuses the term immediately following it distributively and any term mediately following it merely confusedly. Similarly, that negation distributes any term following it that without it would not be distributed, and does not distribute anything that precedes it, as Buridan (2001, §4.3.7.2, p.269) writes:

> "A negating negation distributes every common term following it that without it would not be distributed and does not distribute anything that precedes it."

E.g., in 'Every human is running', 'human' has confused and distributive supposition and 'running' has merely confused supposition. Again, in 'Some human is not running', 'running' has confused and distributive supposition, while 'human' has determinate supposition and is not distributed.

More generally, in SaP, S is distributed and P is undistributed
in SeP (‘No S is P’), both S and P are distributed
in SiP (‘Some S is P’), both S and P are undistributed
in SoP (‘Some S is not P’), S is undistributed and P is distributed.

The standard way of negating a subject-copula-predicate proposition in Latin is to place a negation before the copula, e.g., *Sortes est albus* becomes *Sortes non est albus* If we now place the predicate before the verb (and its negation), we obtain what Buridan calls the non-normal way of speaking (*de modo loquendi inconsueto*) For example, *asinus* is distributed in *Quoddam animal non est asinus*, but *asinus* is not distributed, he says, in *Quoddam animal asinus non est* The latter is true if some animal is not some ass (‘some’ in English has a similar power of over-riding the distributive power of the negation) whereas the former is true only if some animal is not any ass. If we compare what Buridan writes here with, e.g., Boethius’ *De Syllogismo Categorico* we can see how Latin has both changed and become regimented. For Boethius’ normal way of writing the O-proposition is *Quoddam animal asinus non est*, with the negation after the predicate (with the verb). For example, in his *De Syllogismo Categorico*, (Thomsen Thörnqvist, 2008, p. 21), we read:

subalternae	Vniuersalis affirmatiua ‘Omnis homo iustus est’	contrariae	Vniuersalis negatiua ‘Nullus homo iustus est’	subalternae
		contra- iacentes contra- iacentes		
	Particularis affirmatiua ‘Quidam homo iustus est’	subcontrariae	Particularis negatiua ‘Quidam homo iustus non est’	

Boethius would not agree with Buridan that prefixing the predicate to the negation removes the distributing force of the negation. Nonetheless, the regimentation serves a useful purpose for Buridan in allowing him to convert O-propositions like ‘Some animal is not a donkey’. In conversion, the subject and predicate exchange places, and the quantity is preserved in simple conversion, and changes in accidental conversion:

- Traditionally, I- and E-propositions convert simply:
  SiP is converts to PiS and SeP converts to PeS
- A-propositions convert to the corresponding I-proposition:
  SaP converts to PiS

- O-propositions don't convert

But introducing non-normal O-propositions allows the conversion of O-propositions: SoP converts to PSo (*Quoddam P S non est*) E.g., *Quoddam animal non est asinus* ('Some animal is not an ass') converts to *Quoddam asinus animal non est* ('Some ass (some) animal is not') Prefixing the predicate (*animal*) to the negation frees it from the distributing power of the negation, so that in PSo, S is not distributed, just as it wasn't in SoP.

Aristotle's great idea in his doctrine of the syllogism was that all consequence could be reduced to the pairwise deduction of successive conclusions. Buridan (Hubien, 1976, III i 4) says that he understands Aristotle to mean by a syllogism a collection (in the final analysis, a pair) of propositions from which a conclusion can be inferred. Concentrating on the A, E, I and O forms, there are 48 possible pairs sharing a middle term in common, 16 in each of three figures: where the middle term is subject of one and predicate of the other; where it is predicate of both; and where it is subject of both. In the first figure, the conclusion can be direct (where the subject of the conclusion was subject in its premise) or indirect (where the subject of the conclusion was predicate in its premise). The task Aristotle set himself was to distinguish those pairs of premises which yield a syllogistic conclusion from those which do not. Aristotle based his demonstration of validity on the so-called *dictum de omni et nullo*, essentially a definition of what it is to predicate one thing of another:

> "we speak of 'being predicated of all' when nothing can be found of which the other will not be said, and the same account holds for 'of none'." (*Prior Analytics* I 1, 24b28-30)

The validity of the perfect syllogisms, namely, the direct syllogisms of the first figure, is based on this definition, and that of the remaining syllogisms is reduced to those by conversion and *reductio per impossibile*, as we saw.

