CHAPTER V.

The Necessary and the A priori.

The concept of necessity is perhaps the most obscure of all that have been discussed so far. There are various approaches, different and even at times contradictory, to explaining this concept, of which we note a few. So far as the metaphysical status of necessity is concerned there are three views corresponding to the realistic, conceptualistic and nominalistic theories of the universal. The realistic theory of necessity is the theory that necessity belongs to objects and is not a property either of knowledge or of linguistic entities like sentences. According to the second theory necessity is a mode of belief or assertion but is not a property of the content of belief. According to the third theory necessity belongs to neither the object nor the belief but only to linguistic entities by virtue of linguistic conventions. So far as the logical nature of necessity is concerned there is also a wide divergence of views among logicians. The different properties of necessity have been captured in widely varying axiom-systems which contain 'necessity' or 'possibility' as undefined terms. In recent years so many different types of modal logic have been presented that to do justice even to the principal varieties
would need a whole volume. We shall, therefore, study only some very general problems concerning them which seem to us to be the most interesting from our point of view.

Analysis of the meaning of "Necessity".

"In common speech the word 'necessary' means much the same as 'indispensable', 'inevitable', 'without any possible alternative'."

Now necessity in this sense can be contrasted with (i) contingency or (ii) arbitrariness. Pap, for example, argues against Ayer thus: "Since if from "A is arbitrary" we are to infer that A is not necessary, "necessary" must in that context be a term of contrast to "arbitrary" and clearly "necessary" as predicated of propositions is contrasted not with "arbitrary" but with "contingent"."

Albert Hofstadter has tried to find a correlation between necessity and 'determination'. He of course denies that 'necessity' can be defined or analysed in terms

1 William Kneale, Are Necessary Truths true by convention? Clarity is not Enough, p. 133.

2 Semantics and Necessary Truth, p. 171.
of 'determination' for "the notion of determination is no clearer than the notion of necessity." 1 He however gives examples of determinations of various types - a given end determines the means, a cause determines its effects, rules or habits of language determine certain statements to be true, premises determine their conclusion, and so on. He then thinks that whenever we find 'determination' we may find 'necessity'.

Against Hofstadter we may offer an extensional definition of 'determination'. We may first note that if we fix the value of an argument, the value of the function for that argument is 'determined'. 2 But a function in the logical or mathematical sense of the term is merely a many-one relation which again has been defined as a class of ordered pairs; an ordered pair \((x, y)\), again, is defined as \(\{\{x\} , \{y\}\}\). Thus if we define 'determination' as function, or more strictly, as 'one-one relation', then we do not find any necessity where we find determination. As a matter of fact in extensional logic we do not need to consider any


2 'Of course the words "operation", "yielding", "determination" as here used are near-synonyms
connection, necessary or otherwise, between different entities. Thus we can join any two sentences by 'if-then', whether they are connected or not. For example, 'if $z^2 = 4$, then the sky is blue' is a significant (and true) sentence. So also in forming a class ordinarily we think, only things possessing some common property can be put together, but in extensional logic, we can form a class of any arbitrarily chosen objects --- say the class of 'cabbages, kings and shoes'. Similarly we can artificially construct a relation between any two elements, for a relation is nothing but a class of a certain type. Thus if we have a one-one relation, we can say that any element of the domain of the relation determines the element of its counter-domain and conversely. So 'determination' seems to admit of an extensional definition, whereas 'necessity' is incapable of being defined extensionally.

Now we discuss the different theories of necessity in detail.

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of "function". " (A. Church, Introduction to Mathematical Logic, Vol I, p. 15 fn 39).
Kant uses the modal terms 'possibility', 'actuality', and 'necessity' as adjectives of objects. What is possible, actual or necessary is not a proposition or a judgment (except as an actual state) but is an object. Kant explains his theory of modality in the chapter entitled 'The postulates of Empirical Thought' of the Critique of Pure Reason. He defines the possible, the actual and the necessary in three postulates as follows:

1. That which agrees with the formal conditions of experience, that is, with the conditions of intuition and of concepts, is possible.

2. That which is bound up with the material conditions of experience, that is, with sensation, is actual.

3. That which in its connection with the actual is determined in accordance with the universal condition of experience, is (that is, exists as) necessary.

Paton points out that Kant distinguishes between real and logical possibility, actuality and necessity.

1 A 216, B 265-66, Kemp-Smith, ibid, p. 239.
That is to say, they are concerned, as is indicated by the parenthesis in the Third Postulate, with possible, actual, and necessary existence, or with the possibility, actuality, and necessity, not of thoughts, but of objects. 1

But these modal characteristics of objects are not like ordinary properties. Ordinary properties are predicates whereas possibility and necessity like actuality, i.e. existence, are not predicates. 2 Possibility, actuality, and necessity are not characteristics of objects in the same sense, and they are not contained in the concept of the object considered only in itself .... These questions, Kant believes, are concerned, not with the content of the object, but with its relation to our mind or with the way in which we cognise it. 2 Thus according to Kant the modes are really the modes of assertion but are not determined in any way by the content or the properties inherent in it. This is why Kant's theory of modality is known as 'the formalistic theory'. One and the same content can be regarded as possible, actual and necessary.


Kant's theory of modality in general, and of necessity in particular, is different from the usual theory in two respects. (a) Kant rejects the rationalistic doctrine that we can know the possibility or even necessity of things by pure reason apart from experience. This is because Kant is explaining real possibility, actuality, and necessity by reference to experience. Possibility depends on the form of experience, actuality primarily on the matter of experience, and necessity on the combination of the two.  

