# SYMPOSIUM: ARE THERE SYNTHETIC A PRIORI TRUTHS?

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## I.—*By* C. D. BROAD.

I SUPPOSE that the word "truths," in the question which we have been set to discuss, means either *facts* or *true propositions*. I am going to assume that anything which can be significantly said in terms of "facts" can be translated into a significant statement in terms of "propositions" and *vice versa*. Acting on this assumption, I propose to talk in terms of the latter. The question then becomes: Are there any propositions which are at once true, a priori, and synthetic?

The adjectives "a priori" and "empirical" are, of course, ambiguous in the harmless sense that they are used in two different contexts with two obviously different meanings. They are used in one sense of concepts, as, *e.g.*, when some philosophers say that the concept of Cause is a priori and the concept of redness is empirical. They are used in an obviously different sense of propositions, as, *e.g.*, when some philosophers say that the laws of logic are a priori propositions and the laws of physics are empirical propositions. We are concerned here only with this second application and this second sense of the words.

I take it that a true proposition would be a priori if and only if at least one of the two following conditions were fulfilled. (*a*) If it were such that a rational being of sufficient insight and intelligence could see it to be true by merely inspecting it and reflecting on its terms and their mode of combination. (*b*) If it were logically entailed by premises all of which answer to the first condition. If the first condition were fulfilled, the proposition might be

called " intuitably a priori " ; if the second were fulfilled, it might be called " demonstrably a priori." When a certain person actually sees for himself that a certain proposition is true, merely by inspecting it and reflecting on its terms and their mode of combination, we may say that it is " self-evident to him." And we may say that a person " knows a certain proposition a priori " if either it is self-evident to him or he actually sees it to be logically entailed by premises all of which are self-evident to him.

The following remarks may be made at this point by way of elucidation. (i) A proposition might be both intuitably and demonstrably a priori. It might even be the case that every proposition which is either is both. However that may be, it is certain that, if logic and pure mathematics consist of a priori truths, many of the simpler truths in these sciences are both intuitably and demonstrably a priori. (ii) For any human being at any stage of his life some of the propositions of logic and pure mathematics will be self-evident and not demonstrated whilst others will be demonstrated and not self-evident. (iii) It is possible to believe a proposition, and to know that it is an a priori truth if true and an a priori falsehood if false, and yet not to know it a priori. A person who believes any general proposition of pure mathematics merely on authority or on inductive grounds is in this position if all the truths of pure mathematics are a priori. For, if this is so, the proposition which he believes must be in fact either an a priori truth or an a priori falsehood. But he does not *know* the proposition, and therefore does not know it a priori. He merely *believes* it on empirical grounds, good or bad.

It follows from our definitions that, unless there are intuitably a priori truths, there can be no demonstrably a priori truths. Therefore, unless there are intuitably a priori truths, there are no a priori truths at all. We cannot, of course, infer directly from this that, unless there are intuitably a priori *synthetic* truths, there are no a priori *synthetic* truths at all. It would be compatible with our definitions that all the intuitably a priori truths should be

analytic and some or all of the demonstrably a priori truths should be synthetic. Now we have not yet attempted to define " analytic " or " synthetic " as applied to propositions. But I think we can safely say that, whatever the definition may be, no-one would admit that *synthetic* propositions could be logically entailed by premises all of which were *analytic*. If this further principle be admitted, we *can* proceed to assert that there can be no synthetic a priori truths unless there be synthetic intuitably a priori truths. I shall assume henceforth that this is the case. This obviously lightens the task of a person who wishes to prove that there are no synthetic a priori truths. For we see now that it will be enough for him to prove that there are no synthetic *intuitably* a priori truths.