Buridan's approach is very different, in a way that laid the foundation for the theory of the syllogism in the traditional logic of the 18^{th} and 19^{th} centuries. At the start of the *Treatise on Consequences* (Hubien, 1976, III i 4), he cites the principles:

> "Whatever are the same as one and the same are the same as each other ...
>
> Two things are not the same as each other if one is the same as something and the other is not."[5]

[5] *Quaecumque uni et eidem sunt eadem inter se sunt eadem ... Quorumcumque duorum unum est idem alicui cui reliquum non est idem illa non sunt inter se eadem.* Citations in English from the *Treatise on Consequences* are from my forthcoming translation (Buridan, 2014).

Lagerlund (2010, §8) and King (1985, p. 75) identify these principles as Aristotle's *dictum de omni et nullo*. But they are not. They are the medievals' understanding of what Aristotle says in *Prior Analytics* I 6, under the epithet *ecthesis*, which became for the medievals "the expository syllogism". Bonaventure writes:

> "By the expository syllogism: for of necessity it follows, as is said in the Prior [Analytics] 'this A is B, this A is C with the same demonstrated, therefore C is B'; and this syllogism is founded on the self-evident principle 'whatever are the same as one and the same are the same as each other'."[6]

In the *Questions on the Prior Analytics*, Buridan makes it explicit that these principles are the expository syllogism:

> "The affirmative expository syllogism holds by the rule, 'Whatever are numerically the same as one and the same, they are the same as one another' ... the negative expository syllogism holds by the rule, 'Whatever are the same as one another, one of them is different from anything from which the other is different'.[7]

The medievals' interpretation of Aristotle's method of *ecthesis* (setting out, or exposition) was that the term Aristotle introduces was a singular term. Aristotle writes in *Prior Analytics* I 6 (28a23-25):

> "The demonstration [of Darapti] can also be carried out ... by setting out. For if both terms belong to all S, and one chooses one of the Ss, say N, then both P and R will belong to it, so that P will belong to some R."

It has been a constant puzzle since ancient times whether the term 'N' which Aristotle introduces here is a singular or general term. But as Alexander of Aphrodisias and many others have urged, it cannot be a general term, since then *ecthesis* would simply be an instance of Darapti itself, so the attempted demonstration of Darapti would be circular. Aristotle must have intended it to be a singular term, as he says 'one of the Ss', so that one of the Ss, N, is P and the very same S, *viz* N, is R. This connects the two premises: P and R are said of "one and the same thing". For the same reason, the

[6] Bonaventure (1882, Book I Distinction 33 Article I Question 3): *Syllogimo expositorio. De necessitate enim sequitur, ut dicitur in arte Priorum, hoc A est B; hoc A est C eodem demonstrato: ergo C est B; et fundatur iste syllogismus super illud principium per se notum: quaecumque uni et eidem sunt eadem, inter se sunt eadem.* The formula is also found in Aristotle's *De Sophisticis Elenchis* at 168b32.

[7] *Dicendum est quod syllogismus expositorius affirmativus tenet per istam regulam 'quaecumque sunt eadem uni et eidem in numero, illa sunt sibi invicem eadem' ... syllogismus expositorius negativus tenet per istam regulam 'quaecumque sibi invicem sunt eadem, a quocumque unum eorum est diversum ab eodem reliquum est diversum'.*

middle term in a syllogism must be distributed, Buridan says in the 6th Conclusion of the *Treatise on Consequnce* III i 4, so that the premises can be joined together effectively. Provided one occurrence of the middle term is distributed, take an instance of the other, then the distribution will ensure that that instance is included and the premises relate to the same thing. Otherwise, Buridan writes:

> "[if] the middle is not distributed in either [premise] it is possible that its conjunction with the major extreme is true for one thing and its conjunction with the minor is true for another."

The 6^{th} Conclusion of the *Treatise on Consequnce* III i 4 gives a necessary condition for syllogistic validity: "no syllogism is valid in which the middle is distributed in neither premise." This is in marked contrast to Aristotle's approach. To show premise pairs not to constitute syllogisms, Aristotle uses the method of counter-instances. That is, to show that a premise pair is not a syllogism, he gives a triad of terms to substitute for the extremes and the middle term such that, first, the premises and a universal affirmative coupling of the extremes are all true, and another triad such that the premises and a similar universal negative are all true. Hence, no particular negative can follow, in virtue of the first triad, and no particular affirmative in virtue of the second, and consequently no universal conclusion either, of which the particulars are subalterns. Aristotle does this systematically, but *seriatim*, for direct conclusions from every non-syllogistic pair in each figure, that is, for 34 premise pairs. He does not actually complete the task for the absence of indirect conclusions in the first figure.

