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On the Probative Force of the Syllogism

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ON THE PROBATIVE FORCE
OF THE SYLLOGISM

BY
MARK ROBERTS

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF
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ABSTRACT

This thesis is an investigation of the question of the probative force of the syllogism. It examines on what the probative force of propositions constituting an argument depends and some of the cases in which the conclusion of a syllogism is and is not proven by the premises.

The investigation begins by looking at certain preliminary notions associated with arguments in general and categorical syllogisms in particular. In each categorical syllogism are found two claims. One is the claim to truth made by each proposition, and another is the claim to validity made by the syllogism. When each of these claims are fulfilled the syllogism is then sound. The question is whether or not every sound syllogism also represents a proof of the conclusion.

John Stuart Mill asserted that no deductive argument including the syllogism can be a proof of the truth of the conclusion on the grounds that the premises presuppose the conclusion. In fact each syllogism is an example of the fallacy of petitio principii which it must by its very nature commit.

Alexander Pfänder instead claimed that only in certain cases is the conclusion not proven by the premises, while in other cases the truth of the conclusion is actually proven by

the truth of the premises.

An independent investigation of the question of the probative force of the syllogism is made. Because of a crucial difference between propositions affirming contingent states of fact and essentially necessary propositions affirming necessary states of fact, it is shown that no syllogism containing contingent propositions can be a proof, while a proof is present in the case of a syllogism containing essentially necessary propositions. When the propositions of an argument are contingent their truth follows from the fact each particular existing instance they refer to actually has what is affirmed by the proposition. Therefore, if the syllogism is valid, the conclusion will refer to at least some of the same particular existing instances on which the truth of each of the premises depends. The premises can be true only if the conclusion is true, and any uncertainty about the truth of the conclusion extends also to the premises. The premises cannot prove the truth of the conclusion since their truth presupposes the truth of the conclusion.

Propositions which are essentially necessary are true regardless of whether or not any particular instance exists or will ever exist. Because the state of fact is essentially necessary, the predicate is intelligibly grounded necessarily in the subject. If these kinds of propositions are found in a syllogism, their truth will not depend on the truth of a conclusion. Essentially necessary propositions have probative force, and their presence in a valid argument results in an actual proof of the conclusion.

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CHAPTER I

PRELIMINARY REMARKS ON THE NATURE OF SYLLOGISTIC ARGUMENTATION

Deductive argumentation:

An argument is a collection of propositions related in such a way that the truth of one of them is said to follow from the truth of the remaining propositions which may number one or more than one. The proposition which is said to follow from one or more other propositions is called the conclusion of the argument while the proposition(s) which the conclusion is said to follow from is called the premise(s). When it is said that the conclusion follows from the premise or premises, this means that the latter attempt to provide evidence for the truth of the conclusion by their own truth through the logical form of the argument. Evidence may be provided for the truth of the conclusion in two general ways; either deductively or inductively.

The difference between induction and deduction:

In deductive argumentation, the manner of argumentation, that is, the process whereby evidence is provided for the truth of a proposition is such that the conclusion is claimed to follow necessarily from the truth of the premise or premises. However, in induction the manner of argumentation claims to yield a true conclusion which follows with a specific degree of probability and

not with necessity.¹ The fact that the true conclusions of deductive arguments can follow necessarily from true premises while the true conclusion of inductive arguments can never follow necessarily from true premises points to a fundamental difference in the way the premises are used as evidence for the conclusion. In deduction the process of argumentation proceeds from what is less general to what is more general.² A true conclusion could only follow necessarily from true premises if the relation between premises and the conclusion is from what is more general to what is of equal or less generality. Unless this were so, the conclusion would assert more than was given or provided for by the premises. This is precisely what occurs in the case of induction for the conclusion asserts more than was actually given by the premises.

¹ There is a certain procedure in mathematics which is called induction whereby one reasons from what is true in some cases to what is necessarily universally true. For example, one may reason that since a specific feature belongs to some prime numbers, the feature therefore belongs necessarily to all prime numbers. The question of whether or not such a method is really induction or perhaps involves other procedures, and the question of what bearing the special nature of numbers and mathematical laws have on this issue is not crucial to this investigation.

² Someone may object that induction can proceed from what is particular to what is also particular. One may reason that, for example, since one room of a house has no rug, and a second room has no rug, and still a third room has no rug, therefore, the fourth room will have no rug. However, the inference to the conclusion can only take place, in this case, based upon a general premise which would be the result of the examination of the first three cases, and from which the claim regarding the unobserved case is inferred. Without a general premise the three observed cases could not be used as evidence for the fourth unobserved case.

The difference in generality between the premises and the conclusion may consist in the quantification of the proposition, or in the generic relation between the terms of one proposition and the terms of another proposition. For example, if one talks about all of the furniture in the house and then about some of the furniture, then the former is more general than the latter because the quantifier "all" is more general than the quantifier "some." If, on the other hand, one talks about all of the furniture in the house and then about all of the chairs then the former is more general than the latter since a chair represents only one kind of furniture. Therefore, if someone were to argue that since some of the chairs in the house are made of wood, then all of the chairs are made of wood, their conclusion would not follow necessarily because the quantifier of the conclusion makes the proposition more general than the premise. In the case, however, when someone argues that since all of the furniture in the house is made of wood and chairs are furniture in the house, then all of the chairs which are found in the house are made of wood, then the conclusion can follow necessarily; for the generic relation between the terms "furniture" and "chair" is from greater to lesser generality.³

These remarks should be sufficient to distinguish deduction from induction.

The difference between immediate and mediate arguments:

Immediate arguments differ from mediate ones in that in the

³By general to particular in this context is not meant the relation of a proposition to actually existing particular instances of what is affirmed. This relation will be dealt with at length in a later section.

former the argument contains only one premise while in the latter the argument contains more than one premise. The term "immediate" refers to the fact that the argument proceeds directly from one premise to the conclusion. The term "mediate" refers to the fact that the conclusion follows not simply from one premise or the other premise but from all premises taken together. This paper will be concerned with one specific type of mediate deductive formal argument, namely, the categorical syllogism.

The categorical syllogism⁴:

A syllogism is one kind of deductive argument which consists of two premises and a conclusion. When all of the propositions constituting the syllogism are categorical propositions, the syllogism is then a categorical syllogism. Categorical propositions are the simplest among the various different kinds of propositions. This is shown in the fact that a categorical proposition consists of and requires only a minimum of one subject concept, one predicate concept, and a copula. Thus a categorical proposition differs from more complex propositions such as disjunctives and conjunctives which may themselves contain categorical propositions; and it differs also from propositions in which the copula is restrained in some way such as in conditionals.

⁴ The remarks which will now be made may certainly apply to other kinds of syllogisms besides categorical syllogisms. This investigation will be restricted to categorical syllogisms because of certain unique features which they possess, and because they are used by Mill in the context of his accusation against deductive argumentation.

The two-fold claim found in categorical syllogisms:

The premises of categorical syllogisms claim to provide evidence for the truth of the conclusion in two different ways. Each of these claims must be fulfilled, otherwise the truth of the conclusion will not follow necessarily from the premises.

The proposition and its claim to truth:

A proposition is to be differentiated from the mental or psychological act of judging, from the linguistic form which expresses the proposition, and from the state of act which it asserts is the case. The act of judging differs from the proposition in the following way. First, the act of judging is multiplied as the same proposition is communicated from person to person. Secondly, one can predicate of propositions features which cannot be predicated of the act of judging like for example that a proposition can be communicated. The proposition differs from the linguistic expression first in the fact that the same proposition can be expressed by different linguistic expressions, like when a proposition is asserted in German and the same proposition is asserted in English or some other language. One can also predicate of a linguistic expression features which cannot be predicated of a proposition like that a word in a sentence is misspelled.

Furthermore, a proposition differs from the above in that only propositions can be true or false. The proposition makes a claim to truth which consists in its affirming that a state of fact obtains. It lies in the very essence of a proposition that it make

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this claim to truth. Truth and falsity are quite properly predicable only of propositions among the various other kinds of thoughts such as invitations, questions, commands, wishes, promises, etc.

The claim to truth can be located in the copula of the propositions, for it is by the affirming function of the copula that the state of fact is claimed to be. This is only one of two different functions found in the copula for its second function is to relate the predicate to the subject. It is by this relation function that something (the predicate) is predicated of something else (the subject). The affirming function is found only in propositions while the relating function is found in all kinds of thoughts with the exception of simple concepts.

Since the categorical syllogism consists of propositions, as do all arguments, each of the propositions make this claim to truth. In other words, the claim to truth is made by the premises and by the conclusion.

One claim found in the syllogism then is the claim made by each proposition comprising the syllogism that it is true. There is a further claim made by the syllogism, namely, its claim to be valid.

The Claim of the Syllogism to be valid:

It lies in the essence of a categorical syllogism that it make a claim of validity; that is, it makes the claim that due to the logical relation between the premises and the conclusion, the

conclusion follows necessarily from the premises.⁵ This logical relation between the premises and the conclusion concerns the logical form of the syllogism and is independent from the question of the truth or falsity of the propositions.⁶ Therefore, although a categorical syllogism may be valid this does not imply that any of the propositions are true. When a categorical syllogism is valid the conclusion follows necessarily from the premises, but the truth of the conclusion need not also necessarily follow. This would require that the premises be true and the syllogism be valid. This point will be explained in greater detail in a moment. What is important to understand now is that when the conclusion of a valid argument follows necessarily from the premises this does not give any indication of the truth or falsity of the conclusion. To say that the conclusion of a valid argument follows necessarily refers to a logical relation of logical necessity between the premises and the conclusion.