(b) According to Kant all the categories of modality apply to all objects of experience, so that every object of experience is both possible, actual, and necessary. According to ordinary theory of modality what is necessary is also actual and possible, what is actual is also possible but may or may not be necessary, and what is possible may or may not be actual and necessary. This means that the class of possible objects is wider than the class of actual objects, and the class of actual objects is wider than the class of necessary objects. According to Kant however the three classes are coextensive. All and only actual objects are possible and also necessary. This does not however mean that, therefore, there is no distinction

1 Ibid, p. 338.
between the modes themselves. "The fact that the three categories of modality must apply to any and every object does not make it superfluous to distinguish these categories from one another; we might as well suggest that it is superfluous to distinguish any category from any other, since they must apply (if they are to be categories at all) to any and every object." 1

Necessity, according to Kant, is an adjective of objects, that is, is necessary existence. Now this necessary existence of objects can be known only if we have sense-experience. Still according to Kant the existence of the effects can be known to be necessary if the causes are given, but not conversely. "I think Kant's reason is that the cause makes the effect necessary, but not vice versa. Although the cause is no doubt necessary (for everything actual is necessary), it is not necessary quâ cause, but only quâ effect of something else." 2 From this it follows that substances cannot be necessary, that is, cannot have necessary existence, for as permanent, they cannot be the effect of anything." The criterion of necessity is therefore

1 Ibid, p. 340
the causal law .... and this is a law of experience and of experience alone. It applies only to the phenomenal world, and in the phenomenal world it applies only to the states of substances and not to the substances themselves. Real necessity is therefore not absolute, but hypothetical necessity. That is to say, we cannot by mere concepts, not even by the concept of 'God', know a priori that the object must exist; but by the aid of experience we can say that, granted that the cause is actual, the effect must exist. We can therefore affirm the necessary existence of objects by thought and without actual experience of these objects, but we can do so only if we have experience of their cause."

This shows that according to Kant necessity can be known relatively a priori, but not absolutely a priori. (See above p. 23 ff.).

(B) Hegel.

Hegel's doctrine of modality is based on a criticism of Kant's. According to Kant the categories of modality do not constitute the object. They express variations of subjective attitude towards the same unvarying

1 Ibid, pp. 363–64.
content. Thus although he uses the terms 'possible', 'actual' and 'necessary' as adjectives of objects still the modes are "only modes of judging, and not also three fresh structural principles of the phenomenal object-world. From this it should follow that the categories of modality constitute no advance on the modal judgment forms of formal logic. That is to say, their synthetic activity in cognition of an objective world, which is supposed to render them categories and so more than mere forms of judgments is little short of a sham .... He has conceived those categories as at once modes of the mind's activity and structural characters of the objects. This should imply that 'subject' and 'object' have no meaning save as correlated terms which emerge within an experience not in the last resort merely finite-centred. This position is idealist, even if Kant failed fully to realise it." 1 But along with this latent idealism of Kant there is a bias towards realism in his philosophy. "In fact when Kant equates the phenomenal world with 'possible experience', he seems to be merely generalising a finite thinker's view of himself and his world. But this is barely concealed

realism, and when Kant approaches the problem of modality it ceases to be concealed at all. The view that the difference between 'A may be B', 'A is B', and 'A must be B' is merely the difference between degrees of subjective certainty is open realism.¹

Hegel's theory of modality is an attempt at a reconstruction of the unsatisfactory theory of Kant. "Hegel absorbs the objective aspect of Kant's modal category (the possibility, actuality, and necessity which Kant has in effect reduced to mere degrees of subjective certainty) into the logic of Essence, where they appear as categories prefiguring Substance and Accident, Cause and Effect, and Reciprocity. On the other hand, Kant's modal categories qua functions of judgment are recast by Hegel as the phases of notional Judgment. But he places Assertoric before Problematic Judgment, reversing the Kantian order, which was a merely psychological and not a logical order. Moreover, in accordance with his treatment of the Judgment forms as logically more concrete i.e., as higher Dankbestimmungen than the Kantian categories in their objective aspects, Hegel reinterprets the subjectivity

¹ Ibid, p. 195.
of modal judgment, which in Kant is ultimately subjective only in the sense of non-constitutive, as the re-emergence of free, self-conscious subjectivity in the judgment of value. 1

(C) Meinong.

Meinong divides objects into two sub-classes —

objective and objectum. 'An object is anything to which a mental process may be directed.' 2 Objectives are those objects which are not nothing though they lack existence or being. By objectives he means those entities "which can be judged and assumed, and which are in some cases facts." That is, objectives include the whole class of entities of which some are and others are not the case. For example, 'that China is a Republic' is as much an objective as 'that jealousy is a good emotion'. As against the objectives, objecta have a narrower extension. They denote only those things "which can be given to us by mere ideas (Vorstellungs) and which are never the case." 3 Both these two classes of things are to be included within the wider domain of objects.

1 Ibid, pp. 195-97
2 Findlay, Meinong's Theory of Objects and Values, p. 67
3 Ibid, p. 67
According to this analysis of objects every judgment has two objects. One is the objective, answering to the question what one is judging. In the judgment 'snow is white' we are not judging or assuming snow but that, it is white. 'That snow is white' is the objective of our judgment. The objectum, however, is the snow which is only indirectly given as that about which something is thought and as such it is a constituent of the objective. But these two together make the object of the judgment. Meinong seems to hold that the whole complex content of the judgment constitute the objective and the subject of the judgment is the objectum. But according to him, the objective is not a mental activity like a judgment, it is something, that has some kind of being.

This peculiarity of being that pertains to the objectives is called factuality. But there may also be unfactual objectives having some other sort of being. Meinong here makes a distinction between two kinds of factualities of objectives. The first kind of factuality is the mere being-the-case of a thing which attaches to all kinds of objectives, even to the unfactual types also. The other kind belongs to a selected few of the objectives and not to all of them. "We shall translate Meinong's distinction between the mere Sein(being) of an objective
and its Tatsächlichkeit (factuality), by saying, that every objective may have a 'watered down' (depotensierte) factuality, but that only some objectives have a 'full-strength' factuality. *1

The differentiating mark of the two types of factualities, Meinong calls 'the modal moment.' Modal moment is the extra factor that is necessary to yield "full strength" factuality from the "watered down" factuality. "Full strength factuality minus the modal moment yields watered-down factuality. Watered-down factuality plus the modal moment yields full-strength factuality. It is indifferent to watered-down factuality, as a pure object, whether the modal moment is added to it or not.*2