In contrast, Buridan now has a general principle which will show the invalidity of all the cases of invalidity. He brings it all together in his 7th and 8th Conclusions, with reference back to the 2nd Conclusion:

> "Second Conclusion: no syllogism can be validly drawn from two negatives ...
>
> Sixth Conclusion: no syllogism is valid in which the middle is distributed in neither premise ...
>
> Seventh Conclusion: in every figure, if the middle was distributed in one of the premises there is always a valid syllogism by concluding to a conclusion of one extreme with the other extreme ...
>
> Eighth Conclusion: if the minor extreme was distributed in the premises a direct universal conclusion can be inferred, and if not, not; if the major extreme was distributed in the premises an indirect universal conclusion can be inferred, and if not, not; if the predicate of a negative conclusion was distributed in the premises the conclusion should be formed in the customary way

> of speaking; and if it was not distributed, then the conclusion should be formed by placing the negation after the predicate.
>
> It should be noted that by these three conclusions, that is, the sixth, seventh and eighth, and by the second, the number of all the modes useful for syllogizing in any of the three figures both direct and indirect is made manifest."

Each of these Conclusions is proved by the ecthetic principle. Between them, they give necessary and sufficient conditions for inferring a conclusion from a pair of assertoric subject-predicate premises.

3 Non-Normal Syllogisms

As we noted, in each figure there are sixteen ways of linking premises of the four forms. The 2nd Conclusion shows that four moods in each figure are useless, namely, those with both premises negative. For the expository principles cannot adduce anything from premises both of which deny an identity. As Buridan points out, that Brownie is not A, not B, not C and so on does not allow us to infer anything about A, B or C, either affirmatively or negatively. Brownie does not provide a suitable middle term if all we know of him is negative. Together with the verdict of the 6th Conclusion this rules out the eight pairs $ee, ia, oa, oe, eo, ii, oi$ and oo in the first figure. The other eight pairs can produce a conclusion, the six identified by Aristotle and two more (*ao* and *io*) with a non-normal conclusion:

Figure I	Conclusion			
Premises	Direct	Weakened	Non-normal	Indirect
aa	*a* (Barbara)	*i* (Barbari)	X	*i* (Baralipton)
ea	*e* (Celarent)	*o* (Celaront)	X	*e* (Celantes)
ai	*i* (Darii)	X	X	*i* (Dabitis)
ei	*o* (Ferio)	X	*o*	X
ae	X	X	*e*/*o*	*o* (Fapesmo)
ie	X	X	*e*/*o*	*o* (Frisesomorum)
ao	X	X	*o*	X
io	X	X	*o*	X

At the end of *SD* 5.1.8, Buridan says that from the premises *ie*, we can also infer a non-normal E-proposition:

Some M is P, No S is M, so Every S (some) P is not.

'P' is undistributed in the conclusion, just as it is in the major premise. However, this is true only if the E-proposition is expressed as 'Every S (some) P is not', where the predicate precedes the negation. The same reasoning also supports an inference to a non-normal E-proposition from *ae* in the first figure, *ie* and *oa* in the second, and ae, ao and *ie* in the third. The additional first-figure moods not recognised by Aristotle read:

Every M is P	Some M is P
Some S is not M	Some S is not M
So some S (some) P is not	So some S (some) P is not

In each case, the conclusion is an O-proposition of non-normal form in which both S and P are undistributed, but M is distributed in the first premise of the first syllogism and in the second premise of both. So each satisfies the conditions of the 6^{th}, 7^{th} and 8^{th} Conclusions.

The non-normal conclusions also convert to the indirect non-normal conclusion 'Some P (some) S is not'. Moreover, whenever a normal O-conclusion (in, e.g., Ferio) can be inferred (in each figure), a non-normal O-conclusion also follows, as we noted previously, by the 10^{th} Conclusion of Book I:

> "From every proposition containing a distributed term there follows in a formal consequence a proposition with the same term not distributed, the rest remaining the same."

As noted, the premises of Fapesmo and Frisesomorum also entail a non-normal E-conclusion:

Every M is P	Some M is P
No S is M	Some S is not M
So every S (some) P is not	So every S (some) P is not

We infer a negative conclusion from one negative premise; M is distributed in one premise; and the only term distributed in the conclusion (S) is distributed in the premise. P is not distributed in the conclusion, since it is outside the scope of the negation.

