Syllogistics III

More on Distribution
This is hard to understand, in particular with regard to O-propositions: "[I]f I say *Some S is not P*, although I make an assertion with regard to a part only of *S*, I exclude this part from the whole of *P*, and therefore the whole of *P* from it. In this case, then, the predicate is distributed."[1] Similar definitions are incomprehensible. Arnauld & Nicole (*La logique ou l'art de penser*, 1662) avoid the notion completely.

Distribution is a residue of *medieval semantics*, without which it makes little sense. It is peculiar that while medieval logic and semantics has disappeared, distribution has not: "The doctrine of distribution occupies a peculiar position in logic. It is integral to the 'Aristotelian' doctrine of categoricals and syllogisms; but it was quite unknown to Aristotle. [...] Logic books copy the stuff about distribution from earlier logic books, without anybody's either criticizing the doctrine or investigating its origin." Distribution has "inherent worthlessness".[2]

Digression: Medieval Semantics. "*Suppositio* means taking the position, as it were, of something else."[3] If a term 'supposes', it refers to the supposed; it is used instead of the supposed object.

"There is determinate *suppositio* when it is possible to make the logical descent to singulars by a disjunctive proposition, as in the correct inference 'A man is running [SiP], therefore this man [Socrates] is running or that man [Plato] (and so on for every individual)'." An indeterminate *suppositio* is 'confused', e.g. the predicate term in 'Every man in an animal' does not allow 'descent' to 'every man is this animal *or* every man is that animal (and so on for every animal)'.

"Confused distributive *suppositio* occurs when it is permitted to make a logical descent in some way to a copulative [conjunctive] proposition if the term has many inferiors [...]. So it is with this proposition, 'Every man is an animal' [SaP]. The subject of this proposition has confused distributive *suppositio*. For it follows: 'Every man is an animal, therefore this man [Socrates] is an animal *and* that one [Plato] is (and so on for every individual)'."

Example: the predicate of SoP: *Some philosophers do not make jokes*. Descent: 'Socrates is not this joker *and* Plato is not that joker (and so on for all jokers)'. Compare: every joker is not one of the 'some philosophers'. So, SoP says that every individual (the conjunction of all individuals) 'supposed' by the predicate term are different or distinct from those 'supposed' by the subject term. Hence the predicate term distributes.

Compare: 'The books are expensive' means, *distributively*, that every book is expensive; but it can also mean, *collectively*, that all books together are expensive.

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1   By J. N. Keynes, quoted in Geach, P. (1956). The Doctrine of Distribution. *Mind*, *65*, 67–74.
2   *Ibid*.
3   Following quotes from Ockham's *Summa Logicae*, in Boehner, P. & Brown, S. (1990). *Ockham: Philosophical Writings*. Indianapolis: Hackett (pp. 64ff.).

Valid Syllogistic Figures and Modes

There are 4 possible major premises × 4 possible minor premises × 4 possible conclusions × four figures = 256 possible syllogisms. Only 24 are valid; some are 'weak' modes (★), which arise from subaltern relations or by conversion.

Figures	Modes					
1st Figure	*Barbara*	*Celarent*	*Darii*	*Ferio*	*Barbari*★	*Celaront*★
M _ P	MaP	MeP	MaP	MeP	MaP	MeP
S _ M	SaM	SaM	SiM	SiM	SaM	SaM
————	———	———	———	———	———	———
∴ S _ P	SaP	SeP	SiP	SoP	SiP	SoP

Rules.[4] The major premise must be universal; the minor premise must be affirmative.

2nd Figure	*Cesare*	*Camestres*	*Festino*	*Baroco*	*Cesaro*★	*Camestros*★
P _ M	PeM	PaM	PeM	PaM	PeM	PaM
S _ M	SaM	SeM	SiM	SoM	SaM	SeM
————	———	———	———	———	———	———
∴ S _ P	SeP	SeP	SoP	SoP	SoP	SoP

Rules. One premise must be negative, so the conclusion must be negative; the major premise must be universal.

3rd Figure	*Darapti*	*Felapton*	*Disamis*	*Datisi*	*Bocardo*	*Ferison*
M _ P	MaP	MeP	MiP	MaP	MoP	MeP
M _ S	MaS	MaS	MaS	MiS	MaS	MiS
————	———	———	———	———	———	———
∴ S _ P	SiP	SoP	SiP	SiP	SoP	SoP

Rules. The minor premise must be affirmative; the conclusion must be particular.

4th Figure	*Bamalip*	*Calemes*	*Dimatis*	*Fesapo*	*Fresison*	*Calemos*★
P _ M	PaM	PaM	PiM	PeM	PeM	PaM
M _ S	MaS	MeS	MaS	MaS	MiS	MeS
————	———	———	———	———	———	———
∴ S _ P	SiP	SeP	SiP	SoP	SoP	SoP

Rules. If the major premise is affirmative, the minor premise is universal; if the minor premise is affirmative, the conclusion is particular; in negative moods the major premise must be universal.

Modus Barbara. If every M is P and every S is M, then every S is P. Or, in a sequent: MaP, SaM ⊢ SaP.

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4   A. Arnauld & P. Nicole, *Logic or the Art of Thinking*. Transl. Buroker, J. V. (1996). Cambridge: Cambridge University Press.