At this stage it will be worth while to consider what amount of agreement there is about points which are relevant to our question. (i) Everyone admits that there are propositions which *are not* a priori, and that there are propositions which *are not* analytic. And I think that everyone admits that all propositions which are not a priori are non-analytic. So everyone admits that there are truths which are synthetic and *not* a priori, if " synthetic " is taken to be synonymous with " non-analytic." (ii) It is not universally admitted that there are a priori propositions. Now, if it could be shown that there are no a priori propositions at all, our original question would of course be answered in the negative. I take it that we are not expected to discuss the wider question : Are there a priori propositions ?, but only the narrower question : If there were a priori propositions, would any of them be synthetic ? (iii) I do not know that it would be universally admitted that there are analytic propositions. The alleged instances of such propositions which are commonly given in logic-books are, in my opinion, not instances of propositions at all. It would be usual to say that the sentence " All equilateral triangles are equilateral " stands for an analytic proposition. But I very much doubt whether it stands for a proposition, *i.e.*, for something that can be true or false, that can be known or believed or entertained and so on,

at all. The *sentence* has the same grammatical form as certain sentences which do stand for propositions. It has a grammatical subject, a grammatical predicate, and a grammatical copula, like the sentence "All equilateral triangles are equiangular," which undoubtedly does stand for a proposition. This fact explains why it has been thought to stand for a proposition, but it does not justify that opinion. In fact we seem to have here just one more instance of the disastrous results of blindly following the suggestions of language.

Now, if there were no analytic propositions, there could be no analytic a priori propositions. Therefore, if "analytical proposition" means "the sort of proposition which is expressed by sentences like *all equilateral triangles are equilateral*," I should answer our question as follows. There are no propositions answering to this description. Therefore *either* there are no a priori truths at all, *or* there are such truths and they are all synthetic.

At this point there are, I think, two moves open to persons who hold that there are a priori propositions and that they are all analytic. (*a*) They might give a different and wider definition or description of the phrase "analytic propositions," and there might be no doubt that there are propositions answering to this definition or description. (*b*) Instead of this they might admit that what are commonly called "analytic propositions" are not propositions at all; that they are, strictly speaking, incapable of truth or falsehood; and that therefore it is misleading to call them "truths." But they might answer that their doctrine needs only a slight verbal modification. Let us call a sentence which really does stand for a proposition a "propositional sentence"; and let us call a sentence, which seems from its grammatical form to stand for a proposition, but does not really do so, a "quasi-propositional sentence." Then there is no doubt that there are quasi-propositional analytic sentences. Now a person who held the opinion which is commonly expressed by saying that there are a priori propositions and that they are all analytic might restate his position in the following way. Strictly

speaking, there are no a priori propositions and no analytic propositions. But there are sentences which are commonly said to express a priori propositions. All such sentences are either quasi-propositional analytical sentences or are translatable into the latter by substituting and transforming in accordance with certain linguistic rules. He would then have to explain how the writing down and transformation of these unmeaning platitudes can be of scientific interest in itself and of importance in its applications.

It is evidently very desirable to discover, if we can, what precisely those philosophers who hold that there are a priori propositions and that they are all analytic mean by the phrase " analytic proposition." Now Mr. Ayer, a distinguished supporter of this doctrine, has recently published a book called *Language, Truth, and Logic*, in which these questions are discussed. As it is the most recent treatment of the subject in English, and is written by one who is thoroughly familiar with Continental work on the same topic, I shall make no apology for considering it in some detail at this stage.

On p. 103 of his book Mr. Ayer remarks that we may " say that a proposition is . . . synthetic when its validity is determined by the facts of experience." I take it that this is meant to be a *definition* of the word " synthetic " as applied to propositions. Now it is also the usual definition of " empirical " as applied to propositions. Therefore Mr. Ayer has *defined* " synthetic " in such a way that all synthetic propositions will be empirical. Now the adjectives " empirical " and " a priori " are always understood to be opposed to each other. Hence it is a matter of *definition* that no a priori proposition is empirical. It follows at once that no a priori proposition is synthetic. Thus Mr. Ayer has answered our question in the negative simply by giving such a definition of " synthetic proposition " that the negative answer is entailed by it. It is evident that no-one who entertains the possibility that there might be synthetic a priori propositions would be in the least moved by this argument. For it is evident that

he would not mean by " synthetic " what Mr. Ayer defines that term to mean.

