

## RUSSELL ON DARAPTI

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The characters of this plot are the late Lord Bertrand Russell, who is known to everyone, and Darapti. The first question might be, "Who is *Darapti*?" *Darpti* is a syllogism in the third figure, named in the medieval Latin rhyme.

Barbara, Celarent, Dario, Ferioque  
Cesare, Camestres, Festino, Baroco  
Darapti, Felapton, Datisi, Disamis,  
Bocardo, Ferison

It has the peculiarity of having both premises be universal affirmative propositions and a conclusion which, due to the intrinsic limitations of the third figure, is a particular affirmative. It is one of the ways in which Aristotle allowed that necessary inference could come about, what later writers called a valid syllogism. Although he never used this latter expression, "valid syllogism," he did prove that all necessary inference, which in his vocabulary was simply syllogism, invariably produces a true conclusion from premises both of which are true. Today, a valid syllogism is defined as one in which two true premises give a true conclusion. The conception of syllogism in contemporary logic is radically different from that in Aristotle and assumes arbitrarily and without proof some things Aristotle knew must be proved. For Aristotle the "Analytics," as he called them, not distinguishing between the *Prior* and *Posterior Analytics*, had as their objective the description of demonstration.<sup>1</sup> Demonstration was to show that some conclusion is necessarily so. If the thing to be shown was necessary, the way of showing it had to be necessary, too. The rules of demonstration could not be arbitrary, says Alexander of Aphrodisia,<sup>2</sup> the earliest commentator on Aristotle whose works are still available to us. The rules of demonstration must themselves be demonstrated and so they are in an authentic interpretation of Aristotle. The proposition that necessary inference has two propositions, at least two, not only two, as some contemporary logicians take Aristotle as saying, is demonstrated on the basis of the definition of necessary inference given by Aristotle: a necessary inference is one in which on certain things being posited something else follows necessarily just because they are so posited. It is also on the basis of this definition and the elaboration of the three figures and the fourteen ways or modes in which necessary inference comes about that it becomes apparent that no necessary inference gives a false conclusion from true premises, thus assuring us that truth cannot be invoked as a demonstration of falsehood.

Necessary inference on the syllogism, as Aristotle called it, is the kernel of demonstration and Aristotle defines demonstration as a syllogism which causes us to know.<sup>3</sup> If one case of necessary inference or syllogism can be found in which falsity follows necessarily on truth this kernel and cornerstone of demonstration would be ruined utterly with the consequence that the ability to demonstrate anything at all would become quite doubtful. It is, however, not a solid position which denies we can demonstrate any thing at all, because how could one demonstrate the truth of such a position against those who challenge it?

I do not know whether B. Russell intends to deny the existence of demonstration. He assumes in accord with Aristotle certain secondary and derived axioms, such as that proof and definition cannot be circular. He does, however, pretend to show that in *Darapti* there is a valid syllogism which from true premises gives a false conclusion.<sup>4</sup>

Suppose we take the following syllogism.

All gold mountains are mountains  
All gold mountains are golden

The conclusion which follows on these premises is:

Some mountains are golden

This conclusion is false says Lord Russell, because as a particular statement, it implies the existence of gold mountains. Since there are no gold mountains on our planet, the statement is taken as false. The premises, however, are true "in some sense." "In some sense." These are the words of Lord Russell, not my own. One might ask in what sense. Russell does not, at any event, answer such a question but immediately goes on to point out that here we have a valid syllogism with two true premises giving us a false conclusion. From the modern viewpoint this is really only a contradiction in terms which is removed by eliminating *Darapti* from the list of valid syllogism. For Aristotle the objection is more serious, in one way, and, in another way, no objection at all.

In the first way Aristotle makes no distinction about existential import in regard to the opposition of statements.<sup>5</sup> The reason he does not do so is that his theory of contradiction and negation are constructed in such a way in his *De Interpretatione* so as to avoid from the outset the inconsistencies noted by Boole in the modern version of the theory of opposition. In not making a distinction with regard to existential import Aristotle contracts a form of what seems to be a perfectly natural necessary inference or syllogism in which true premises lead unerringly to a false conclusion.

Or do they? Russell has said that the premises are true in some sense. In what sense are they true and in what other sense are they false? If we took the following premises.

All iron mountains are iron  
All iron mountains are mountains

The conclusion following would be:

Some mountains are iron

There is nothing untrue about this statement. There is at least one iron mountain and I have seen it.<sup>6</sup> Why, then, is this syllogism alright and the other one all wrong? Because gold mountains do not exist.

