PAIRS OF NEGATIVE SYLLOGISTIC PREMISES YIELDING CONCLUSIONS

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As the rules for the syllogism have been traditionally stated, one of them is that two negative premises yield no conclusion. It is well known, however, that some pairs of negative syllogistic premises do yield conclusions (1). Of course the argument consisting of the premises and the conclusion in such cases is not itself a syllogism, since four terms are involved Consider, for example:

No M is P
Some M is not S

Some non-S is not P

of which the validity is clear when we obvert the second premise. The purpose of this note is to specify the cases of this kind by proving the following theorem.

On the existential interpretation of universal propositions, any pair of negative syllogistic premises yields a conclusion, provided:

(1) *At least one premise is E;*

(2) *The middle term is not the predicate of an 0 proposition. Furthermore, these are the only such pairs yielding conclusions.*

Proof: Assume (1) and (2). Then the premises are or can be transformed by simple conversion into one of the following pairs:

A. No M is X
No M is Y

B. No M is X
Some M is not Y

(1) See for example, J. N. KEYNES, *Studies and Exercises in Formal Logic* (London, 1894), pp. 249 ff. James Wilkinson Miller, in *The Structure of Aristotelian Logic* (London: Kegan Paul, Trench, Trubner, & Co., 1938), defines syllogisms in such a way that they can contain negative terms and hence two negative premises (p. 48), but does not take up the specific problem that I consider in this note.

To draw a conclusion from A, obvert either premise; e.g., the first, obtaining «All M is non-X». The conclusion will be that of a strengthened mood; namely, «Some non-X is not Y». To draw a conclusion from B, obvert the E premise, obtaining «All M is non-X». The conclusion will be «Some non-X is not Y».

There are altogether four arguments conforming to A above—one for each Figure of the syllogism. There are four arguments conforming to B; namely, one in the First Figure, two in the Third Figure, and one in the Fourth Figure. If we interpret universal premises hypothetically instead of existentially, then only the four arguments conforming to B are valid.

To show that the eight arguments just mentioned are the only valid ones with two negative syllogistic premises, consider the other possible pairings of such premises:

C. 0	D. Some X is not M
0	No Y is M

There are no valid syllogisms of type C, since both premises are particular, and type D, into which any combination of an E premise with an 0 premise having the middle term as predicate can be transformed through simple conversion of the E (supposing that the argument is not of type D in the first place) cannot be further transformed so as to yield a conclusion. Either the premises will contain the four terms X, Y, M, and non-M, or else a term undistributed in the premise will be distributed as the predicate of the negative conclusion.

Of course any pair of premises yields conclusions of a wide variety of kinds, including conclusions consisting of one of the premises. Here, however, we are concerned with conclusions of only one kind; namely those resulting from the application of the rules of the syllogism to pairs of premises. On the existential interpretation only eight pairs of negative premises yield conclusions of this kind.

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