Meinong, however, seems to hold that there is a mere difference of degree in the status of possibilities. Possibility is a property that pertains to all objectives. But a possibility of such a thing as a space bounded by two lines is simply a watered-down possibility, where the modal moment is absent. On the other hand, a genuine possibility of such a kind as that a triangle should have equal sides requires the presence of modal moment in it. But one point is to be

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1 Ibid, p. 103
2 Ibid, p. 104
noted — a variation in the degree of possibility does not require a corresponding variation in the modal moment. The modal moment without any variation in itself may be added to various degrees of possibilities, "but its addition to the various levels of possibility merely puts something genuine in the place of something spurious. "

Meinong, however, distinguishes between the modal moment and modal properties. The modal moment is not a modal property. Modal properties are the characteristics such as necessity, possibility, factuality, truth, probability which attach to the objectives, and not to judgments. According to Meinong judgments are mental acts which are always actual and hence cannot be necessary or impossible. These modal properties do not depend for their being upon the psychological factor of 'being capable of being acknowledged'. "That modal properties attach to objectives, and that judgments have nothing to do with them, rests, according to Meinong, on direct empirical evidence. We see them in the objectives, not in our experiences." ¹ But the modal properties, though independent of all psychological factors for their being, may require a psychological treatment for their cognition.

¹ Ibid, p. 185.
that is it may be useful to approach to such ultimate things from the psychological side; it may enable us to describe entities and qualities which would otherwise have to be simply apprehended, and which might seem obscure because so little could be said about them.\(^1\)

Factuality is one of the most important types of modal properties. This is a property that attaches to the objective itself without the question of its being apprehended by anybody. Though factuality itself pertains to the very nature of the objective it is "given to us by a peculiar quality of our experience which we know as evidence(\(\mathbb{E}_{\text{videns}}\)). The judgments of inner perception are experiences which have this quality."\(^2\)

Like factuality, necessity is also another modal property that attaches only to the objectives and not to the objecta. There is no sense in saying that a house or a feeling is necessary. Necessity must be ascribed to their existence; i.e. it is necessary that they should exist.

How is the necessity of an objective known by us? "According to Meinong the necessity of an objective is given to us when our judgment of it is not only accompanied with

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1 Ibid, p. 186.
evidence, but also with understanding (Verständnis).¹

But Meinong is not explicit enough about the nature of this understanding. All that he says is that it is not the mere understanding of words, it is a peculiar experience by which the nature of a fact is made intelligible to us. We may mean by it the rational apprehension of a fact in all its varied aspects. Thus to Meinong, "All our a priori formal knowledge is accompanied by understanding." From this it can be said that Meinong equates necessity with a priori. A priori formal knowledge must be of the objective which is necessary because understanding always attaches to the a priori formal knowledge. On the other hand knowledge about such empirical facts as 'the sun is shining', 'grass is green' etc., is not intelligible or accompanied by the understanding and hence not necessary. Thus the distinction between a priori and empirical is not an epistemological distinction, that is, a priori and a posteriori are not properties that attach to our ways of acquiring knowledge. They attach to the very nature of the objectives. They are not different types of knowledge, but they are the characteristics of two classes of objectives, "those that can be understood and those that cannot be understood."²

¹ Ibid, p. 188
² Ibid, p. 188
Thus Meinong shifted the difference between a priori and a posteriori from the mode of knowing to the mode of being — the being of the objectives. As Meinong says: "Little as we are able to state in what understanding, so familiar to us as an experience, really consists, one point is quite clear, that our understanding must find its foot-hold in that which we understand, which means that, in all cases of understanding, the nature (Beschaffenheit) of the objective which is to be understood plays an essential part."

"Little as we are able to state" the nature of the understanding its analysis is the subject matter of psychology. Though "understanding experience" is the medium through which the necessity of an objective is given to us, yet in this case "direct approach to the object is easier and more natural, whereas the approach by way of the presenting experience is definitely a circuit." Meinong says: "An objective is necessary in so far as it is evident a priori, but it is this evidence which reveals necessity to us, not any consideration of evidence (as an experience)."

1 Ibid, pp 138-139
2 Ibid, p. 139.
3 Ibid, p. 139.
Thus, according to Meinong, it will be better to understand necessity directly, not indirectly through understanding. For "an analysis of understanding is much more difficult than an apprehension of necessity . . . . We might say perhaps that a man who understands this objective feels a great difficulty in believing or even assuming anything else; if this is a correct account of understanding, then our reliance on mathematical necessities is much greater than our reliance on the experience of understanding. For we can see that the fact in question must be so, whereas we are far from sure that our powers of belief or assumption may not increase in the future, or that other people may not have totally different powers." 1

There may be two types of necessity corresponding to the two ways of understanding an objective.

The first way of understanding is the mediate type where to understand a thing is to know it along with its causes. It corresponds to the Aristotelian view of "scientific knowledge as the knowledge of causes, which is not content to know that something is so, but must also discover why it is so." 2 All understanding, however, is not

1 Ibid, pp. 189-190
2 Ibid, p. 190
mediate. To know that red is not green is to have an immediate type of understanding regarding the diversity between red and green. It is evident and intelligible but not mediate, that is, is not dependent on some other knowledge of facts as its ground. Meinong, like Aristotle, has to admit the possibility of immediate understanding to save his position. Otherwise if all understanding were mediate, it would lead either to infinite regress or to a vicious circle. For to understand, say, p we have to understand another, say, q, and so on ad infinitum, or we shall have to understand something in terms of something else which will have to be understood, at least in the long run, in terms of the first thing. And this will involve a vicious circle.