The question regarding the source of the claim of validity which the syllogism makes is an exceedingly difficult one to

⁵The term "valid" may be used in inductive argumentation to refer to the fact that the conclusion follows with a degree of probability that warrants a reasonable assent. However, considering the fundamental difference existing between this meaning and its meaning within deductive argumentation, the term "valid" will be used throughout this paper to refer to deductive arguments in which the conclusion follows necessarily from the premises.

⁶This is not to ignore arguments in which the conclusion follows necessarily from the premises not because of the form of the arguments but because of a material relation. Some of these material inferences are, for example, "if A is equal to B" then "B is equal to A"; or "if A is earlier than B" then "B is later than A."

fully answer. To begin with, certain remarks about the constitution of the syllogism must be made. A categorical syllogism consists of three and only three categorical propositions. Two of the propositions are the premises and one is the conclusion. The predicate of the conclusion is called the major term and the subject of the conclusion is called the minor term. The middle term is one appearing in each of the premises but not in the conclusion. The premise which contains the major term is called the major premise and the premise which contains the minor term is called the minor premise. This means that in a categorical syllogism, there will be three and only three terms each used twice in the manner just explained.⁷ Thus, according to this explanation, the following two arguments would not be categorical syllogisms.

All crows are black.
 All dogs have tails.
All cats have fur.

All crows are crows.
 All dogs are cats.
All cats are dogs.

Although the first argument consists of three categorical propositions it contains more than three terms. The second syllogism consists of three categorical propositions, and it contains three terms each used twice; however, the middle term is not found in each of the premises, and neither does the major

⁷The same claim is made by Freeman, Logic: The Art of Reasoning (New York: David McKay Co., Inc., 1967), p. 145. Also by Copi, Introduction to Logic, (New York: MacMillan Co., 1972), p. 181.

term appear in one premise and the minor term in another. The following argument is a genuine example of a categorical syllogism.

All crows are dogs.
All crows are cats.
 All cats are dogs.

In this argument there are three categorical propositions, and three terms each used twice, and further, the middle term appears in each premise, and the major term is found in one premise while the minor term is found in the other premise. In this way the major term and the minor term are connected in the premises by means of the middle term. They are brought together, so to speak, or united by means of the middle term which occurs in both of them.

It is with this structure of a categorical syllogism that its claim to validity can be found. It is a claim that lies then in the formal nature of the categorical syllogism; that is, it is a claim which stems from the relation of terms within three categorical propositions.⁸ Yet, to what exactly does the term "validity" refer?

The concept "validity" is one sui generis. It cannot be defined in the sense that it cannot be reduced to some other relation; nor can it be defined in a way which would enable a person, ignorant of what validity is, to understand what it without simply apprehending it directly. The following argument is an example of

⁸This is not to be confused with the question regarding upon which factors the validity of the syllogism depends. Such factors would deal with the quantity and quality of the categorical propositions.

a valid categorical syllogism:

All crows are dogs.
All cats are crows.
 All cats are dogs.

Although "validity" cannot be defined, some of its features can of course be mentioned and some of the consequences of valid syllogisms can be pointed out. One of the consequences of valid syllogisms is that if the premises are true then the conclusion must also necessarily be true. This does not mean that the premises are true or that they must be true but only that if they are true the conclusion must be true. This is a necessary consequence of the validity of the syllogism, but it does not represent a definition of validity.

Another consequence following from the validity of a syllogism is that if the conclusion is false at least one of the premises must also be false. This follows from the fact that a valid syllogism cannot have two true premises and a false conclusion.

Because these are necessary consequences of a valid syllogism their absence entails that the syllogism is invalid. A syllogism which can have two true premises and a false conclusion cannot be valid and must be invalid.⁹

⁹ If an argument were to contain as a premise the very conclusion of the argument, it would be quite true to say that if the premises are true then the conclusion must necessarily be true. This follows not from the valid form of the argument, but from the simple fact that the conclusion is itself a premise. Such a possibility would seem to be ruled out in the case of a categorical syllogism since such an argument, in having the conclusion as a premise, could not have three terms each used twice, etc. The conclusion of a valid categorical syllogism follows from both premises taken together.

Still another way the notion of validity can be revealed is by pointing out how the conclusion of a valid syllogism follows necessarily even though its premises and conclusion are false. This will be more fully analyzed in the following section dealing with the soundness of the syllogism.

The soundness of the syllogism:

A syllogism may be valid even though all of the propositions contained in it are false; and a syllogism may contain only true propositions yet still be invalid. An example of the former is the following argument:

All United States citizens are citizens of Cuba.
All citizens of France are citizens of the United States.
 All citizens of France are citizens of Cuba.

The propositions which constitute this syllogism are all false; yet, it is essential to understand that the syllogism is nevertheless still valid. The conclusion follows necessarily from the two premises because of the logical form of the argument, and therefore the necessity with which the conclusion follows is a logical necessity. This logical necessity is absent in the following syllogism although its premises and conclusion are true.

All the inhabitants of the United States live in North America.
All the inhabitants of Texas live in North America.
 All the inhabitants of Texas are inhabitants of the United States.

Each of the propositions in this syllogism are true, but the syllogism is not valid. The conclusion does not follow necessarily from the premises although it may at first glance appear to. This syllogism

does not possess any of the features of valid syllogisms; the conclusion need not be true if the premises are true, nor would the falsity of the conclusion necessitate the falsity of at least one of the premises.

In the case of a syllogism which possesses a valid form and which contains true premises the syllogism would then be sound.

An example of a sound syllogism is,

All inhabitants of the United States are inhabitants of North America.

All inhabitants of Texas are inhabitants of the United States.

All inhabitants of Texas are inhabitants of North America.

The two-fold claim found in each syllogism is fulfilled in this syllogism. The propositions which constitute the syllogism are true and the syllogism is valid. It is by the fulfillment of this two-fold claim that the truth of the conclusion follows necessarily from the truth of the premises. The truth of the conclusion follows not simply on the basis of the truth of the premises but through the valid form of the syllogism. If a syllogism is only valid then the conclusion follows necessarily from the premises; but if a syllogism is valid and the premises are true, then the truth of the conclusion follows necessarily from the truth of the premises. The truth of the conclusion is established by the true premises though through the validity of the syllogism.

Although the truth of the conclusion of a sound syllogism follows necessarily this does not mean that the conclusion is necessarily true. A proposition is necessarily true either if it

is analytic or if it refers to a necessary state of fact. The differences between these two kinds of necessarily true propositions will be investigated in Chapter Three. In connection with the soundness of a syllogism it is now important to distinguish between the truth of a conclusion following necessarily and a conclusion which is necessarily true. The truth of the conclusion of the sound syllogism presented above follows necessarily but it is not a necessary truth. It is not analytic nor is it synthetic a priori.¹⁰

While these remarks concerning sound categorical syllogisms may be clear enough, John Stuart Mill has made the accusation that the syllogism, even sound syllogisms, can never "prove" the truth of the conclusion on the grounds that by its very nature it must commit the fallacy of petitio principii. This assertion made by Mill and the response made by Alexander Pfänder will now be presented.

¹⁰The distinction between what is necessarily true and a true proposition which follows necessarily is not made by Freeman, Logic: The Art of Reasoning, (New York: David McKay Co. Inc. 1967), p. 144, who claims that the conclusion of a sound argument is necessarily true.

CHAPTER II

THE POSITIONS OF MILL AND PFÄNDER

Mill's Accusation:

Regarding the nature of the syllogism, John Stuart Mill writes the following:

We have now to inquire whether the syllogistic process, that of reasoning from generals to particulars, is or is not a process of inference, a progress from the known to the unknown, a means of coming to a knowledge of something we did not know before.

Logicians have been remarkably unanimous in their mode of answering this question. It is universally allowed that a syllogism is vicious if there be anything more in the conclusion than in the premises. But this is, in fact, to say that nothing ever was or can be proved by the syllogism which was not known or assumed to be known before.....a syllogism can prove no more than is involved in the premises.¹¹

It must be granted that in every syllogism considered as an argument to prove the conclusion, there is a petitio principii. When we say, "All men are mortal, Socrates is a man, therefore, Socrates is mortal," it is unanswerably urged by the adversaries of the syllogistic theory, that the proposition, Socrates is mortal, is presupposed in the more general assumption, All men are mortal; that we cannot be assured of the mortality of all men, unless we are already certain of the mortality of every individual man; that if it be still doubtful whether Socrates, or any other individual we choose to name, be mortal or not, the same degree of uncertainty must hang over the assertion, all men are mortal: that

the general principle, instead of being given as evidence of the particular case, cannot itself be taken for true without exception, until every shadow of doubt which could affect any case comprised with it, is dispelled by evidence aliunde; and then what remains for the syllogism to prove? That in short, no reasoning from generals to particulars can, as such, prove anything: since from a general principle we cannot infer any particulars, but those which the principle itself assumes as known. This doctrine appears to me irrefragable....¹²

These two passages represent the core of Mill's attack against the syllogism, and they must therefore be briefly examined in order to determine the nature of Mill's claims. This shall be done first by looking at Mill's views regarding syllogistic argumentation, and secondly by looking at what he means when he says that the syllogism commits the petitio principii fallacy.