But if the iron mountains were destroyed, as well they soon might be, would not the syllogism change from valid to invalid? But why should validity be subject to the same vagaries as truth and falsity when it is not identical in essence with them? Why should the statement "some mountains are iron" become false and the statements "all iron mountains are iron" and "all iron mountains are mountains" remain true, when the same fact controls the truth of falsity of all three statements?

The answer to this last question is that in contemporary logic universal statements are never conceived to imply existence while particular statements are. Thus if there are no iron mountains it is still true to say that all iron mountains are mountains. In what sense is it true? Certainly not as implying existence, because if there are no iron mountains, they are nothing at all, that is, they are not even mountains and not even iron. How can an iron mountain that does not exist be tall or dusty like a real iron mountain? And how can it be iron if it does not exist or are these two cases of predication different?

This last question strikes seemingly close to the heart of the matter. If these two cases of predication are not different, then that which does not exist can have nothing predicated of it and predication always implies existence. But if predication always implies existence, then upon the disappearance of the iron mountains that do at present exist, all three statements of the syllogism become false. But then the validity of the syllogism remains intact. There is nothing wrong with a syllogism producing a false conclusion from false premises. In this way Aristotle's theory of demonstration remains intact and Russell's objection becomes less intelligible.

If, on the other hand, the two cases of predication are essentially different and it is possible to predicate something of an iron mountain which does not exist, then not all predication implies existence and there are statements that can be true independently of whether or not the things they are talking about exist. This is certainly a strange and perhaps useless kind of truth, but on the assumption that it makes sense to philosophers, we shall assume that it is true, in this new sense, to say that iron mountains are mountains. But this is a new sense of truth. A statement which does not correspond to reality because it has no reality to

correspond to is, nevertheless, true. It is not true in the sense of corresponding to reality or as implying existence. It is true in the sense that it is true to say all dinosaurs are reptiles and all bachelors are unmarried males. It is true, that is, as an analytic statement.

Now, if statements can be true as analytic statements and still lead to statements that are false, Russell's objection seems to hold. But still he must be asked in what sense his universal statements are considered true if there are no gold mountains. It must be as analytic statements not implying existence. As implying existence they are as false as the conclusion. But the conclusion is not false as an analytic statement. It is false as implying existence. Hence, the conclusion is not false in the sense that the premises are true.

The scholastic philosophers of the middle ages made the center of their unjustly abused method the search to find out whether the conclusion was true in the same sense as the premises were. If it were not, it did not follow from the premises, but was conceived to be a fallaciously reached conclusion. To them Lord Russell's syllogism would seem to be merely a simple fallacy involving no major difficulty.

Even if the modern distinction between universal and particular statements is allowed it does not violate the integrity of Aristotle's description of necessary inference. But the modern distinction is arbitrary, as I have shown before. Therefore, it cannot be impressed on a theory of demonstration in which all the rules must be necessary and must be demonstrated.

#### NOTES

<sup>1</sup> Prior Analytics, Chapter 1, 24<sup>a</sup> 10-11.

<sup>2</sup> In *Aristotelis Topicorum Libros Octo Commentaria, in Commentaria in Aristotelem Graeca*, ed. Maximilianus Wallies (Berlin: George Reimer, 1891) Vol. II, part II, page 18, line 24.

<sup>3</sup> Posterior Analytics, Chapter 2, 71<sup>b</sup> 18.

<sup>4</sup> Bertrand Russell, *A History of Western Thought* (New York: Simon and Shuster, 1945) p. 197.

<sup>5</sup> He does, however, take up the question of the existential implications of "is" in regard to singular statements such as "Homer is a poet" in Chapter 11 of the *De Interpretatione*. The reason he takes it up there is because the opposition of statements is elaborated first with regard to simple statements made up of a noun and a verb. "Is" is introduced only afterwards (in Chapter Ten) as a "third adjunct" (19 b 20). The modern representation of Aristotle's theory of opposition violates the order of the subject matter and, it is to be feared, certain facts of linguistics. The "is" type statement is by no means primary nor universal. The confusion it brings with regard to the Indo-European languages is subsidiary to any logical treatise, not constitutive of a full logical theory. Besides the problem of existential import does not enter into a theory of the opposition of single declarations if this opposition is construed correctly. Cf. my "Existential Import—A Logical Problem," *Proceedings*

of the New Mexico West Texas Philosophical Society, April, 1969, pp. 46-53.

<sup>6</sup> In Durango, Mexico it is called "cerro del mercado."

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