Meinong distinguishes two types of necessity corresponding to the two ways of understanding. (1) Simple necessity consists in understanding that red should be different from green. (2) Relative necessity on the other hand consists in adducing a new conclusion from an already possessed conviction so that the necessity of the former is relative to the latter. The relative or conditional necessity is such a necessity "that a given stone should fall when it is released, if we take this to be necessary relative to the law that all unsupported bodies
But according to Meinong the conviction or postulate from which the new conclusion is drawn, may not be evident or intelligible, but be only an assumption. Meinong was led to abandon his theory of relative necessity. First he asserted that in a hypothetical judgment 'If P then Q', we pass a judgment while we look to some other judgment of assumption. "This view made it difficult for him to hold that there are objectives, or facts of the form 'If P, then Q'." But later on, Meinong regards such objectives of the form 'If P then Q' as a third kind of objective of with-being besides the other two objectives with being and so-being. "The recognition of this type of objective led Meinong finally to abandon his view that there were relative necessities. Q is not necessary relative to P, but the objective of with-being 'If P, then Q' or 'Q on the condition P' has absolute necessity. He therefore substituted for the conditional necessity of a simple objective, the absolute necessity of a conditional objective." 3

(D) Hartmann.

Hartmann's theory of modality may be called the ontological theory of the modes. He distinguishes between

1 Ibid, p. 191
2 Ibid, p. 191
3 Ibid, pp. 191-192
four different modes of the various spheres of being. The primary sphere of being consists of the real and the ideal. The secondary sphere is subdivided into the spheres of logic and knowledge. The mode of each sphere is different from that of the other. Thus there is a four-fold division in the ontological status of the modes.

This ontological theory of the modes can be specifically studied from three different points of view or approaches.

First, modalities may be viewed as the criteria to distinguish between three types of objects, 'merely possible' objects, objects that are 'both possible and actual' and objects that are 'possible, actual and necessary at the same time'. According to this approach modes are criteria for judging different types of objects. Thus modality attaches directly to the objects.

"Secondly, it is possible to consider the modes as if they were different stages of a process." 1 Thus such modalities as possibility, actuality and necessity are the different phases of the process of becoming. A thing first becomes possible, then may become actual and then necessary.

But what is possible is not always made actual and then necessary. "The process however may not be carried to the end; what is possible may never be actualised." 1

The third approach consists in viewing the modes "as the constituent aspects of the existent or the subsistent, as the case may be. This is the point of view which we may call the critical point of view, because we may trace it to Kant." Kant's question is how the same 'given object of experience' is 'possible, actual and necessary.'

Hartmann takes up this third approach i.e. the critical approach and treats the modes as 'the most primary characteristics of the being of anything.' "As such, given an object of experience, we can ask: what makes it possible? What makes it actual? What makes it necessary?" 2

Thus Hartmann's theory bears a positive resemblance to the Kantian treatment of the problem. "For Kant the given is possible when considered in relation to its form and actual when considered in relation to its matter." Hartmann's own solution however is different from Kant's. But in spite of his rejection of Kantian solution, we find

1 Ibid, p. 181
2 Ibid, p. 181
the influence of Kant on Hartmann’s ontology which claims the name of critical ontology. 1

(E) Johnson

Johnson distinguishes between three different senses of necessity. In one sense necessity is a property of objects or events, in the other two senses it is a property of propositions. He explains the concept of modality in terms of secondary propositions. "A secondary proposition is one which predicates some characteristic of a primary proposition. . . . . . . . Here we are predicating various adjectives... of any given proposition P; and we define each of these propositions — of which the subject-term is a proposition and the predicate-term an appropriate adjective — as secondary." 2 The "subject of Modality" is introduced when in the secondary proposition the predicate-term is a modal adjective such as 'necessary', 'possible', 'contingent' etc. Johnson, however, excludes the adjective 'true' from the class of modal adjectives. As he says, "the adjective true is redundant as applied to the proposition P. . . . . . . Thus the assertion of P is equivalent to the assertion that P is true; though of course the assertum P is not the

1 Ibid., p. 182
The modal adjectives have been treated in various ways, in various terminologies and not always without confusion. Kant's threefold division of modality into apodictic, assertoric, and problematic is not exclusive. In fact, such proposition as '2 and 3 makes 5' though formally assertoric, should really be regarded as apodictic. Thus apodictic appears to be a sub-class of assertoric.

Among the various modal concepts, the concept of necessity or necessary as a modal adjective is perhaps the chief source of confusion.

Johnson distinguishes between three different senses of the term 'necessary' as applicable to propositions. In the first sense, necessary is a predicate that should be applicable to all propositions i.e. all propositions are necessary. Here necessity is the objective necessity which binds the subject to the particular object of knowledge and restrains his free will in the act of judgment. It is a compulsion forced upon the thinker by the objective world. It may be called objective necessity. This kind of necessity cannot serve as a differentiating mark between propositions.

1 Ibid, p. 52
The second sense of 'necessary' is the opposite of 'empirical.' In this sense, 'necessary' means "formally certified." Johnson indicates this more usual meaning of the term 'necessary' by analysing one of Kant's oft-quoted lines about a priori and necessity. "Mathematical propositions are always judgments a priori and not empirical, because they carry with them the conception of necessity, which cannot be given by experience." According to Johnson, here, 'necessary' is opposed to 'empirical' and "the antithesis that Kant has in view coincides approximately with that between the formally certified and the experientially certified."¹ What do we mean by 'formally certified'? Formally certified is one of the sub-classes of 'certified' propositions.