Mill's views regarding syllogistic argumentation:

This explanation of Mill's position will begin by pointing out that Mill means by the term "vicious," in reference to syllogisms what was called invalidity in the first chapter of this paper. A syllogism which is valid would for Mill not be vicious, while one which is invalid would be vicious. Mill claims that an argument is vicious whenever there is more in the conclusion than is found or assumed in the premises. Another way of stating this would be to say that an argument is invalid whenever the conclusion asserts more than is found or contained in the premises. What Mill would refer to as a non-vicious argument is one described as valid in the previous chapter. Mill's explanation of validity and invalidity

¹² Ibid., p. 210.

should not be taken to mean that the conclusion goes quantitatively beyond the premises. It is not as if the conclusion actually refers to more particular instances than the two premises combined. The conclusion of an invalid argument goes beyond the premises in the sense that it asserts what cannot be substantiated by the premises. The conclusion is not something following from the premises but goes beyond them according to what can be inferred from them. If the conclusion does not follow necessarily, it must therefore assert more than is found in the premises in the sense of what can be deduced with necessity. In order to illustrate Mill's point, take for example the following invalid argument:

All dogs are animals.
All cats are animals.
All cats are dogs.

This syllogism is invalid; the conclusion does not follow necessarily from the two premises. The conclusion goes beyond what is found in the premises, not in the sense that it refers to more cats or to more dogs, but in the sense that it claims more than can be deduced from the premises. The middle term in being the predicate of both universal affirmative premises does not allow one to conclude that the major term is always predicable of the minor term.

Considering again for the moment the function of the middle term in some valid categorical syllogisms, it is by the middle term, which appears in both of the premises but not in the conclusion, that the major term can be predicated of the minor term. Again, the major term is the predicate of the conclusion and the minor term is

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the subject of the conclusion. In one case of a valid categorical syllogism such as one containing three universal affirmative propositions in the first figure, it is because what is referred to by the major term is always predicable of what is referred to by the middle term, and what is referred to by the middle term is always predicable of what is referred to by the minor term that it necessarily follows that what is referred to by the major term must always be predicable of what is referred to by the minor term. The middle term functions to, so to speak, "bring together" the referents of the major and minor terms.¹³ A syllogism of this form is for example one previously mentioned.

All United States citizens are citizens of Cuba.
All French citizens are citizens of the United States.
All French citizens are citizens of Cuba.

This syllogism is not sound but it is valid, and the conclusion does not assert more than is found in the premises, that is, it does not go beyond in its claim what can be deduced with necessity from the conclusion.

From this explanation of the nature of validity, Mill asserts that the conclusion of any valid syllogism, even syllogisms which are sound, cannot assert anything new. If the conclusion represents new knowledge, then it must go beyond the premises, but if the conclusion goes beyond the premises, then the syllogism cannot be

¹³ The predication is of what is referred to by the concepts of the proposition, for it is foolish to say that in the proposition, "Leaves are green," that green is a property of the concept, "leave."

valid. The syllogism cannot at the same time assert something new and also follow necessarily from the two premises. This is one assertion of Mill which will later have to be critically examined. The second assertion closely related to this one is Mill's claim that the syllogism by its very nature commits the fallacy of petitio principii.

The validity of the syllogism & the petitio principii fallacy:

It is in establishing the soundness of the syllogism that Mill claims the petitio principii fallacy is unavoidably committed. It is not merely because of the fact that in a valid syllogism the conclusion is contained in the premises -- since it cannot claim more than can be deduced from the premises if it is to be valid -- that Mill claims a petitio principii fallacy is present. The validity of the argument is presupposed in the following way. Since the conclusion of a valid argument is contained in the premises, the truth of the conclusion must be known if the truth of the premises is known. The truth of the conclusion is needed to establish the truth of the premises since the conclusion is contained in the premises, otherwise the syllogism would be invalid. Unless the truth of the conclusion is established, the truth of the premises remains uncertain. It is in needing to know the truth of the conclusion that the petitio principii fallacy occurs, for the truth of the conclusion is used in order to establish the truth of the premises which are supposed to establish the truth of the conclusion. Instead of true premises

proving the truth of the conclusion, one must know the truth of the conclusion in order to establish the truth of the premises. This preceding fact is a consequence of the validity of the syllogism itself.

Mill's accusations against the syllogism can be briefly summarized in the following manner. Since the conclusion of a valid syllogism cannot go beyond the premises, it must in that sense be contained in them. Yet, if it is contained in them, the conclusion cannot assert anything new. The conclusion cannot assert anything new not only because of the validity of the syllogism, but also because the truth of the conclusion must be known if the truth of the premises is to be known. This follows from the fact that the conclusion is contained in the premises, and it therefore amounts to the fallacy of petitio principii. The syllogism can never prove the truth of the conclusion for it cannot arrive at anything new if the syllogism is to be valid and the truth of the premises known.

It is important to understand that even though Mill claims that by the validity of the argument the truth of the conclusion must be known in order to establish the truth of the premises, once their truth is established, the argument is nevertheless still sound. The syllogism is sound but the conclusion was not proven. The truth of the conclusion was not proven since its truth was needed to establish the truth of the premises.

Before Mill's assertions and accusations are critically analyzed, Alexander Pfänder's remarks on this problem will be presented.

Pfänder's views on the syllogism:

Although Alexander Pfänder in his Logik never explicitly mentions Mill nor specifically the petitio principii fallacy, he certainly has Mill in mind when he writes the following:

Some objections which have been raised against the traditional view of the syllogism address themselves against the first figure and specifically against the fact that in the major premise the general judgement is taken as a universal. The universal judgement it is said already includes the conclusion and presupposes its truth if itself is to be true. It is said that in the conclusion no new judgement is gained but only an unfolding of the major premise is given.¹⁴

Pfänder continues by saying that the objection is correct. This objection which Pfänder describes above is precisely the objection which Mill raised. Although Pfänder thinks this objection is correct, he does not claim that it is applicable to all syllogisms. In some cases the premises may actually prove the truth of the conclusion, while in other cases they may not. Pfänder never mentions the petitio principii fallacy and instead asserts that in some syllogisms there is no proof since the conclusion of the syllogism is presupposed by or included in the universal major premise. Thus he distinguishes between what he calls a relationship of truth and a relationship of proof. This distinction is partially explained in the following passage:

In that the argument draws out one judgement from one or more other judgements, it posits at the same time the truth of the deduced judgement, the

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A. Pfänder, Logik, (Tubingen: Max Niemeyer Verlag, 1963), p. 316 (translated by the author of this thesis).

conclusion, as following necessarily from the truth of the premises. It makes the claim not only that the premises are true and it itself is valid, but also that the truth of the conclusion is given necessarily with the truth of the premises. It presupposes then that between the premises and the conclusion in fact consists a definite relation of truth. The relation of truth which each argument presupposes is however not necessarily a relation of proof, that is, the premises, with whose truth is necessarily given the truth of the conclusion, need not necessarily prove the conclusion. A relationship of proof consists namely between the premises and the conclusion only then when not only with the truth of the premises is given necessarily the truth of the conclusion, but also when the truth of the premises in no way already presupposes the conclusion.¹⁵

It is clear from this passage that Pfänder does not go as far as Mill for Mill claimed that no syllogism can be a proof. The reason which Pfänder gives in support of the claim that in some cases the conclusion of an argument, as a particular judgement, is included in the premise which is a universal judgement.¹⁶ However, this need not be true in every case. Pfänder asserts that the conclusion of an argument can actually be proven for in some cases neither premise may presuppose the conclusion. The question whether or not the syllogism is a proof depends on what kind of judgements are found as premises in the syllogism. Pfänder distinguishes between one kind of universal judgement called a proving deductive judgement of kind and another kind of universal judgement called a collective inductive universal judgement. The universal judgement itself does not by its form indicate which kind of universal

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Ibid., p. 248 (Translated by the author of this thesis).

¹⁶

Ibid., p. 248.

judgement it is.¹⁷ When the premises are collective inductive universal judgements then it is only a summary of all particular judgements which already assert of each particular what the universal judgement asserts.¹⁸ In such a case, the particular judgements are presupposed by the universal judgement and the latter depends on the former for its own truth. The question whether one has an inductive universal judgement or a proving deductive judgement of kind depends on the relationship between the predicate and the subject of the proposition. If the object referred to by the predicate concept is predicate of the subject because of the nature of the object referred to by the subject concept then one has a judgement which is not the mere summary of all particular judgements, and it will not therefore presuppose the particular judgements for its own truth.¹⁹ In the case where the object referred to by the subject is not the reason for the predication of the predicate then one has a collective inductive universal judgement which can never prove the truth of any particular judgement for it presupposes the truth of each particular judgement for its own truth.²⁰

Pfänder's explanation of what occurs when the major premise of a syllogism is a collective inductive universal judgement

¹⁷ Ibid., p. 329.

¹⁸ Ibid., p. 320.

¹⁹ Ibid., p. 229-230.

²⁰ Ibid., pp. 329, 331.

corresponds exactly to what Mill asserts. Pfänder disagrees with Mill since Pfänder claims that not all syllogisms need contain propositions which cannot prove the truth of the conclusion. The question whether Mill or Pfänder is correct, and the question whether or not Pfänder's defense of the syllogism is entirely accurate will now be considered.

CHAPTER III

THE NATURE OF PROOFS AND THE CATEGORICAL SYLLOGISM

The critical evaluation and examination of Mill's and Pfänder's position on the syllogism will begin first with an investigation into the issue itself. A disagreement or agreement with what they assert is significant only on the basis of a present investigation into the issues which they dealt with, and on the basis of the results and discoveries such an investigation will yield. This third chapter will be devoted to such an investigation, while the fourth chapter will take the results obtained and compare them to Mill's and Pfänder's positions.