Now Mr. Ayer does not define " analytic propositions " simply as propositions which are not synthetic in the sense which he has defined. He gives an independent definition, which we must now consider. On p. 103 he remarks that we may " say that a proposition is analytic when its validity depends solely on the definitions of the symbols which it contains." On p. 104 he gives as an example of an analytic proposition : " Nothing can be coloured in different ways at the same time with respect to the same part of itself." And he says of this proposition that it " records our determination to call a colour expanse which differs in quality from a neighbouring colour expanse a different part of a given thing." Lastly, on p. 105 he says of analytic propositions that " they call attention to linguistic usages of which we might not otherwise be conscious, and they reveal unsuspected implications in our assertions and beliefs." Let us consider these statements.

(i) If an analytic proposition states that the person who records it intends to use certain words in certain ways, it evidently makes a statement about the present experiences of the speaker and about his future behaviour. The former can be tested only by the speaker himself introspectively. The latter can be tested by seeing how the speaker does use these words in the later parts of his discourse. The analytic proposition is therefore quite plainly synthetic and empirical.

(ii) If an analytic proposition " calls attention to linguistic usages," it states an alleged matter of fact about the majority of writers and speakers of the language which the speaker is using. It can be tested by reading the works of a representative selection of persons who use this language, and seeing whether they do use words and phrases in the manner alleged. The analytic proposition is therefore quite plainly synthetic and empirical.

If, then, we accept either of these definitions of " analytic," it follows at once that all analytic propositions

are synthetic and empirical. And, if we hold that all a priori propositions are analytic in one or other of these senses, it follows that all a priori propositions are synthetic and empirical. The situation would then be as follows. (*a*) Analytic propositions are a certain sub-class of synthetic empirical propositions. (*b*) All a priori propositions are analytic in the sense defined. Now the first of these statements is of no particular interest, since it is merely an immediate consequence of the definitions of " analytic," " synthetic," and " empirical." It is the second of them on which attention should be concentrated.

We defined an " a priori proposition " as one which is either (*a*) such that it could be seen to be true by a rational being of sufficient insight and intelligence by merely inspecting it and reflecting on its terms and their mode of combination, or (*b*) is logically entailed by premises all of which answer to the first condition. Now I think it is evident that *no* proposition which was analytic in the second of Mr. Ayer's senses could be a priori in the sense just defined. No proposition about the linguistic usages of a certain language could possibly be seen to be true by mere inspection of its terms and reflexion on them and their mode of combination. And no such proposition could be entailed by premises all of which were of this nature.

If we consider the first of Mr. Ayer's senses of " analytic," we find that the situation is somewhat different. When a speaker makes a statement to the effect that he is now intending to use certain words and phrases in certain ways, *he* can see whether the statement is true or false simply by *introspecting* his own mind at the time and noticing whether the intention which he is expressing is the intention which he finds in himself at the time. But, even so, introspecting one's own mind is not the same as inspecting and reflecting on the terms of a proposition and the way in which they are combined. And no-one who hears or reads the speaker's statement can see whether it is true or false by the introspective method. The hearer or reader has to infer the truth or falsity of the speaker's statement about

his present intention as best he can from the speaker's subsequent use of the words or phrases about which the intention has been stated. It is quite evident then that *no* proposition which was analytic in the first of Mr. Ayer's senses could be a priori for *anyone but* the speaker. And it would not be a priori for the speaker himself. It is either an "hypothesis," in Mr. Ayer's sense of the word, or is something which Mr. Ayer rejects, viz., an "ostensive proposition."

Now, when an author's various statements lead to such a very odd situation as that to which, if I am not mistaken, Mr. Ayer's statements do lead, it is always charitable and generally reasonable to suppose that he has something intelligible to say but has failed to say it clearly. I shall therefore try to formulate in intelligible terms a theory which, I think, might be what Mr. Ayer is trying to express by the sentence: "There are a priori propositions and they are all analytic."

The theory is as follows. (i) There are no a priori propositions, in the sense in which I have defined the phrase "a priori proposition." (ii) There are, however, "ostensibly a priori propositions," *i.e.*, propositions which seem *prima facie* to answer to my definition. (iii) All ostensibly a priori propositions are really synthetic empirical propositions of a certain kind, viz., announcements by the speaker of his present intention to use certain words and phrases in certain ways or statements about the current usage of certain words and phrases in a certain language. (iv) Synthetic empirical propositions of this special kind are defined as "analytic propositions." (v) Therefore there are ostensibly a priori propositions, and they are all analytic in the sense just defined.