Johnson introduces the antithesis of certified and uncertified to include and exhaust all the propositions coming under the Kantian division of apodictic, assertoric and problematic. "A proposition which is uncertified appears to be what Kant and others have sometimes meant by a problematic proposition; .... The contradictory of uncertified is certified, so that all propositions may be divided into the two exclusive classes of certified and uncertified."²

¹ Ibid., p. 59.
² Ibid., p. 55.
This distinction, according to Johnson, is not absolute. It is relative to the individual opportunities of acquiring knowledge. With the gradual development of knowledge an uncertified proposition may become certified. This relativity is essential to Logic because "the whole doctrine of probability hinges upon our realising the changeable and relative opportunities and means, which differ, from one situation to another, in the extent of attainable knowledge." 1

Certified propositions are of two types, "formally certified" and "experientially certified." "Formally certified" (or necessary propositions in the second sense) propositions are those the truth of which are certified by pure thought or reason. Experientially certified propositions, on the other hand, are certified by an appeal to actual experience. Here the mode or principle of certification determines the type of the proposition. Generally mathematical and logical formulae are regarded as formally certified. But there is an ambiguity in the concept of 'formally certified' propositions. A necessary proposition may mean formally certified or formally certiable. If it means the latter then it will include formally certified

1 Ibid, p. 56.
as one of its sub-classes. Further ambiguity arises when in the cases of formal certification of some propositions such as geometrical principles an appeal to sense-perception is required. Can these principles be regarded as necessary? Here two questions are to be considered: Are all formally certifiable propositions necessary and what are the conditions of formal certifiability? Whether only those propositions which are certified by pure thought are formally certified and therefore necessary or those also which are certifiable by an appeal to sense-experience?

Experientially certified propositions also require the help of thought or reason. They are not certifiable by experience alone. Our question is, in which of the senses the term 'necessary' is to be taken.

The third meaning of 'necessary' is the opposite or contradictory of contingent. "If, however, the term contingent is interpreted as equivalent to (what I have called) experientially certified, then we might agree that necessary should be interpreted as equivalent to formally certified;"¹ But the third meaning crops up as the antithesis of necessary and contingent is applied (and not without significance) in "the sphere of the experientially certified." In this sphere necessary propositions are the

¹ Ibid, p. 60.
laws of Nature according to which the natural events follow one another. Thus one of the fundamental postulates of philosophy that "All that happens is necessitated", points to this necessary character of the laws of Nature. It does not mean that there is nothing contingent and all events are necessary. On the contrary, it implies a distinction between two types of events --- the laws of Nature which "taken alone do not necessitate any event whatever"; and the natural events which necessitate each other in accordance with the laws. Thus the laws are nomic and necessary and the propositions expressing concrete events are contingent.

In the case of formally certified necessity the mode of certification of the thinker is essential. Here the relation of the proposition to the thinker comes into consideration. Johnson calls this necessity epistemic. As against this subjective character of formally certified propositions the nomic necessity is essentially objective. It belongs to the laws of Nature regardless of anyone's establishing it in any way. Johnson here prefers the term constitutive to describe or characterize such necessity. In short, referring back to the distinction between the fact and the proposition, such modes as certified and uncertified are adjectives directly characterizing the proposition, whereas modes of the other kind, typified by nomic and contingent,
directly characterize the fact. 1

In this way Johnson claims to have eliminated the ambiguities of the term 'necessary'. He prefers the term 'formally certified' to 'necessary' as characterizing propositions. When necessary is the opposite of contingent as applied to facts, it should be replaced by the term 'nomic'.

(F) The Empiricistic doctrine of Necessity.

(a) Exposition of the doctrine.

Necessity according to empiricism is not a property of either an object or a concept, but of relations between two ideas. That is, necessity is a property of a proposition or a judgment. In a proposition two ideas are synthesised, and this relation between the two ideas is sometimes regarded as necessary relation. Isolated ideas, concepts or objects cannot be said to be necessary.

The necessity which a relation between two ideas possesses is the result of the strength of association between them. To say that one idea is necessarily related with another is simply to say that it is impossible to think of the first without thinking of the second.

1 Ibid, p. 62.
According to Kant and Hegel necessity is objective in the sense that objects possess necessary existence. But this doctrine can be reinterpreted without violating the spirit of its authors to mean that necessity belongs to the inter-relations among objects but is not a property of any single object. In that case the difference between empiricism and the Hegelian theory will consist in this that while according to the Hegelians relations between objects are necessary, according to the empiricists objects themselves are not related at all, much less necessarily related. What is real is an unrelated multiplicity of discrete particulars; whatever relations are found between them are really relations among the ideas or impressions. All relations, hence necessary relations also, are subjective. Thus to refute empiricism it is not necessary to prove either that all relations are objective or that they are all necessary. If we can prove that some relations are objective and some necessary relations are objective then empiricism will stand refuted. But really we can go further. For, empiricism not merely reduces objective relations to subjective interconnections among ideas but denies necessity altogether. What appears as necessity is really a feeling of necessity produced by associations strengthened by repetition. When in our experience one idea uniformly follows another they become associated
with each other. If this uniform experience is repeated for a long time without any experience of the opposite the two ideas become strongly associated. This strength of association is felt as a necessary connection. The so-called logical laws are necessary because they are confirmed and fortified by every experience of the individual. Herbert Spencer goes one step further. It is not the personal experience of any individual, but the experience of the entire race which is at the back of the necessity of the so-called logical laws. The so-called 'forms of thought' are really nothing but habits of the mind acquired through heredity in the course of evolution. This implies that a relation which to start with is not necessary may become necessary later. That is according to empiricism there is no difference in kind between necessary and contingent truths. Necessary truths are merely contingent truths experienced universally.

(b) Criticism of the Empiricistic account of Necessity.

Blanshard has criticised this doctrine from the Hegelian point of view on various grounds.

(i) He points out that there is no justification for believing that the experience of the ancestors has been precisely like mine. This belief cannot be justified by
referring to the law of Uniformity of Nature. For, the law itself is due to uniform association experienced from generation to generation. The empiricist cannot also claim any direct insight into the truth of this principle either.

(ii) It is not true to say that uniformity is found even in one's own limited experience. "There can be no doubt whatsoever that, while much in our experience suggests regularity of sequence, much suggests irregularity also." 1 "Of course we believe that when the sparks fly upward they are secretly obeying, not violating, the law of gravitation, and that even in the blowing of the winds there is order. But this is not what we ought to believe if our beliefs are compound photographs of what nature actually presents to us, for what it does present is far more chaotic."

(iii) According to the empiricists the widest generalisations, based as they are upon narrower uniformities should be the least certain; for what is certain is what is directly experienced. The generalisations based on them are less certain, those based on these generalisations are still less certain, and hence the widest generalisations should be the least certain. But these generalisations are as a matter of fact the most certain. (iv) Thus empiricism in logic leads to scepticism. The logical laws being the widest should be, according to empiricism, the least certain.