The general question with which this third chapter will be concerned is whether or not it is true that all sound syllogisms are proofs. In a sound syllogism, is the truth of the conclusion always proven by the truth of the premises? In fact, what does it even mean to say that the truth of the conclusion is "proven"? Mill of course asserts that no syllogism, not even a sound syllogism, can ever prove the truth of the conclusion. Pfänder, however, claims that only in some instances is it true to say that the conclusion was not proven, while in other cases the truth of the conclusion is proven by the truth of the premises.

The first section of this chapter will consist of an investigation into the principal reason why in some cases the truth of the

conclusion is proven while in other cases it is not. Although this analysis will proceed in a direction similar to Pfänder's this investigation will attempt to go beyond Pfänder's explanation and will try to arrive at an accurate analysis of the problem of the probative force of the syllogism. In this connection the question will be raised and discussed in a second section whether or not the failure of the syllogism to, in some cases, prove the conclusion is the result of its committing the fallacy of petitio principii. A third section of this chapter will then attempt to show how in at least one instance a sound syllogism actually proves the truth of the conclusion.

The absence of probative force in some sound syllogisms:

If a syllogism is to prove the truth of the conclusion, then the syllogism must of course be sound. The syllogism must possess a logical form which is valid and each premise must be true. Yet, can it be said that when a syllogism is sound that the truth of the conclusion is proved by the truth of the premises? It is of course understandable why someone might immediately reply in the affirmative; for the truth of the conclusion certainly follows from the truth of the premises through the validity of the argument. The truth of the conclusion certainly follows but was the truth of the conclusion actually proven? Did the premises have probative force? In order to reveal why the soundness of the syllogism is only a necessary but not a sufficient condition for the truth of the conclusion to be proven, one must examine a specific kind of relation which

may exist between the premises and the conclusion of a syllogism.

Some of the relations existing between the premises and the conclusion of a valid syllogism have previously been mentioned. For example, in a valid syllogism if the premises are true then the conclusion must also be true; or in a valid syllogism, if the conclusion is false, one of the premises must also be false. Even the validity of a syllogism itself points to a relation between the premises and the conclusion. These relations are grounded in the logical structure of the syllogism and for this reason can quite simply be called logical relations. However, these relations can also be called formal relations since they are independent of the material content of the propositions which constitute the syllogism. The material content of the premises is irrelevant to the question of the validity of the syllogism. This was pointed out before in Chapter One.

However, the relation which is crucial to the question of the probative force of the premises in a sound syllogism is a material relation dealing with the material content of the propositions which comprise the argument. If a specific kind of material relation exists between the premises and the conclusion of a sound argument, then the premises cannot prove the truth of the conclusion if they are themselves to be true. In order to show exactly what this relation is, first an important distinction must be made between two essentially different types of propositions based precisely upon their material content.

The difference between contingent and essentially necessary propositions: contingent propositions:

The word "contingent" may apply either to the existence of a thing or to the essence of a thing. In the propositions, "Mr. Smith is wearing a blue shirt," the affirmed state of fact is contingent since Mr. Smith need not wear a blue shirt; it is not necessary that he wear a shirt of some particular color. He might very well wear a shirt of a different color instead of blue or even no shirt at all. The proposition is contingent since the state of fact it affirms need not be and could not be otherwise. Of course Mr. Smith's existence is also contingent; he does not necessarily exist. What is of interest and importance for the problem under consideration is not contingency as applied to the existence of a thing, but contingency when it refers to the essence of a thing. The state of fact affirmed in the proposition presented above is contingent since it does not belong necessarily to the essence of Mr. Smith that he wear a blue shirt. It does not belong necessarily to the essence of Mr. Smith that he wear a shirt of some particular color and therefore the state of fact that he is wearing a blue shirt is contingent. It need not be and could be otherwise.

Since the state of fact is contingent, the proposition which affirms this state of fact can also be called contingent, and if the proposition is true, its truth can be called a contingent truth. If it is said that in a proposition the predicate need not belong to the subject, properly speaking what is meant is

that what is referred to by the predicate concept of the proposition does not belong necessarily to that which is referred to by the subject concept. The referent of the subject concept could lack the predicate and have a different predicate instead.

The nature of contingent states of fact will perhaps become more apparent if one contemplates the nature of the states of fact affirmed in each of the following two propositions:

- 1) Some chairs are made of wood.
- 2) All the women in the audience are unmarried.

The state of fact affirmed in each proposition is contingent. A chair, to be a chair, need not be made of wood and it is possible that it be made from some other material like for example plastic or some kind of metal. Likewise, the women in the audience need not be unmarried; some or even all of them could have been married. These states of fact are contingent since one element of the state of fact (what is referred to by the predicate) does not belong necessarily to the essence of the other element (what is referred to by the subject). In this way, one could say that the predicate does not belong to the subject necessarily and that therefore the proposition is contingent. If the proposition is true, its truth is only contingent.

Essentially necessary propositions :

When a proposition is necessary, its necessity may consist in a specific kind of logical relation between the subject concept and the predicate concept, or its necessity may consist in the

fact that what is referred to by the predicate concept belongs necessarily to the essence of what is referred to by the subject concept. In the former case the predicate concept affirms either partially or completely what is already affirmed by the subject concept. It is partial for example in the proposition "All beachelors are unmarried," since being unmarried makes up only part of the concept bachelor; bachelors are also male. In the proposition, "All computers are computers" the predicate merely repeats completely what is found in the subject. The predicate affirms exactly what the subject affirms. These propositions, which can be called analytic since the predicate does not affirm something different from the subject, must necessarily be true due to this relation between the subject concept and the predicate concept.²¹

However, in the case of propositions which are essentially necessary, the predicate refers to something different than what is referred to by the subject -- for which reason these propositions can be called synthetic as opposed to analytic -- and therefore their necessity lies not in any logical relation between the subject concept and the predicate concept, but in the fact that what is referred to by the predicate concept belongs necessarily to the essence of what is referred to by the subject concept. The predicate belongs necessarily to the subject even though the

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The term analytic is here used in the sense in which it applies to identity statements and to cases in which the predicate is part of what is included in the subject concept.

predicate is different from the subject. The proposition is necessary because the state of fact it asserts is necessary. What is referred to by the subject provides a reason for the predication of what is referred to by the predicate. Further, the predicate belongs to the subject necessarily. One element of the state of fact (what is referred to by the predicate) belongs to the essence of the other element (what is referred to by the subject) necessarily. This necessity can therefore be called an essential necessity, which differs from analytic necessity and from contingent states of fact and propositions.²² This difference will become clearer if one compares the contingent propositions examined above with the following two essentially necessary propositions.

- 1) A square necessarily has diagonals equal in length.
- 2) Color must necessarily be extended in at least two dimensions.

The states of fact asserted by each proposition are essentially necessary. It belongs necessarily to the essence of a square that it have diagonals equal in length, just as it belongs necessarily to the essence of color that it be extended in two dimensions. Each of the asserted states of fact cannot be otherwise; it is impossible that the state of fact be different. In this way one can say that the proposition is essentially necessary since the state of fact is

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It should perhaps be also pointed out that all analytic propositions presuppose propositions which are essentially necessary. They presuppose certain truths on the general nature of being, like for example, the law of identity, and the law of non-contradiction. They also presuppose certain truths regarding the nature of truth, necessity, concepts, propositions, etc.

essentially necessary; or simply that the predicate belongs necessarily to the subject.²³

The difference in the truth of contingent and necessary propositions: particular instances and propositions:

The difference between contingent and essentially necessary propositions points to a difference in the conditions under which each of them can be true. Of course each of them is true only if and whenever what the proposition affirms corresponds to reality. However, what each proposition corresponds to will of course be different, and the conditions which must be fulfilled order for contingent propositions to be true are not the same conditions which must be fulfilled in order for essentially necessary propositions to be true. These differences must be explained in detail for it is with these differences that the probative force of the premises in the syllogism depend.

In speaking of conditions for the truth of propositions, more specifically what is meant here in this context is the dependency which each proposition has upon particular existing instances of what is affirmed by the proposition. There are at least three different relations of dependency which the truth of a proposition

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Because contingency may refer either to a thing's existence or to its essence, a proposition may refer to an object which has a contingent existence yet which has certain necessary features in its essence. This color brown need not exist but certainly the fact that it is here and now necessarily extended means that the state of fact grounded in this brown is a necessary state of fact. The term "essentially necessary" proposition will be used to refer only to propositions affirming a necessary state of fact which has no contingency either in existence or essence.

may in principle have on particular instances or examples. However, before these three possible relations are examined, the following difference between contingent and necessary propositions should be stressed for it will be crucial in deciding which of the three relations apply to contingent propositions and which of them apply to essentially necessary propositions.

It was mentioned before that in speaking of a contingent proposition, what was meant strictly speaking is that the state of fact which the proposition affirms is contingent. The state of fact is contingent because one element of the state of fact does not belong to the other element necessarily. The proposition which asserts a contingent state of fact is also contingent. The question, however, is in what sense one can speak of the truth of a contingent proposition as also being contingent. A true contingent proposition is certainly contingent. The state of fact could change. Thus, in the examples of contingent propositions quoted above, it is possible that there be no chairs made of wood; or some of the women in the audience may become married or married women may enter the audience. Therefore, the state of fact that some chairs are made of wood is contingent and the proposition which affirms this state of fact can for this reason be called contingently true. But does the proposition which is contingently true become false if the contingent state of fact which it affirms changes? To be sure, the proposition need not ever have been true, for the state of fact need never have obtained. But can a contingent proposition once it is true ever become false? It would seem that it cannot for the following reason.