Obviously there are two and only two points in this theory which call for further discussion. These are the two closely connected clauses, which I have numbered (i) and (iii). I shall first comment on (iii).

Why should empirical synthetic propositions of the kind described in (iii) seem *prima facie* to be a priori in the sense defined by me, when neither they nor any other propositions

are in fact a priori in that sense? The theory will never be satisfactory unless it can offer some reasonably plausible explanation of how such a gross mistake might have arisen and become so prevalent. On this point I have the following observations to make. (*a*) I do not see how or why announcements by a person of his intention to use certain words and phrases in certain ways should appear to *him* to express a priori propositions in the sense defined by me. Nor can I see what should cause the hearers or readers of such announcements to mistake them for expressions of a priori propositions in the sense defined by me.

(*b*) I can see that a proposition which explicitly formulates a linguistic usage which one has been implicitly following (save for occasional inadvertent slips) all one's life, and which has been implicitly followed by all the writers and speakers whom one has read and heard, *would* be likely to stand out in a characteristic way from other kinds of empirical propositions. In one sense it would give you new information, whilst in another sense it would tell you only what you already knew. And this does seem to be a mark of ostensibly a priori propositions. Therefore the theory that all ostensibly a priori propositions are analytic in this sense has enough plausibility to be worth serious consideration.

(*c*) It is important to notice, however, that we know by experience that *not all* propositions which are analytic in this sense are ostensibly a priori. For the propositions of ordinary grammar, *e.g.*, the rules about the current use of "shall" and "will," "should" and "would," in English are perfect examples of propositions which are analytic in this sense. Yet they do not appear to Englishmen, who have been implicitly following these rules all their lives, as a priori propositions, in the sense in which: "All equilateral triangles are equiangular" does appear to be a priori. It is therefore vitally important that upholders of this theory should tell us quite plainly what it is that distinguishes those rules about linguistic usage which *do* get mistaken for a priori propositions from those which

*do not.* Enthusiastic talk about " philosophical grammar," as if that were an explanation, is useless. For the phrase is clearly metaphorical. " Philosophical grammar " is *not* grammar in the ordinary sense of the word ; what we want to know is the precise point of analogy and the precise point of unlikeness between propositions which are said to belong to *philosophical* grammar, and propositions which belong to *grammar* in the straightforward non-metaphorical sense of the word.

(*d*) I am inclined to think that the following analogy with geometry may be helpful, and I give it for what it is worth. There are certain *intrinsically* different kinds of surfaces, *e.g.*, developable surfaces (*i.e.*, planes, and surfaces that can be unfolded into planes without stretching or tearing) ; surfaces of uniform finite curvature (*e.g.*, spheres) ; and surfaces of non-uniform finite curvature (*e.g.*, ellipsoids). Now these intrinsic peculiarities can hardly be expressed and treated in detail except by introducing some system of co-ordinates for the points of the surface under consideration. A system of co-ordinates is an *extrinsic* device, and the same surface can be mapped out into a co-ordinate system in many different ways. *E.g.*, it is a matter of indifference whether the co-ordinate system for a plane is two mutually rectangular sets of parallel straight lines, as in the Cartesian method, or is a set of concentric circles and a set of radii diverging in all directions from their common centre, as in the Polar method. Yet the intrinsic nature of a surface *does* impose certain limits on the range of alternative co-ordinate systems which can be used to map it out. *E.g.*, it is obvious that Cartesian co-ordinates are an impossible method of mapping the points on a sphere. For the lines on a sphere which correspond to straight lines in a plane are great-circles ; and it is impossible to map out the surface of a sphere by two mutually rectangular sets of *parallel great-circles.* For, although two great-circles can be at right-angles to each other, no two great-circles can be parallel to each other. Thus, all the innumerable alternative sets of co-ordinates which are equally available for mapping out a *developable* surface will have something

common and peculiar to them which marks them off from the innumerable alternative sets of co-ordinates which are equally available for mapping out a surface of *uniform finite curvature.* And similar remarks apply, *mutatis mutandis*, if we substitute " surface of uniform finite curvature " for " developable surface " and " surface of non-uniform finite curvature " for " surface of finite curvature " in the last sentence.