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1 Laird, Knowledge, Belief and Opinion, p. 434.
in logic destroys the very basis of logic by making the laws of logic relative to the experience of the individual -- a relativity which culminates in scepticism.

(G) The Linguistic theory of Necessity

Exposition and Criticism of the theory.

The linguistic theory of logical necessity is usually advocated by those who support the linguistic theory of analyticity. For, according to the supporters of linguistic theory analyticity and necessity are one and the same -- analytic sentences are necessary and conversely. As we have already discussed in detail the linguistic theory of analyticity we give only a short account of the linguistic theory of necessity. This theory can be interpreted in three different ways, to mean (i) that there are necessary propositions but that they are necessary by virtue of linguistic conventions; (ii) that the so-called necessary propositions are really a species of empirical propositions; or (iii) that the so-called necessary propositions are not propositions at all, but are really rules or imperatives. The first variety is the same as the linguistic theory of analyticity, the same arguments as there have been offered here. So we omit this interpretation and discuss only the second and the third varieties.
(ii) The theory that necessary propositions are really a special kind of empirical propositions was expressed by positivists like Ayer at some time or the other. According to this theory "the existence of certain linguistic habits relevant to the use of a sentence $S$ is a necessary and sufficient condition for the necessity of the proposition meant by $S$. " This does not however mean that necessary statements are statements about contingent linguistic habits. Still "if an empirical statement $p$ describes evidence for another statement $q$, in other words, if in stating $p$ one gives an empirical reason for accepting $q$ then $q$ is itself empirical." 1 This principle which may be regarded as being itself necessarily true, proves that the necessity of a necessary proposition, depending as it does on the existence of linguistic habits, is really no necessity at all. Morris Lazerowitz tries to avoid this difficulty by denying that necessary propositions can be reduced to empirical propositions about language. He says 'What makes a non-verbal sentence "A flea is an insect" express a logically necessary truth is the fact that the corresponding verbal sentence expresses a true proposition. The fact that "A flea is an insect" expresses a logically necessary

1 Pap, ibid, pp. 165-66.
proposition entails and is entailed by the fact that "As a matter of usage 'insect' applies to whatever 'flea' applies to " expresses a true empirical proposition.* 1

Pap points out that Lazerowitz may avoid the contradiction that the truth of an empirical proposition about usage is a sufficient reason for the truth of a necessary proposition; for he can hold that the truth of an empirical proposition about usage is a sufficient reason for the truth of an empirical proposition to the effect that a given sentence expresses a necessary proposition. But then Lazerowitz has given us at best a criterion for "the sentence 'p' expresses a necessary proposition", not for "it is necessary that \( p \) ", which latter statement does not mention \( p \) the sentence ..... In order for a definition in use of "necessary proposition" to be reasonably complete it must contain not only a part elucidating the phrase " 'p' expresses a necessary proposition " but also a part elucidating the phrase " the proposition that \( p \) is necessary".* 2

An argument in favour of the linguistic theory of logical necessity is sought to be found in the existence of alternative logics. " For example, if a three-valued logic

1 The Structure of Metaphysics, p. 271
2 Pap, ibid, p. 159.
is proposed in which the law of the excluded middle is replaced by the trichotomy 'every proposition is either true or false or indeterminate', then whatever 'indeterminate' may mean, 'true' and 'false' must have different meanings from those they have in the two-valued logic. ¹

Pap, however, does not accept this argument. He seems to think that the argument rather proves that the principles of two-valued logic are necessary propositions. "For if from the fact that so-and-so denies S it follows that so-and-so has changed the usual meaning of S, then it follows that the proposition usually expressed by S is necessary." ² The usual procedure of implicitly defining the meaning of logical constants like 'or' etc. by ruling that specified sentences containing them are to be true leads to the consequence that any true statement becomes a conventional truth. "Thus suppose that all the terms in the statement 'the city buses running on Broadway are red' except 'red' have been assigned meanings, and we now explain the meaning of 'red' by saying 'red' means that colour C for which "the city buses running on broadway are C" is true.' Is the fact that the city buses running on Broadway are red, then, a result of linguistic convention?" ²

¹ Pap, ibid, p. 169
² Pap, ibid, p. 170
(iii) Now we come to the second variety of linguistic theory according to which the so-called necessary propositions are indeed necessary, but are not propositions at all. "What is commonly called the assertion of a necessary proposition is really one way of formulating (and teaching) a rule, a way which involves the construction of an illustrative sentence. For, in practice the acceptance of a proposition as necessary is shown by 'the adoption of certain procedure of inference or transition from one statement to another.'"¹ This theory can be supported by Ryle's theory that the so-called logically true propositions are really normative laws of behaviour, or as Ryle calls them 'performance rules.'²

This theory draws our attention to the fact that we frequently use declarative sentences to express desires instead of using expressive or imperative forms of speech. Hence there is no absurdity in denying that the so-called necessary propositions are really propositions at all. This shows that Ayer's present criticism of the doctrine is not really sound. In the second edition of his *Language, Truth and Logic* he revises his earlier theory and says "Just as it is a mistake, to identify a priori propositions with

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² Why are the calculuses of logic and arithmetic...
empirical propositions about language, so I now think that it is a mistake to say that they are linguistic rules. For apart from the fact that they can properly be said to be true, which linguistic rules cannot, they are distinguished also by being necessary whereas linguistic rules are arbitrary. 1

But this criticism of the linguistic theory by Ayer is not convincing. As Pap points out Ayer's criticism can be met with a dilemma. The argument for denying that sentences expressing necessary propositions are linguistic rules is that truth is properly predicated of them. "Yet if the reason for this latter claim is that they express a proposition the question has been begged, and if the reason is that they are declarative sentences, the conclusion does not follow." 2

Yet the linguistic theory of logical necessity is not satisfactory. First of all we may point out an inadequacy in Ryle's theory of logical laws as performance rules. For every law of logic cannot be interpreted as a rule of inference. For example, 'P or not P' is a logical law hence