Suppose someone asserts that some of the chairs in the room in which he is standing are made of wood; and suppose that he is correct. Suppose further that after he has made the true assertion all of the wooden chairs in the room are removed. If the same person were to now assert that some of the chairs in the room in which he is standing are made of wood, then what he asserted would of course be false; for it is now the case that no chair in the room is made of wood. But is the proposition which he first asserted the same proposition he asserted later? Not if there was the element of time included in each of the two assertions. Given this element of time one proposition can only be true or false, and, once it is either, its truth or falsity cannot change. Without this element of time the same proposition would be true and false; for one could not claim that it is at one time true and at another time false. Since a proposition cannot be both true and false, it would seem that the truth of a contingent proposition must be described in the following way.

Although one may speak of a contingent state of fact as changing, one cannot say that the truth of a contingent proposition can change. A contingent proposition cannot at one time be true and at another time be false. Once it is true then it remains forever true, even though a different state of fact may at a later time obtain. The contingently true proposition is still not necessarily true for the state of fact to which it corresponds is still contingent. The contingent proposition need never have been true because the state of fact need never have been.

The situation is quite different in the case of an essentially necessary proposition. The state of fact with which the proposition corresponds cannot change, and therefore there is no question that an essentially necessary proposition is forever true. It is always true because of the essential necessity of the state of fact.²⁴

This difference between contingent and essentially necessary propositions should be kept in mind during the proceeding discussion of the relation between the truth of propositions and the existence of particular instances of what it affirms.

The first relation of dependency; the actual existence of particular instances:

Some propositions not only assert that the predicate belongs to the subject but also imply that instances of the subject actually exist. The proposition, "Men are wearing blue shirts," implies that men actually exist. The same is true of other propositions looked at previously. The proposition, "Some chairs are made of wood," implies that chairs actually exist; and the proposition, "All the women in the audience are unmarried" implies that there are actually women in the audience. Certainly any proposition which implies that particular instances actually exist cannot be true unless there are actually existing instances.²⁵ This first relation of dependency is

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The meaning of essential necessity should not be confused with the fact that a proposition which corresponds with reality must be true, and the fact that it must then be true since a proposition cannot be true and false.

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The question whether or not the non-existence of particular instances entails the falsity of a proposition which implies that particular instances exist is a question very difficult to fully answer, and will not be investigated.

is sufficiently explained by saying that if a proposition implies that particular instances of what it asserts do in fact exist, then the proposition cannot be true unless there are existing instances.

The presence of conformity between the Proposition and particular instances:

Another way the truth of a proposition depends upon particular instances is that unless each particular instance conforms to the way the proposition asserts they will be -- if they exist -- the proposition cannot be true. In the proposition, "Men are wearing blue shirts," unless each man is wearing a blue shirt the proposition is not true. This relation of dependency is quite distinct from the first relation. This second relation of dependency exists regardless of whether or not a proposition implies that particular instances exist. Thus, in the proposition, "Moral values can only be embodied in persons," although the proposition does not imply that there are any existing persons possessing a moral value, it is still quite true to say each being which possesses a moral value must be a person, otherwise the proposition is false. But the proposition is not false if no persons bearing moral values exist.

This second relation of dependency can therefore be framed in the form of a conditional proposition by saying that all particular instances must be in conformity with the proposition, if they exist. It is clear that this second relation is different from the first relation introduced above. The first relation referred to the fact that a proposition which implies the existence of particular instances can only be true if particular instances

actually exist, but the fact that they exist does not mean they are true. The particulars must also conform to the way the proposition asserts they will be, and this second relation applies whether or not the proposition also implies that particular instances exist.

This is further shown in the fact that one can take out from a proposition its implication of the existence of particulars, yet, this second relation of dependency nevertheless still remains. For example, one of the propositions quoted above can be reformulated into the conditional, "If men exist, men are wearing blue shirts," which allows one to prescind from the question of whether or not men actually exist. Nevertheless, the conformity of the proposition with particular instances, should they exist, is still a necessary requirement for the truth of the proposition. Therefore, any particular instance, whether possible or real, must conform to the proposition if the proposition is to be true. If there are particular instances, unless they conform to what is asserted by the proposition, the proposition cannot be true.

Some propositions are true because of the way particulars are, while other propositions are not:

The third relation of dependency a proposition may have on particular instances is much more difficult to comprehend for it can easily be confused with either of the first two relations already mentioned. In order to avoid as much confusion as possible, it should be immediately pointed out that this third relation of dependency is characteristic only and always of contingent propositions and is never present in essentially necessary

propositions. This third relation of dependency can be described in the following way. A proposition is dependent on particular instances when the proposition is true because the particular instances exist in the manner claimed by the proposition. One can explain and demonstrate this according to the following procedure. Since this third relation of dependency is always found in contingent propositions and never in propositions which are essentially necessary, by comparing these two kinds of propositions this third relation should become apparent. These two kinds of propositions will be compared in a specific way. An example of each of these two kinds of propositions will be put in a form such that each of them has the same relation of dependency on particulars which the other has except for this third relation. In this way, the third relation of dependency will be clearly manifested.

In the proposition, "Men are wearing blue shirts, if men exist," the implication of existence has been taken out of the proposition. Therefore, the first possible relation of dependency the truth of a proposition can have on particular existing instances is not present, although the second relation of dependency still remains. In the proposition, "Moral values can only be embodied in persons," there is no implication that actual instances exist although the second relation of dependency is still present. The two propositions are alike in that the first relation of dependency is absent in each, while the second relation of dependency is present in each. Yet, the contingent proposition is nevertheless dependent on particulars in a way the

essentially necessary proposition is not. It is possible to say of the necessary proposition that it is true regardless of whether or not any particular instances exist. It is true even if no particular instance ever existed or will ever exist. There is a freedom from particular instances which is not present in the case of the contingent proposition. The contingent proposition quoted above does not imply that any particular instances actually exist, yet, one cannot say of the contingent proposition that it is true even if no particular instances exist, have existed, or will ever exist. Unlike the essentially necessary proposition the particular instances are needed (even if they are not implied) to establish the truth of the proposition; and the proposition is true because the particular instances are the way the proposition asserts them to be. The opposite is the case with essentially necessary propositions. The particular instances are the way they are because of the truth of the essentially necessary proposition.

The presence or absence of this third relation of dependency on particular instances goes back to the fundamental difference between contingent and essentially necessary propositions or states of fact. In a contingent proposition, since the predicate need not belong to the subject, the proposition is true not only unless but because the particulars are the way the proposition asserts them to be. In an essentially necessary proposition, since the predicate belongs necessarily to the essence of the subject any particular instance possessing

the essence talked about in the proposition must also possess the predicate. This means that the proposition can be true even if no particular instances exist, and if they exist they must possess the predicate since the proposition is necessarily true. The nature of this third relation of dependency will become even clearer when one examines the following question. It is the question regarding whether or not all contingent propositions imply the existence of particular instances, and if this is ever so with essentially necessary propositions. This question will now be answered in the context of the more general question concerning the presence or absence of either of these three relations of dependency on particular instances with respect to contingent and essentially necessary propositions.

The dependency on particular instances; contingent and essentially necessary propositions:

A contingent proposition may but need not imply that particular instances actually exist. The contingent proposition, "Men are wearing blue shirts" certainly does, but the proposition framed in the form of a hypothetical does not. The proposition, "Men are wearing blue shirts, if men exist," is still contingent although the implication of existence has been taken away. Of course, the latter proposition is a hypothetical and not a categorical proposition, yet, it is nevertheless still contingent. One can conclude that all categorical propositions which are contingent imply the existence of particular instances.

Essentially necessary propositions never imply the existence of particular instances. The predication is always of what belongs to the subject and therefore the existence of the subject is not implied.²⁶

It may be ambiguous whether or not a proposition implies that particular instances actually exist. For example, in the proposition, "All colors are necessarily extended in two dimensions," it is unclear whether or not the proposition is referring to the fact that all existing colors are extended, or to the fact that a color must be extended in two dimensions in order to exist. In the former case, since there is an implication of existence, particular instances must exist otherwise the proposition cannot be true. In the latter case, since there is no implication of existence, no particulars need exist in order for the proposition to be true.

Regarding the second relation of dependency, the truth of a proposition can have on particular instances, all propositions have such a dependency. The proposition, whether it be contingent or necessary, can only be true if the particular instances conform to what is asserted by the proposition. One could say that the proposition could not be true if there were counter-examples. In the case of essentially necessary propositions, the particular instances must conform because of the necessary

²⁶The exception to this would be the proposition which asserted that existence belonged necessarily to the essence of a being.

truth of the proposition, while in the case of contingent propositions, there is no necessity that the particular instances conform to what the proposition asserts. This means that the possibility of counter-examples is ruled out in the case of essentially necessary propositions. A counter-example is impossible. This latter difference points to the third relation of dependency which is always present in contingent propositions but never present in essentially necessary propositions. Still, the second relation of dependency is present in both, for if particular instances exist, then they must conform with the proposition, otherwise the proposition is false.

Contingent categorical propositions and essentially necessary propositions:

Since the general concern of this paper is with categorical syllogisms and therefore categorical propositions, a few remarks should now be made regarding the three relations of dependency as they apply to categorical propositions both contingent and necessary.

A contingent categorical proposition possesses all three of the relations of dependency which the truth of a proposition may have on particular instances. In order for the proposition to be true, particular instances must exist, they must conform to what the proposition asserts, and it is because of the way the particular instances are that the proposition is true. Thus, in the contingent categorical proposition, "All women have brown hair," its truth depends first on there existing women, secondly

in that unless they have brown hair, the proposition cannot be true, and thirdly if the proposition is true, it is true because the particular instances conform to what is asserted by the proposition.

