

# The Syllogisms in Paul of Venice's *Logica Magna*

Sara L. Uckelman

s.l.uckelman@durham.ac.uk

@SaraLUckelman

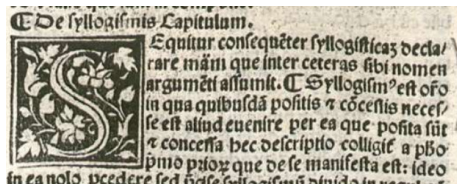
Durham University

British Society for History of Philosophy

Sheffield, England

07 Apr 2017

# Background



- *Logica Magna* of Paul of Venice (?)
- Published 1499, Venice.
- Tract II, Chapter 13: chapter on syllogisms.
- Equal parts rehearsal of orthodox Aristotelian syllogisms and systematization of non-Aristotelian syllogisms.

# Contents

- Definition of a syllogism
  - ▶ Regular vs. irregular
  - ▶ Direct vs. indirect
  - ▶ Exceptions to the 'standard' definition
- The six moods of the first figure: Barbara, Celarent, Darii, Ferio, Fapesmo, Fresiso
- The four moods of the second figure: Cesare, Camestres, Festino, Baroco.
- The six moods of the third figure: Darapti, Felapton, Dissamis, Datisi, Brocardo, Ferison.
- On irregular syllogisms.

## Things to notice

- Regular vs. irregular, direct vs. indirect.
- Modal syllogisms scattered throughout. . . but they are not “ordinary” modal syllogisms.
- Conditional arguments treated as “syllogisms”.

## What is a syllogism?

*A syllogism is a speech in which from whatever is posited and conceded it is necessary that another arises through the same which are posited and conceded. This definition is taken from the Philosopher in the first [book] of the Prior [Analytics] which is obvious in itself: for this reason, in this I am unwilling to expand [on this] but, having truncated, I divide 'syllogism' into regular and irregular, of which the latter is spoken of in its place.*

## Direct vs. indirect conclusions

*It is a direct conclusion whenever the major extreme or something matching it is predicated of the minor extreme or something matching it in the conclusion, just as here: "Every man is an animal, you are a man, therefore, you are an animal".*

*An indirect conclusion is when the minor extreme or something matching it is predicated of the major extreme or something matching it in the conclusion, as in the example: "Every man is animal, Socrates is a man, therefore an animal is Socrates".*

## Regular syllogisms

*Regular syllogisms have three figures containing moods, any argument in which proves to be formal. In the first figure it is required that the subject in the major [premise] be, either implicitly or explicitly, matchable to the predicate of the minor... For example, this syllogism is valid: "Every human is animal, Socrates is a human, therefore Socrates is an animal", and [it is] in the first figure, because the subject of the major is matchable to the predicate of the minor through every sort of similitude and subordination with the required supposition because in both places 'human' stands for either one or the other gender only, [and] although it happens differently in different cases, it doesn't have to cause variation in the syllogism.*

## Premises without implicit or explicit quantity

*Nothing is a syllogism unless implicitly or explicitly all of the premises are of some quantity.*

Thus, none of the following syllogisms are valid, or in the first figure:

- Exceptive** *Every running thing is an animal, every man except for Socrates is running, therefore every man except for Socrates is an animal.*
- Exclusive** *Every man is a substance, only animal is man, therefore only animal is a substance.*
- Exponible** *Every man begins to be Socrates, Socrates is a man, therefore Socrates begins to be Socrates.*
- Modal** *Of necessity every man is an animal, Socrates is a man, therefore of necessity Socrates is a animal*  
*Every creating thing is contingently God, but every first cause is creating, therefore every first cause is contingently God.*



## A few corollaries

- 1 *The first figure derives every genus of proposition, affirmative and negative, universal, particular, indefinite, and singular.*
- 2 *In the four moods of the first figure, if the minor is negative, nothing follows, otherwise from a truth a falsehood is concluded.*
- 3 *In these moods, when the major is particular or indefinite, nothing follows, as in: "Something risible is Socrates, every man is risible, therefore every man is Socrates".*

*And if it is said that this follows correctly: "Something risible is an animal, every man is risible, therefore every man is an animal", it is said that this is true not in virtue of the syllogism but in virtue of this formal consequence: "Every man is risible, therefore every man is an animal".*

# Matchability

*And I call the subject of the major matchable to the predicate of the minor when it is either altogether similar to it, or to a principal part of the same owing to the supposition, or is dissimilar to [a part] of the same thing in the first way in similar circumstances.*

## Supposition

*It is necessary for the terms of the conclusion to supposit precisely for the same thing or things and for that reason this is not a consequence is not valid: "Every animal is a substance, every man is an animal, therefore some [quolibet] man is a substance". Neither does this particular, "Some [aliquis] man is a substance", follow from these premises.*

## Mutation of supposition

*Although this form is not valid, “No father is the son, every God is the father, therefore no God is the son”, however, it does not follow that this consequence is not good and formal: “No animal is a stone, every man is an animal, therefore no man is a stone”, because in the first consequence general mutation of supposition takes place, because in both places in the major there is personal supposition but in the minor the subject supposits simply for the communal divine essence. But in the other consequence, nowhere is there mutation of supposition.*

## Mutation of supposition relating to ampliation

*Although this consequence is not valid: 'Nothing which is alive is dead, every horse is something which is alive, therefore no horse is dead', nevertheless, this is correctly valid: 'Nothing alive is dead, every horse is alive, therefore no horse is dead'. For the first is not valid because it is not necessary to conclude either the major extreme of the minor or something matchable [to the major] of something matchable [to the minor], because in the minor [premise] 'horse' supposits only for present horses, but in the conclusion for present, future, and past horses. For this reason it ought to be concluded from these premises: 'Therefore no present horse is dead'.*

## Two other interesting observations

- Almost every single example of an invalid syllogism in the first figure involves modal propositions.
- Many of them involve 'divine' terms; and further, there is a special discussion devoted to syllogisms with such terms.