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1 Ayer, Language, Truth and Logic, 2nd ed. p. 17
2 Pap, ibid, p.172
a necessary proposition but cannot be used as a rule of inference. Only those laws of logic which have the implication sign as the major connective can be interpreted as rules of inference. A second point of criticism of Ryle's theory is that it is not clear why even those logical laws which can be interpreted as performance rules have to be so interpreted. (The logical law 'P or not P' can be interpreted as a rule though not as a rule of inference thus: 'Of two contradictory propositions regard at least one as true'. We, however, confine our attention only to those laws which can be interpreted as rules of inference.) Take, for example, the following inference

(a) \( p \rightarrow q \)  Premise
(b) \( q \rightarrow r \)  Premise
(c) \( p \rightarrow r \)

Now this inference has two premises and the conclusion follows from them in accordance with the rule of hypothetical syllogism. But if the rule of hypothetical

syllogism, or rather, the logical counterpart of it (for a rule is metalogical) is used as a premise then we can have the following inference:

(d) \((p \to q) \to [(q \to r) \to (p \to r)]\)  \hspace{1cm} \text{Premise}
(e) \(p \to q\) \hspace{1cm} \text{Premise}
(f) \((q \to r) \to (p \to r)\) \hspace{1cm} \text{modus ponens}
(g) \(q \to r\) \hspace{1cm} \text{Premise}
(h) \(\therefore p \to r\) \hspace{1cm} \text{modus ponens}

In this inference the logical counterpart of the rule of hypothetical syllogism has been used as a genuine premise (d), over and above the two original premises, \(p \to q\) and \(q \to r\). Here the rule of inference is, of course, not the rule of hypothetical syllogism but ordinary modus ponens. It is not clear why this second inference cannot be accepted as logically valid, and only the first inference has to be regarded as valid. All logical laws with the implication sign as the major connective can be interpreted as rules of inference, but they can also be used as premises. There is no point in saying that all such logical laws are really rules of inference when they can as well be used.
used as premises. That is, we can infer not merely in accordance with these laws, but also from them. 1

What has been said against Ryle can be said against the linguistic theory of logical necessity in general. If all the so-called necessary propositions are "really" linguistic rules, devoid of all positive content, then they cannot be used as premises in an argument. For the distinction between a genuine proposition and a rule of inference is that the proposition can be, while the rule cannot be, used as a premise. Every attempt to get rid of the rule(s) in inference by turning them into premises leads to an infinite regress, for every inference is the drawing of a conclusion from some premise(s) and in accordance with some rule(s). Hence the very fact that the necessary propositions can and do function as premises of inference shows that they are genuine propositions.

The two inferences quoted above also show that what is a rule in one inference may become a premise in another inference. This shows that the distinction between propositions or well-formed formulae and rules of inference is relative to particular systems of logic or

1 Ibid, p. 97.
even to particular inferences. If, thus, there is no rigid and absolute distinction between rules and propositions, then the attempt of the linguistic philosophers to explain the necessity of necessary propositions as really the necessity of rules of inference is not of much help. For there is no absolute distinction between rules and propositions, there are no rules which cannot also be used as propositions.

Kneale has pointed out another defect of the linguistic theory of necessity. "Philosophers say that a proposition is a necessary truth if it is impossible that it should not be true, i.e. if there is no possible alternative. But in common usage the phrase 'by convention' always implies the possibility of an alternative ....... It seems clear, therefore, that anyone who speaks of necessary truths as true by convention is guilty of self-contradiction." 1

(H) Necessity and Implication.

We have discussed two theories of necessity -- necessity as a character of real objects and necessity as a

1 William Kneale, ibid, pp. 133-24.
character of propositions or sentences. There is, however, a third approach according to which necessity is regarded as a property of a relation between propositions or sentences. It is a relation which binds the conclusion of an inference with its premises. As a matter of fact even logicians like Bradley have suggested that modal propositions are really inferences in the making. Necessity is really a property of the relation of implication or entailment. Different logicians have tried to explain the nature of implication or entailment in different ways of which we note only some.

(a) Material Implication.

The relation of material implication holds between two propositions, \( p \) and \( q \), if and only if it is not the case that \( p \) is true and \( q \) is false. In symbols,

\[
p \cdot q = p \neg (p \cdot q)
\]

But it is obvious that this relation cannot explain the validity of an inference. For, to be valid it is not enough that the conclusion is not false if the premises are true. For example in the inference,
If Einstein is a German then Krushchev is ousted

Krushchev is ousted

Therefore, Einstein is a German, the premises and the conclusion are all true propositions yet the inference is not valid. This shows that even if the premises materially imply the conclusion, that is, even if it is not the case that the premises are true and the conclusion is false still the inference is not necessarily valid. Hence we come to the next theory of implication.

(b) Formal Implication.

The relation of formal implication holds between two propositions, p and q, if and only if it is never the case that p is true and q is false. This means that p formally implies q if and only if 'p materially implies q' is a tautology. In symbols

\[ p \text{ formally implies } q \equiv \text{df } '(p \rightarrow q) \text{ is a tautology} \]

The concept of formal implication does not suffer from the defect of the concept of material implication mentioned above. For although in the example given above the premises and the conclusion are, as a matter of fact,
all true, yet the form of the inference is \( p \rightarrow q \), \( q \), \( : p \). Now this form is not valid because \( p \rightarrow q \rightarrow \neg p \) is not a tautology. That is even though in particular cases the premises and the conclusion may all happen to be true, yet this same form can be exemplified in such a way that the premises become true and the conclusion becomes false. Thus the concept of formal implication suffices for judging the validity or invalidity of inferences.

