

John Corcoran, *Three rules of distribution: one counterexample*.

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Let FX be a proposition having an indicated occurrence of the term X . Let FY be the result of replacing the indicated occurrence of X by Y . The indicated occurrence of X is *distributed* in FX if and only if FY is implied by FX and *every Y is an X* —otherwise *undistributed*.

This applies to the four categorical propositions as follows. The subject is distributed in *every S is a P* and *no S is a P* , and it is undistributed in *some S is a P* and *some S is not a P* . The predicate is distributed in *no S is a P* and *some S is not a P* , and it is undistributed in *every S is a P* and *some S is P* .

Let $A(SM)$, $B(MP)$, and $C(SP)$ be propositions each having one occurrence of each of its indicated terms where S , M , and P are distinct. It has been known since the 1600s that, when $C(SP)$ follows from $A(SM)$ and $B(MP)$ and when all three propositions are categorical, (1) the middle M is distributed in a premise, (2) if S is distributed in the conclusion it is distributed in a premise, and (3) if P is distributed in the conclusion it is distributed in a premise.

These three results continue to obtain if the Aristotelian presupposition of nonempty terms is dropped as in medieval or modern writers.

Some logicians have alleged that these results obtain even when the propositions are not categorical. Indeed it has been alleged that these results are universal principles of logic.

The following is a counterexample to all three: *with at most two exceptions no S is a P* follows from *with one exception every S is an M* and *with one exception no M is a P* .

This vitiates many discussions of distribution, and it raises questions about the objectivity of historical and contemporary sources. In addition, it may serve to reintroduce the question of whether any general principles underlie the traditional doctrine or whether this doctrine is merely a rationalization of an unwarranted generalization from independently verified particular cases.

NOTE ADDED 24 December 2014: My 1972 JSL paper proves that Aristotle's method of syllogistic deduction is sufficient to establish the validity of every valid categorical argument no matter how many premises. It also shows that Aristotle's method of counterarguments is sufficient to establish the invalidity of every invalid categorical argument no matter how many premises. There is no need for burdening the theory of categorical syllogistic with an anachronistic doctrine of distribution alien to the historical *Prior Analytics*.

Do these three rules generalized to >2 -premisses categorical arguments?

What claims are made about distribution in Eaton, Cohen-Nagel, PRL, Whately, De Morgan, etc.