An essentially necessary categorical proposition does not possess the first or the third relation of dependency on particular instances. It does possess the second, for if particular instances do exist then they must correspond to what the proposition asserts. In the essentially necessary contingent proposition, "The square necessarily has diagonals equal in length," there need not be existing instances of squares in order for the proposition to be true. The proposition is true even if no particular instances exist. This means there is no implication that particular instances exist, nor is the proposition true because the particular instances are the way the proposition asserts them to be. However, one can still say that if particular instances do exist then they must conform to what is asserted by the proposition, although their lack of conformity is impossible because of the essential necessity of the proposition.

The question which must now be discussed is what significance these results have with respect to the investigation into the difference between sound syllogisms and proofs.

Sound categorical syllogisms and contingent categorical propositions:

When premises of a categorical syllogism, even a sound categorical syllogism, are contingent propositions then the

truth of the conclusion cannot be proven by them. Contingently true propositions cannot prove the truth of the conclusion, even if the syllogism is valid. The fact that they are contingent means they have no probative force. The contingency of the premises precludes the possibility that by their truth and the validity of the argument, the truth of the conclusion can be proven.²⁷ The reason for this can be explained in the following way using the information which has been presented up to this point.

If the premises of a categorical syllogism are contingent, their truth depends on the existence of particulars in the three ways which were explained above. What is presently of significance is the third relation described. It was that contingent propositions are true because the particulars are the way the proposition asserts them to be. In other words, since the predicate does not belong necessarily to the essence of the subject, the proposition is true because each instance of the subject happens to have what is referred to by the predicate. The particular instances need not have the predicate since the proposition is only contingent. In this sense it is the fact that they have the predicate which is the reason for the truth of the proposition. It is therefore quite appropriate to say that a particular instance of the subject happens to have the predicate, since the predicate need not belong to the subject.

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See Aristotle, Posterior Analytics, Book I, Chapter Chapter 6, 75a, 18-22.

Therefore the particular instance having the predicate is prior to the truth of the proposition and is something upon which the truth of the proposition depends and follows from.

In the case of a categorical syllogism containing premises which are contingent like for example,

All the people in the room are married.
All the university faculty are in the room.
 All the university faculty are married.

each of the premises are contingent, which means they are true because each particular instance happens to have what the predicate affirms. It is possible that some people in the room be unmarried, and not all of the university faculty need be in the room. Each premise would be true if each person in the room is married and if the entire university faculty are in the room.

The first important point which must be recognized is that the particular instances upon which the truth of each premise depends are at least some of the particular instances referred to by the conclusion. This of course presupposes that the argument is valid. This presupposition of the validity only guarantees that the particular instances referred to by the conclusion are the same particular instances referred to by the premises. The presupposition of validity can be further explained the following way.

The particular instances referred to by the conclusion are at least some of the particular instances upon which the truth of the major premise depends, given the truth of the minor premise. In other words, if all the university faculty are in the

room, then each of them must be married, otherwise the major premise cannot be true.

In a similar way, the truth of the minor premise depends upon the particular instances referred to by the conclusion provided that the major premise is true. If all the people in the room are married, each faculty member must be married, otherwise the minor premise cannot be true.

The particular instances upon which the truth of each premise depends are at least some of the particular instances referred to by the conclusion, and in this way the truth of each premise presupposes the truth of the conclusion. Because at least some of the particular instances are the same, any uncertainty regarding the truth of the conclusion extends to the premises. The premises cannot very well prove the truth of the conclusion if they presuppose the truth of the conclusion for their own truth. Without the truth of the conclusion they themselves cannot be true since they have at least some particular instances in common.

It represents no objection to these findings to claim that one premise, whether it be the major or the minor, presupposes the truth of the conclusion only if the other premise is true. The truth of the other premise serves only to guarantee that the particular instances which the truth of the premise would follow from are at least some of the particular instances referred to by the conclusion. The presupposition is still one dealing with the material content of the premises even though the validity of the

syllogism may be presupposed. Each premise presupposes the truth of the conclusion not simply because the argument is valid. They each presuppose the truth of the conclusion because, in being contingent propositions, their truth depends on the fact that each particular instance of the subject happens to have the predicate. That each particular instance has the predicate is in some sense prior to the truth of the proposition. Therefore, if at least some of the particular instances upon which the truth of a proposition depends are also referred to by another proposition, the first proposition cannot prove the truth of the second proposition, since the truth of the second proposition is presupposed for the truth of the first proposition. This can be illustrated in a less complex way than the argument form of a categorical syllogism.

From the proposition, "All chairs are brown," one can argue that, "Some chairs are brown." This immediate argument form is certainly valid. However, since the premise of the argument is only contingent, its truth follows from each particular instance (each chair) having the predicate (brown). The conclusion of the argument refers to at least some of the instances which the truth of the premise depends upon, and therefore the truth of the conclusion is presupposed by the truth of the premise. Since the truth of the proposition, "All chairs are brown," depends upon each particular instance of a chair in fact being brown, the truth of the proposition presupposes already that some of the particular instances of chairs are brown.

This third relation of dependency which results from the fact that the proposition is contingent is present even in more complex argument forms such as the categorical syllogism. The truth of the conclusion is presupposed by each premise, if the premises are contingent, for the particular instances referred to by the conclusion are at least some of the particular instances referred to by the premises and which the truth of the premises would depend upon. The true premises cannot prove the truth of the conclusion, for the truth of the conclusion is presupposed by the truth of the premises since they refer to some of the same particular instances on which their truth depends.

Although these remarks may become clearer by showing how this third relation of dependency on particular instances is absent in necessary propositions, and how a categorical syllogism containing premises which are essentially necessary can actually prove the truth of the conclusion, one must first examine whether or not the relation of dependency which the premises have on the conclusion amounts to the fallacy of petitio principii.

The Fallacy of Petitio Principii:

Fallacies are errors or mistakes in reasoning, and they have generally been classified under the headings, "formal" and "informal". A few remarks must therefore be made regarding the meaning of these two terms.

Formal and informal fallacies:

Formal fallacies are errors in reasoning that affect the formal relation of validity between the premises and the conclusion. With respect to the syllogism, an example of a formal fallacy is that of "negative premises." This mistake refers to the fact that any categorical syllogism with two premises that are each negative must be invalid and cannot be valid. The premises and also the conclusion may by chance be true, but the argument is necessarily invalid.

Informal fallacies, however, do not affect the formal relation of validity, but instead affect the truth of the premises of the argument. An argument can be formally valid yet commit an informal fallacy. The consideration of the two examples may illustrate this point.

In the informal fallacy of ad verecundum (appeal to authority) or the informal fallacy of ad populum (appeal to the majority), an error occurs because of the falsity of one of the premises in the argument. For example, an argument may have as a conclusion, "Murder is morally wrong," and a premise, "Most people think murder is morally wrong." The missing premise of this

enthymeme²⁸ which would make it valid is the premise, "What most people think is true is true." However, this latter premise is false and can, by its material content, be classified as the fallacy which occurs when the truth of a proposition is said to follow from the fact that a majority of people think it is true; or simply the fallacy of appeal to the majority.

The same is true of the fallacy of ad verecundum. In this case, the false premise would assert that a person who was an authority in one particular field was also an authority in another unrelated field.

The numerous informal fallacies are classified according to the material content of the proposition which is used as a premise to establish the validity of the argument.

The question now presents itself whether or not the petitio principii fallacy affects the validity of the argument, or the truth of the premises; or perhaps whether or not it affects some other feature of the argument. If the fallacy of petitio principii affects the validity of the argument then it would be a formal fallacy; and it would follow that no valid argument could commit this fallacy and retain its validity. If, on the other hand, the petitio principii affects the truth of one of the premises, a valid argument could commit this fallacy although the argument could never be sound. Another alternative

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An enthymeme is an argument in which one of the premises or the conclusion is missing. The argument can be valid or invalid.

still remains in that perhaps even a sound argument can be a petitio principii. What is this fallacy, and what is it exactly that occurs when this fallacy is committed?

Circularity in arguments; begging the question²⁹:

A begging of the question represents a certain failure to demonstrate or prove the proposition which is in need of proof.³⁰ Aristotle writes that, "....since we get to know some things naturally through themselves and other things by means of something else....whenever a man tries to prove what is not self-evident by means of itself, then he begs the original question. This may be done by assuming what is in question at once..."³¹ Since a proposition which was self-evident would not require any proof, no begging of the question can occur. The question now is in what ways a proposition which is not self-evident may be offered as proof of itself.

This may first be done simply by repeating the conclusion of an argument as a premise within the same argument. With respect to this first way, Aristotle says that, "this is easily detected when put in so many words; but it is more apt to escape detection in the case of different terms, or a term and an expression that mean the same thing."³² Thus, according to this

²⁹The terms "begging the question" and "petitio principii" should be taken in this work to be synonymous.

³⁰Aristotle; Prior analytics, Book II, Chapter 16 64b, 28-29.

³¹Ibid., 64b, 34-39.

³²Aristotle; Topics, Book VII, Chapter 13, 162b, 34-163a.

description, the following argument would beg the question or commit the fallacy of petitio principii:

What is handed down to you by your parents is an hereditary factor.

The color of one's eyes is handed down to you by your parents.