The essential factor for us to notice in all this is the following. Although the mapping of the points on a surface by a system of co-ordinates is an *extrinsic* device, and although there are innumerable alternative systems which are equally available for the same surface, yet certain *intrinsic* properties of the surface impose certain very general conditions which any such device must obey if it is to be capable of fulfilling its purpose. And it is almost impossible to express the *intrinsic* property of a surface in a way which makes it susceptible of mathematical treatment except by the roundabout method of formulating the condition which must be obeyed by all the *extrinsic* devices that can be used for mapping the surface.

Now the analogy that I want to suggest is the following. Presumably there is a system of objective fact, with a structure of its own which is quite independent of us and our thoughts and our languages. Its structure may be compared with the intrinsic nature of a developable surface, or of a surface of finite uniform curvature, or of a surface of finite variable curvature. In our cognitive activities we are trying to think about this system of objective fact and to know as much as we can of it. But, in order to do this in any detail, we have to use language and other systems of symbolism, just as the geometer has to use systems of co-ordinates in order to discuss in detail the geometrical properties of surfaces. An immense number of alternative languages and other systems of symbolism are no doubt available, just as an immense number of alternative co-ordinate systems are available for mapping out surfaces of uniform finite curvature. But presumably the objective structure of the system of fact imposes *some*

limitation on the alternative systems of language or symbolism which are capable of representing it. (No doubt a further limitation is imposed by the fact that all these languages have to represent the objective system of fact, not to some abstract "Bewusstsein überhaupt," but to *human* minds with their actual past history and at their actual present stage of development.) Thus, if we could disentangle and formulate any features common to all systems of symbolism and languages, we should have a clue to the structure of the objective system of fact. And it is doubtful whether we could discover anything about the latter except in this rather roundabout way. Moreover, the formulation would have to be made in some particular pre-existing language or system of symbolism; or, if not, the new symbolism in which it was formulated would have to be explained by means of some pre-existing language or system of symbolism. Otherwise it would be unintelligible. Thus propositions which attempted to describe the structure of the objective system of fact would almost inevitably take the form of propositions which formulate certain very abstract and general and widespread linguistic usages.

Now, if there is anything in this suggestion, there are several obvious dangers to be noted. ($\alpha$) Most of us are acquainted only with languages of one philological family, *e.g.*, the Indo-European. There is obviously a danger that we may mistake certain linguistic usages, which happen to be common to all the languages that we know, for factors which are essential to *every* system of symbolism that is capable of fitting the structure of the objective system of fact. It is therefore highly desirable that there should be some philosophers who are thoroughly acquainted with Chinese, with Hebrew, and in general with highly developed and civilized languages of different philological families, and that information on the structure of these languages should be pooled. ($\beta$) Even if this difficulty were surmounted, we could never know for certain how much in the features common to all existing languages is due to their having to fit the structure of the objective

system of fact, and how much is due to contingent circumstances in the development of human speech and writing. ($\gamma$) Lastly, we have no guarantee that any of the existing languages and systems of symbolism are such as to be capable of accurately symbolizing the structure of the objective system of fact. They may all be like attempts to map out the surface of a sphere with a Cartesian system of co-ordinates. That all natural languages are defective and distorting media is almost certain, and is what might be expected from their history. But we must remember that all artificial systems of symbolism, which have been constructed to avoid the defects of natural languages, have been constructed by people who habitually thought in terms of one or more of the natural languages. They are bound to retain many traces of their origin, and they may embalm some of the defects of the natural languages from which they sprang.

I have now said all that I have to say on the third clause of the theory which I formulated above as a possible interpretation of the doctrine that there are a priori propositions and they are all analytic in the sense defined by Mr. Ayer. It remains to say something about the first clause, viz., that there are no a priori propositions in the sense in which I defined the term. Why are many people so certain of this? And is it itself supposed to be an a priori or an empirical proposition?