## On irregular syllogisms

*I call an irregular syllogism that which is put down neither in mood nor in figure but is only one consequence having premises and conclusion with a similitude to a regular figure.*

## Examples of irregular syllogisms (1)

In the first figure by similitude:

*Man runs.*

*Socrates is a man.*

*Therefore Socrates runs.*



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Why is this in the first figure “by similitude”?

*because of the location of the terms, because the subject of the major has the required matchable [thing] in the predicate of the minor, and in the conclusion the required matchable [thing] is implicitly predicated of the required matchable [thing].*

## Examples of irregular syllogisms (2)

In the second figure by similitude:

*Man runs.*

*Animal runs.*

*Therefore animal is man.*

In the third figure by similitude:

*Man runs.*

*Man disputes.*

*Therefore a disputer runs.*

*For I say it is in the third figure by similitude because of the principle requirements for that [figure], but because it is not “all”, for that reason it is not said to be the same.*

## Irregular syllogisms: exclusives

*In exclusives, it is contingent in which figure the syllogism is by similitude.*

*... For it follows: "Only man runs, only animal is man, therefore only animal runs". Indeed that this follows is clear because the premises are converted with such universals implying a universal convertible with the conclusion. For this: "Only man runs" is converted into this: "Every running thing is a man", and this: "Only animal runs" into this: "Every running thing is an animal", and this: "Only animal is man" is converted into this: "Every man is an animal". But it follows: "Every man is an animal, every running thing is a man, therefore every running thing is an animal". For it is syllogized in the first [mood] of the first [figure].*

## Invalid exclusive irregular syllogisms (1)

- *If an exclusive is denied in the major and affirmed in the minor, it does not follow any conclusion. Whence it doesn't follow: "Not only man sleeps, only animal is man, therefore not only animal sleeps"... For posited that every animal sleeps, it is clear that the antecedent is true without the consequent.*
- *If an exclusive is denied in the minor and affirmed in the major, it would not follow some conclusion. Whence it doesn't follow: "Only animal runs, not only man is an animal, therefore not only man runs"... For posited that every man runs and that every running thing is a man, it is clear that the antecedent is true without the consequent.*
- *If in both premises an exclusive word is denied, no conclusion follows.*
- *If one of the premises is made of some quantity and the other exclusive, some conclusion doesn't follow.,*

## Invalid exclusive irregular syllogisms (2)

- *If in the major an exclusive is denied and the minor is an indefinite or particular, some conclusion doesn't follow.*
- *If one of the premises is made of some quantity and in the other an exclusive is negated, a negative conclusion doesn't follow.*
- *I say the same if the major is exclusive and the minor of some quantity.*
- *Similarly if the major is made negative and the minor affirmative, then an exclusive does not follow indirectly.*

## The final class of irregular syllogisms: conditionals

*After this it remains to display the irregular syllogisms arising from noted conditionals having similitude with regular syllogisms, and especially in the first figure.*

## Four conditional moods with affirmative conclusions

- 1 “If a man is, an animal is; if an animal is, a substance is, therefore if a man is, a substance is”:  $M \rightarrow A, A \rightarrow S \vdash M \rightarrow S$ .
- 2 “If this instant exists, a present instant exists, and if the present instant exists, a future instant doesn't exist, therefore if this instant exists, a future instant doesn't exist”.  $I \rightarrow P, P \rightarrow \neg F \vdash I \rightarrow \neg F$ .
- 3 “If the present time exists, the past does not exist, and if the past does not exist, the future will exist, therefore if the present exists, the future exists”.  $P \rightarrow \neg A, \neg A \rightarrow F \vdash P \rightarrow F$ .
- 4 “If a man exists, a man is not a donkey, and if a man is not a donkey, then a man is not able to bray, therefore if a man exists, a man is not able to bray”.  $M \rightarrow \neg D, \neg D \rightarrow \neg B \vdash M \rightarrow \neg B$ .



## Mixed conditional and categorical “syllogisms”

*Likewise it is possible to syllogize from one [premise] of a conditional [form] and the other categorical. Following this, it happens in two ways, in one way by positing of antecedent, in the other by destruction of the consequent. By positing of the antecedent it is syllogized thus: “If a man runs, an animal runs, but a man runs, therefore an animal runs”. Similarly: “If something is a man, something is an animal, but Socrates is a man, therefore Socrates is an animal”.*

*By destruction of the consequent it is syllogized so: “If a man runs, an animal runs, but no animal runs, therefore no man runs”. Similarly: “If it is a man, that is an animal, but wood is not an animal, therefore wood is not a man”.*