The color of one's eyes is an hereditary factor.³³

If a person who asked for proof of this conclusion were offered this syllogism, he might quite readily admit the soundness of the argument, but in all likelihood would also respond that the conclusion was not really proven; for the minor premise and the conclusion are identical. Since by "hereditary factor" is meant "a characteristic handed down to you by your parents," the minor premise asserts the same thing as the conclusion. They each affirm the same state of fact and are the same proposition, although their linguistic form is of course different. The minor premise is a different sentence than the conclusion, but they have the same meaning. The conclusion appears to have been begged for it is not self-evident and it is offered as proof of itself.³⁴ One problem which exists with the claim that this argument begs the question can be put in the form of the following objection: since two of the terms used in the argument are really synonymous one does not even have a syllogism, though it may appear so on the level of linguistic form. Therefore, according to the difference

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This example is used by Kreyche, Logic for Undergraduates (New York: Holt, Rinehart & Winston, 1961) p. 280.

³⁴

Aristotle; Prior analytics, Book II, Chapter 16, 65a, 10-16 and 65a, 19-25.

in words which are used, what is presented certainly appears to be a syllogism but it is not since it does not have three terms each used twice, etc.³⁵ The argument which was presented above would not be a syllogism, but a kind of tautology on the level of argument.³⁶ The truth of the conclusion follows necessarily given the truth of the premises, yet because one premise is merely analytic, the truth of the conclusion follows in part from the logical necessity proper to all analytic propositions.

It must be granted that, according to the description of a categorical syllogism presented in Chapter One, the argument presented above would not be a categorical syllogism, since it does not contain three terms. What kind of an argument it exactly is is a question which cannot be fully analyzed in the present work. In any case, the argument is certainly not a proof.

A second way an argument may beg the question can be described in the following manner. Consider the case in which a person presents an argument which is sound, but is then questioned by a second person as to the evidence for the truth of one of the premises, for example, the major premise. The person who presented the argument has been asked to justify

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This difficulty concerning how a categorical syllogism can on the one hand have three terms each used twice, but on the other sometimes commit a petitio principii by the conclusion merely being repeated as a premise is overlooked by Freeman, Logic: The Art of Reasoning (New York: David McKay Co., Inc. 1967. Compare p. 145 with p. 290.

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The possibility of a tautology on the level of argument was suggested to me by Dr. Josef Seifert.

the truth of one of the premises. Suppose he were now to present a second argument in support of the truth of the major premise of the first argument, and in this second argument the conclusion of the first argument appears as a premise. This is precisely what occurs in the following arguments.³⁷

- 1) To accept the authority of Genesis is to accept a myth.
 To believe in the doctrine of creation is to accept the authority of Genesis.

 To believe in the doctrine of Creation is to accept a myth.
- 2) To believe in the doctrine of creation is to accept a myth.
 To accept the authority of Genesis is to believe in the doctrine of creation.

 To accept the authority of Genesis is to accept a myth.

The conclusion of the first argument is used as the major premise in the second argument in order to attempt to prove the truth of the major premise of the first argument. The major premise of the first argument is the conclusion of the second argument, and follows necessarily from the premises. In fact both syllogisms are sound, but there is no proof involved. There is instead a circularity existing between the premises and the conclusions of both arguments taken together. A petitio principii is present since the conclusion is used as evidence for its own truth, even though this occurs indirectly in the form of two categorical syllogisms. The two arguments are each categorical syllogisms

so the objection which was raised above does not in this case apply.

It is important to understand that the petitio principii fallacy, at least insofar as it has been explained up to this point, does not affect either the validity of the argument or the truth of the premises. Therefore, a sound argument may commit this "mistake" in reasoning. The circularity present in a petitio principii affects the possibility of the conclusion being proven by the premises.

A new and different sense of a petitio principii is present in the case when a premise is known through a knowledge of the conclusion, although it may not be that the only way the premise could have been known is by means of the conclusion. Suppose then that a person is presented with the following argument:

All of the people in the room are married.
All the University faculty are in the room.
 All the University faculty are married.

Suppose further that by chance he comes to know that all of the people in the room are married by asking each of the faculty members if they are married, as well as the other persons in the room. In this case, the major premise is known by means of the conclusion and a circularity is created between the conclusion as following from the premises and how one of the premises is known. This does not mean that one of the premises could only be known by means of the conclusion, but only that in this case a premise cannot be used by a person as evidence for a conclusion

since it was by means of the conclusion that he knew the premise.

These are two ways in which a conclusion may be used as evidence for the truth of one of the premises. What is presently at issue is whether or not the dependency which exists between the premises and the conclusion of a categorical syllogism when the propositions are contingent amounts to a begging of the question. The possibility certainly exists since the propositions are contingent and not self-evident as they would be if they were essentially necessary. However, it is not as if the conclusion actually appears as a premise in a way which would make the propositions identical, nor is it necessary that the conclusion actually be offered as evidence for the truth of either one of the premises. What is in fact the case is that the premises presuppose the truth of the conclusion in the way it was explained above. The question then is whether or not this presupposition amounts to the conclusion being an implicit premise of the syllogism such that it is a case of an attempt to prove that which is not self-evident by means of itself.

Presuppositions and arguments:

Insofar as various laws such as the law of non-contradiction and the law of identity are presupposed by everything which in any sense "is," all arguments presuppose them. The concepts found in the propositions constituting the argument, the propositions themselves, their truth, the validity of the argument, etc., all

presuppose the law of non-contradiction and the law of identity. However, these presuppositions which are present even if the syllogism is an actual proof do not appear as premises in the proof itself. No one would claim that there is a petitio principii simply because there is a presupposition to the proof. But what if that which is presupposed is the conclusion, as it is in the example under discussion? The argument certainly cannot be a proof, but from this it does not follow that it is a petitio principii.

In the case of a sound categorical syllogism with premises that are contingent, the soundness of the syllogism presupposes the truth of the conclusion, not in the trivial sense that it must be true, as must also the premises, if the syllogism is to be sound; but in the sense that the truth of each of the premises presupposes the truth of the conclusion in a way that any uncertainty about the conclusion extends also to the premises. The truth of the premises follows from the truth of the conclusion in the sense that the truth of the contingent propositions follows because the particular instances possess what is affirmed by the predicate, and at least some of these same particular instances are referred to by the conclusion. The truth of the conclusion is therefore in this way presupposed by the premises. The conclusion, in its capacity as a presupposition for the soundness of the syllogism, since its truth is presupposed for the truth of the premises, therefore contributes to the truth of the premises in particular and to the soundness of the syllogism in general. The

conclusion does not appear explicitly as a premise in the syllogism although its truth is presupposed by each of the premises; and therefore when the true premises are offered as evidence for the conclusion it is difficult not to conclude that there is an attempt to prove the truth of the conclusion by means of itself.

For example, consider that when a person is presented with a valid syllogism this person asks for proof of the fact that it is valid. Suppose further that the person who presented the argument offers a second syllogism of the same form with a conclusion affirming the validity of the first syllogism. He would undoubtedly commit a petitio principii even though the conclusion does not appear explicitly as a premise in the syllogism. The truth of the conclusion is nevertheless still presupposed, but not for the actual truth of either of the premises. It is rather that the validity of the form of the syllogism is asserted by the conclusion of the argument having the same valid form. The conclusion is in this sense an implicit premise in the syllogism, for its truth is presupposed in the very attempt to prove its truth.

The same appears true in the case of a syllogism with contingent premises. The conclusion does not appear as an actual premise in the argument, but there is a dependency of the truth of the premises on the truth of the conclusion. Any uncertainty about the truth of the conclusion extends also to the premises. This would seem to mean that the conclusion is an implicit

premise in the syllogism, for its truth is presupposed in the attempt of the premises to prove its truth.

This seems to amount to the accusation that all categorical syllogisms with contingent propositions commit the fallacy of petitio principii. A final judgement can only be made if a more detailed explanation is given on the precise nature of a petitio principii. The conventional use of the term itself of course plays a decisive role. What certainly can be concluded is that the presupposition of the truth of the premises on the truth of the conclusion due to their contingent character represents no proof of the conclusion. What will now be shown is how a syllogism with premises that are essentially necessary is an actual proof of the truth of the conclusion.

An actual proof:

When the premises of a valid syllogism are essentially necessary propositions, the truth of the conclusion is proven by the truth of the premises by way of the valid form of the argument. Since the premises are essentially necessary, their truth does not follow from each particular instance having the predicate. The proposition does not even explicitly refer to any particular instances, and is true even if no particular instances exist or will ever exist. Because of the essential necessity of the proposition, if a particular instance does exist, then it must necessarily possess the predicate. The truth of the proposition, however, does not depend on the existence of any particular instances. In an essentially

necessary proposition, the object referred to by the subject concept may or may not be embodied in a particular instance; by a particular being having a contingent existence. If a particular contingent being did exist which possessed in its essence what was referred to by the essentially necessary proposition, then the being which has a contingent existence would nevertheless possess something in its essence necessarily. Thus, the essentially necessary proposition, "A mortal being is not the cause of its own existence," is true even if no mortal beings exist. If a mortal being does exist, then it will belong necessarily to its essence that it was not the cause of its own existence; it will belong necessarily to its mortality that it was not the cause of its own existence.

The following syllogism is an example of a proof:

A value response can be given only by a being capable of cognitive acts.

Love is a value response.

Love can only be given by a being capable of cognitive acts.

In this syllogism, the truth of each of the premises does not depend on the existence of any particular instances. The premises are true even if no beings capable of cognitive acts exist or if no beings giving the value response of love exist; for the premises refer to the nature or essence of love and to the essence of a value response. Their truth does not follow from the fact that particular instances have what is affirmed by the predicate as it would if the premises were contingent.

Thus, in this syllogism the truth of each of the premises

does not depend on the truth of the conclusion as it did in the case of a syllogism with contingent premises. The truth of the conclusion is instead proven by the truth of the premises; from their truth the truth of the conclusion necessarily follows and is itself essentially necessary since its truth was proven by premises which were themselves essentially necessary.