It is certain that there are synthetic empirical propositions. Therefore, if there were synthetic a priori propositions, synthetic propositions would fall into two very different sub-classes. Now we do not readily accept as ultimate the sort of situation which is summed up in the sentence "Some S is P and not Q, and some S is Q and not P, and all S is either P or Q." We are not satisfied unless we can find some characteristic R, which is common and peculiar to the S's which are P (or to the S's which are Q) and explains why those S's and only those are P (or are Q, as the case may be). *E.g.*, if we were told that some matches in a certain match-box lighted properly, that some fizzled out, and that all did one or the other,

we should look for some property, such as dampness, common and peculiar to the matches which fizzled out, which explains why those which had it and only those behaved as they did.

Now, if there are synthetic propositions which can be seen to be true by mere inspection, or which can be deduced from premises all of which are of that nature, it is very hard to discover any *other* feature which is (*a*) possessed by *all* of them and by *no* empirical synthetic proposition, and (*b*) explains why those synthetic propositions which possess it, and no others, have this epistemological peculiarity. I feel pretty certain that this fact is an important cause-factor in making many people believe that there are no synthetic a priori propositions.

Now the theory which holds that all ostensibly a priori propositions are really synthetic empirical propositions of a certain special kind is not in this difficulty. It can point out that *all* those synthetic propositions which seem to be a priori are, in a certain sense, propositions about linguistic usage; and that *all* those synthetic propositions which are, in that sense, about linguistic usage, seem to be a priori. And, if only it could tell us in what precise sense such propositions are "about linguistic usage," it might be able to show, on admitted psychological principles, that a proposition which was about linguistic usage, in this sense, would be likely to be mistaken for an a priori proposition.

I strongly suspect that this is a correct account of the *psychological causes* which have given rise to a strong feeling in favour of the view that there are no a priori propositions, and that all ostensibly a priori propositions are really synthetic empirical propositions about certain kinds of linguistic usage. Is this psychological cause also a *logical ground*? About this I have one concluding remark to make.

If the principle that such facts as are expressed by "Some S is P and not Q, and some S is Q and not P, and all S is either P or Q" are always derivative and need explanation, in the sense described above, were itself a

priori, it would be an instance of a genuinely a priori synthetic proposition. Therefore it could not consistently be used as a ground for holding that there are no synthetic a priori propositions. If, on the other hand, it is merely an empirical generalization, it will be only more or less probable. In that case it can do no more than add to the probability that there are no genuinely a priori propositions and that all ostensibly a priori propositions are " analytic " in Mr. Ayer's sense.

It seems plain to me that there is only one consistent view for those who hold the theory which we have been discussing to take about the theory itself. They ought to hold that it is an *empirical generalization*, and that the evidence for it is the fact that this, that, and the other representative instance of an ostensibly a priori proposition has been shown to be really a synthetic empirical proposition about certain linguistic usages. Perhaps this is what they do hold. But there is always a tendency for empiricists to base their denial of synthetic a priori propositions on some tacitly assumed epistemological premise which is certainly synthetic and which they take to be self-evident. A notorious example is Hume's principle that every simple idea resembles and is due to a previous simple impression ; a proposition which Hume, on his own principles, could not possibly know and could not have any empirical ground for believing. And I strongly suspect that some people accept the theory that there are no synthetic a priori propositions because the epistemological principle that *no* synthetic proposition *could possibly* be self-evident (which is certainly a synthetic proposition) *does in fact* seem to them self-evident.

If I am right in thinking that the theory can be held consistently only by those who hold that it is an empirical generalization, it is clear what the next step should be. What is wanted is a detailed examination of (and not vague " gas " about) logic, arithmetic, algebra, geometry, and ethics, in order to see whether representative propositions in each of these ostensibly a priori subjects can all be shown to be synthetic empirical propositions about certain

kinds of linguistic usage. There are a good many remarks which I should like to make about each of these subjects; but it is useless to treat them at all unless one can do so thoroughly and in detail, and there is no space for this here. I hope that one of the other symposiasts may supply this omission.