We can provide the same analysis of the second figure. Again, the 2^{nd} Conclusion rules out the premise pairs ee, eo, oe and *oo*. while the 6^{th} Conclusion rules out the premise pairs aa, ai, ia and *ii*, where the middle term would not be distributed. The remaining eight pairs all produce at least one conclusion, though again two conclude non-normally:

Figure II	Conclusion			
Premises	Direct	Weakened	Non-normal	Indirect
ae	*e* (Camestres)	*o* (Camestrop)	X	*e* (Camestre)
ea	*e* (Cesare)	*o* (Cesaro)	X	*e* (Cesares)
ei	*o* (Festino)	X	*o*	X
ao	*o* (Baroco)	X	*o*	X
ie	X	X	*e*/*o*	*o* (Tifesno)
oa	X	X	*e*/*o*	*o* (Robaco)
oi	X	X	*o*	X
io	X	X	*o*	X

The two moods Tifesno and Robaco (called Fitesmo and Boraco at *Summulae de Dialectica* 5.4.2-3) seem to be Buridan's own invention. It is questionable whether they really differ from Festino and Baroco, resulting simply from inverting the order of the premises and the order of the terms in the conclusion. The same is true of Camestre and Cesares. Buridan himself concedes as much at *Summulae de Dialectica* 5.2.1.

The genuinely new non-Aristotelian moods are those with a non-normal conclusion:

Some P is not M	Some P is M
Some S is M	Some S is not M
So some S (some) P is not	So some S (some) P is not

Once again, we infer a negative conclusion from one negative premise; M is distributed in one premise; and neither term is distributed in the conclusion. P is not distributed in the conclusion, since it is outside the scope of the negation. Although Tifesno and Robaco are not genuinely new, the *iee* and *oae* syllogisms are interesting:

Some P is M	Some P is not M
No S is M	Every S is M
So Every S (some) P is not	So every S (some) P is not

Again, we infer a negative conclusion from one negative premise; M is distributed in one premise; and the only term distributed in the conclusion (S) is distributed in the premise.

In the third figure, the 2^{nd} Conclusion rules out purely negative premise pairs. The 6^{th} rules out purely particular ones, namely, ee, eo, oe, oo, ii, io and *oi* (*oo* is both purely negative and purely particular). That leaves nine useful premise pairs:

Figure III	Conclusion			
Premises	Direct	Weakened	Non-normal	Indirect
aa	i (Darapti)	X	X	i (Daraptis)
ea	o (Felapton)	X	o	X
ai	i (Datisi)	X	X	i (Datisis)
ia	i (Disamis)	X	X	i (Disami)
oa	o (Bocardo)	X	o	X
ei	o (Ferison)	X	o	X
ae	X	X	e/o	o (Lapfeton)
ao	X	X	e/o	o (Carbodo)
ie	X	X	e/o	o (Rifeson)

Once again one might suspect Lapfeton, Carbodo and Rifeson (called Fapemton, Bacordo and Fisemon at *Summulae de Dialectica* 5.5.2-3) of being an artificial fabrication. Nonetheless, the non-normal moods aee, aoe and iee are a counterexample to the standard result that there are no weakened moods in the third figure (and that only particular conclusions can be inferred).

How many syllogisms are there? This clearly depends on what counts as a syllogism. Buridan believes that Aristotle intended a (basic) syllogism to be any pair of assertoric syllogistic propositions which entails an assertoric syllogistic conclusion. On that account, Aristotle accepted 16 assertoric syllogisms, 6 in the first figure (4 with a direct conclusion, 2 indirect), 4 in the second and 6 in the third. The Theophrastian moods, Baralipton, Celantes and Dabitis, merely infer new conclusions from existing syllogistic pairs. Buridan extends the notion of an assertoric syllogistic proposition by admitting non-normal negative propositions. That means more syllogistic pairs yield a valid conclusion, resulting in 8 pairs in the first figure, 8 in the second and 9 in the third. Hence Buridan accounts 25 assertoric syllogisms altogether Why doesn't Buridan consider possible syllogisms with non-normal premises?—because nothing new can follow from **weakening** the premises, only the conclusions.

4 Conclusion

The vernacular languages brought about changes in the Latin used by medieval scholars. Among those changes were the increasing use of 'ad' and the accusative in place of the dative and ablative, and the adoption of the SVO word order in place of the SOV of classical Latin. Many medieval logicians adopted rules that depended on a fixed SVO word order. Buridan in fact declared the traditional SOV order of syllogistic propositions to be non-normal (*de modo loquendo inconsueto*). In negative propositions of non-normal form, the predicate escapes the scope of the negation and so is not distributed by it. Using propositions of non-normal form, Buridan allows conversion of O-propositions and the addition of further valid syllogistic forms. Buridan need only consider non-normal negatives, and non-normal conclusions, since the predicate is always undistributed in affirmatives, and new cases only arise from weakening the conclusion, not the premises. Thus Buridan extends the range of syllogistic moods, admitting 25 valid moods.

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