Proofs and sound arguments:

The lack of probative force in categorical syllogisms which are constituted by contingent propositions may be described in the following manner. When in a proposition, the predicate does not belong necessarily to the subject, the fact that it does belong to the subject will depend upon the fact that each instance of what it affirms in fact has what the predicate refers to. However, the conclusion of a valid categorical syllogism with contingent premises refers to at least some of the same instances on which the truth of each of the premises depends. For this reason, any uncertainty about the truth of the conclusion must extend also to the premises. Furthermore, in this way, the truth of the premises need the truth of the conclusion for their own truth; they depend upon the truth of the conclusion. The premises, therefore, cannot by their truth prove the truth of the conclusion since the truth of the conclusion would already be presupposed if they were true.

However, in the case of a categorical syllogism constituted by essentially necessary propositions no such dependency between the premises and the conclusion exists. Since the predicate of

the proposition belongs to the subject necessarily that which makes for the truth of the proposition is entirely different with respect to each of the premises and the conclusion. Using the example of a proof just presented above, it is because of the very nature of a value response that it presupposes a cognitive act; the cognitive act by which the value is apprehended. Similarly it is because of the essence of what love is that makes for its being a value response. In each of these cases the predicate is intelligibly grounded in the nature of the subject, and therefore their truth does not follow from the fact that love presupposes a cognitive act. The distinctness of each of the affirmed states of fact does not exist in the case of contingent propositions. When the latter comprise a categorical syllogism, the states of fact affirmed are more closely related due to the commonality existing between them since they refer to at least some of the same particular instances. Because the predicate is not intelligibly grounded in the subject, its truth follows from the fact that the particular instances have what the proposition affirms they have. But at least some of the same particular instances are referred to by both premises and the conclusion and therefore their truth is not distinct from each other like in the case of essentially necessary propositions.

This lack of distinctness in syllogisms comprised by contingent propositions may be reflected in the way the truth of the premises is known, just as the presence of this distinctness may be reflected in the way the truth of essentially necessary premises is known. But the question of this distinctness is ultimately a metaphysical one grounded in the nature of the state

of fact the proposition affirms, and this will always be reflected in the question of the probative force of the premises.³⁸

The problem of whether or not a conclusion can be proven in a way other than the premises being essentially necessary is a question which cannot be presently investigated.

CHAPTER FOUR

MILL AND PFÄNDER REEXAMINED

Since an investigation has been made into the issues and problems raised by Mill and Pfänder, their views can now be re-examined. Any praise or criticism which can be made against either of them must rest on a foundation established by looking at reality itself. It is insignificant to criticize an author merely for being inconsistent when one of his positions is the correct one; and it is ludicrous to praise a writer for being consistent when his entire system is not adequate to reality. This brief critique of Mill and Pfänder will therefore not consist of an attempt to merely point out internal inconsistencies within each of their positions. Instead, each of their positions will be compared and contrasted with the results achieved in Chapter Three.

On Mill:

Mill is certainly correct to the extent of revealing that some arguments represent no proof of the conclusion. Mill extended this to all arguments and is in this respect in error; for some arguments actually prove the truth of the conclusion. Further, the evidence which Mill furnishes in support of his accusation against the probative force of the syllogism is suspect for the following reasons.

Mill's explanation of validity, which is the foundation of his claim regarding the petitio principii, does not in fact support the kind of presupposition he claims exists between the conclusion and the major premise. There is certainly a sense in which the conclusion of a valid argument is contained in the premises for otherwise the argument would be invalid. In other words, since the conclusion of a valid argument cannot assert more than can be concluded with necessity from the premises one can say that the conclusion is found in the premises. This sense in which one says that the conclusion is contained in the premises certainly is not the same as when the conclusion of an argument is repeated as a premise which is one example of the petitio principii. Within the context of validity in categorical syllogisms the minor term appears in one of the premises and the major term appears in the other remaining premise. The minor term and the major term are united, so to speak, by means of the middle term, which allows one to conclude that the major term belongs to the minor terms, as long as the argument is valid. The conclusion of a valid argument is in this sense contained in both of the premises. However, Mill claims that in the syllogism he presented, the conclusion was presupposed in the major premise, but this does not follow from the meaning of validity. By the validity of the argument, the conclusion is contained in the premises taken together and not in only one of the premises. This is true whether the syllogism is a proof or not, and follows only from the validity of the argument. In a valid argument, the conclusion is as much contained in one premise as the other, though it is more correct

to speak of the conclusion contained in both premises together. Therefore, it is not possible for Mill to assert that the conclusion of the syllogism he presents is contained in the major premise based on the notion of validity. If the conclusion is contained in the major premise it must do so for some other reason which Mill does not mention in the passage quoted.

From this it also follows that Mill's accusation of a petitio principii cannot rest solely on the notion of validity. The sense in which the conclusion of a valid argument is contained in the premises does not at all constitute a begging of the question.

Two further points against Mill can also be made. The first concerns in what sense the conclusion of the syllogism he presents can be presupposed in the major premise. The conclusion cannot be contained in a way that would allow one to infer by way of immediate inference the truth of the conclusion from the truth of the premise. From the premise, "All men are mortal," it does not follow that, "Socrates is mortal." It must also be established that Socrates is a man. Without the latter included as a premise the conclusion cannot be inferred. Therefore, the conclusion is not contained in the major premise in the way it would if the conclusion could be inferred immediately. A second point which must be made is that it is clear that in some syllogisms the conclusion is not contained in the major premise. In the syllogism,

Some inhabitants of Texas are inhabitants of the
United States
All the inhabitants of Texas are inhabitants of
North America

Some inhabitants of the United States are
inhabitants of North America.

the conclusion is not presupposed by the major premise in the way Mill described. It is true that Mill uses in his attack only one particular form of a categorical syllogism, and it is clear that he would extend his accusation to every valid form of categorical syllogism. The above example would, therefore, show that the conclusion cannot be contained in the major premise in every case. Yet, could Mill say that it was included in the minor premise? Another difficulty which also presents itself is that Mill uses in the syllogism he presents singular propositions. A singular proposition refers to one particular instance. A final remark can be made regarding these problems.

It seems that Mill confuses two ways in which one can speak of the syllogism being a deductive argument proceeding from general to particular. The first sense would apply to the notion of validity in a way already explained. The conclusion of a valid argument, insofar as it does not go beyond the premises cannot possess more generality than the premises. A second sense is also one explained in detail and applies to the way a proposition may be said to depend on existing particular instances. The conclusion of a syllogism need not at all refer to a particular instance or some particular instances which are referred to by the major premise. Mill's use of singular propositions certainly suggests that he would be of the latter opinion.

This brings one to the question of whether or not the

presupposition which Mill had in mind between the conclusion and the major premise is the same as the one explained in Chapter Three regarding contingent propositions. If so, Mill is incorrect in maintaining that such a presupposition is present only between the conclusion and the major premise. Both premises would be involved. Furthermore, Mill would fail to see that his accusation does not apply to all syllogisms. This failure may rest on certain metaphysical beliefs which would preclude the possibility of essentially necessary states of fact.

A final judgement would involve a more extensive examination of his entire works which cannot presently be undertaken.

On Pfänder:

It is of course clear that the results of the investigation made into the question of the probative force of the syllogism come much closer to the views of Pfänder than they did in the case of Mill. Pfänder's distinction between a relationship of truth and a relationship of proof can certainly apply to arguments which are sound but which contain contingent propositions and proofs containing essentially necessary propositions. The distinction which Pfänder made between collective inductive universal judgements and proving deductive universal is similar though not identical to the distinction between contingent and necessary propositions. For Pfänder, an essentially necessary proposition would represent one kind of proving deductive universal judgement. Nevertheless, Pfänder would certainly agree that any syllogism containing

essentially necessary propositions was in fact a proof of the conclusion. However, the following criticism must be made not unrelated to this point.

Pfänder agrees with Mill that in some cases the conclusion of an argument is included in the more universal premise. To this extent the same criticism of Mill applies also to Pfänder. In Pfänder's example, the premise, "All the windows of the house are open," is said to include the conclusion, "The studio window of the house is open." Yet, if this were so, one would be able to conclude from the premise the truth of the conclusion; but this cannot be done. Pfänder's argument is not an immediate inference for the simple reason that there is no certainty that the house has a studio window. From the premise that all the windows of the house are open, one can conclude that some or at least one of the windows is open, but not that the studio window is open; for how is one to know that the house even has a studio window.

Since Pfänder claims that the conclusion is included in the premise, he also maintains that the truth of the premise presupposes the truth of the conclusion. From this it follows that there is no proof, which is the same conclusion that was reached regarding arguments with contingent premises. Apparently however, the explanation behind each view is different. When the premises are contingent the truth of the premises presupposes the truth of the conclusion because at least some of the particular instances on which the truth of each depends are the same. But this does not mean the conclusion is included in one of the premises. The

truth of each of the premises in a syllogism presuppose the truth of the conclusion whenever the premises are contingent. The conclusion is contained in the premises of any syllogism which is valid and this would apply to a relationship of proof. There is not a sense in which the conclusion is contained in only one premise of a syllogism. According to the validity of the syllogism, the conclusion is contained in the premises taken together, and if the premises are contingent, each of the premises presupposes the truth of the conclusion.

These preceding remarks must suffice as a critique of Pfänder and Mill. It is hoped that their insights have been separated from their errors, and that this entire investigation has done justice to reality; for the separation of truth from error is possible only if reality is the final judge.

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