Still this concept has been criticised on other grounds. Neither material implication nor formal implication requires any intrinsic relation between the premises and the conclusion of an inference. We need not know the actual propositions themselves in order to determine whether the relation of material or formal implication holds between them. It is sufficient if we know only their truth-values. This leads to the counter-intuitive result that a proposition may imply (formally or materially) another without even being related to it, let alone being necessarily related to it. This fact has been expressed in the so-called "paradoxes" of material and formal implication——a false proposition materially implies any proposition whatsoever and a true proposition is materially implied by
any proposition whatsoever; a necessarily false proposition like a contradiction formally implies any proposition whatsoever and a necessarily true proposition like a tautology is formally implied by any proposition whatsoever. To avoid this difficulty the concept of strict implication was introduced by C. I. Lewis which we explain below.

(c) Strict Implication.

The concept of strict implication is formulated in terms of modal concepts which are non-extensional. In Lewis's modal logic necessity may be taken as a primitive concept implicitly definable by various sets of Postulates of varying strength. The relation of strict implication holds between two propositions, \( p \) and \( q \), if and only if it is impossible that \( p \) be true and \( q \) be false. The term 'impossible' contained in the definition is a concept of modal logic and may be defined either in terms of 'necessity' or in terms of 'possibility'. Thus strict implication cannot be defined in extensional logic.

If we define entailment as the converse of the relation 'follows from' or 'is deducible from' and then identify strict implication with entailment then we find that the paradoxes analogous to those of material and formal implication emerge here also. "It is a law of his (Lewis's)
(and indeed of any reasonable) modal logic that an impossible proposition strictly implies any proposition whatever, and that a necessary proposition is strictly implied by any proposition whatever. The paradox thus is that, if entailment and strict implication were the same, then relations of entailment between propositions could subsist by virtue of the modal status (impossibility or necessity) alone of the propositions. Thus we find that the concept of strict implication fails to explain how the relation between the premises and the conclusion of an inference can be necessary.

(I) Necessity and Modal Logic.

In traditional logic propositions are classified into necessary, assertory and problematic, according to modality. Thus necessity is a modal concept. Modal concepts are divided into various groups. Von Wright, for example, divides them into four groups without attempting to be exhaustive. There are the alethic modes or modes of truth. These are concepts such as the necessary, (the necessarily true), the possible (the possibly true), and the contingent (the contingently true). There are the epistemic modes or modes of knowing. These are the concepts such as the verified (that which is known to be

1 von Wright, Logical Studies, p. 172.
true), the undecided, and the falsified (that which is known to be false). There are deontic modes or modes of obligation. These are concepts such as the obligatory (that which we ought to do), the permitted (that which we are allowed to do), and the forbidden (that which we must not do). As a further main group of modal categories one might add the existential modes or modes of existence. These are concepts such as universality, existence and emptiness (of properties or classes)."}

Although von Wright is willing to admit other types of modalities, many logicians find it difficult to accept even the four he has stated. The logic of quantification, for example, is not usually regarded as a modal logic.\(^2\)

Moreover, as recent researches have revealed, there is a very intimate relation between alethic and deontic modal logics. As a matter of fact, a type of deontic modal logic (normal deontic logic) has been reduced to a particular type of alethic modal logic—\(^3\) So we may confine our attention to alethic modal logic, for epistemic modal logic is yet to be fully developed. But apart from the

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1. Deontic Logic, Logical Studies, p. 58.
2. A. N. Prior, Time and Modality, p. 6
fact that alethic modal logic has almost a bewildering variety, giving different 'implicit' definitions of 'necessity' (which is usually accepted as a primitive term) by means of widely divergent axiom-systems, many philosophers doubt whether modal logic can have any significance for logical analysis in general, and for an analysis of the concept of necessity in particular. Bergmann, for example, holds that the notion of 'implicit definition' is irremediably confused. The phrase as we shall see, is disastrously misleading. It was invented by mathematicians. They spoke, for instance, of the axioms of geometry as the implicit definitions of its primitives. What they meant was that the axioms of the system determine (not define!), completely whether or not any given sentence is one of its theorems, irrespective of what the meanings, if any, of the primitives may be.\(^1\) We may not wholly agree with Bergmann on this point. We may point out that the axioms do restrict the range of meanings to be given to the primitives. That is, any meaning given to the primitive terms must be such as to render all the axioms true, although there may be, and usually are, alternative meanings which can be thus assigned to the primitives. Bergmann is right

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1 The Philosophical Significance of Modal Logic. 
Mind, 1960, October, pp. 466-485.
only if we mean by 'definition' that which makes the meaning of the term definite; the axiom-set cannot constitute a definition of the primitives in this sense. Bergmann also thinks that modal logics constructed as formal systems can be of no help in analysing the concept of necessity in which logicians are interested. For, these logics take 'necessity' as a primitive term (or define it in terms of 'possibility' which is then primitive) and fail to make a distinction between 'logical necessity' and 'non-logical (say, causal) necessity', a distinction which is vital for logicians. The force of this objection may be lessened by holding that these modal logics are trying to find out the logical properties of a necessity which is common to both 'logical' and 'non-logical' necessity; i.e. these logics try to determine the minimum common meaning of the term 'necessity' as used in various contexts.

If the different systems of modal logic have not been able to clarify the concept of necessity, the reason, we believe, is this. Logicians constructed formal systems to study rigorously properties of concepts of which we have already some (vague) knowledge. The concept of necessity, however, is not intuitively clear, and different logicians have different ideas of necessity. The different systems
of modal logic owe their origin to this difference in the concept of necessity and hence there are as many systems as there are conceptions of necessity. Yet there is a gain to be expected from constructing systems corresponding to the different concepts of necessity. For it is only when the systems are constructed, and theorems proved, that we can realize clearly the presuppositions and implications of the vague intuitive concept, and thus can check whether the uncritical concept of necessity implies any undesirable property. For example, it is only by constructing the system $S_5$ that logicians have become aware of the peculiarities of a particular concept of necessity. Modal systems of the usual type can be broadly divided into three classes on the basis of the solutions they offer of what is known as Baker's Problem --- whether if a proposition is necessary, it is therefore also necessary that it is necessary. (i) We may hold, as Strawson does, that a sentence is necessary if and only if its truth follows from the meanings of the words used. But it is not necessary that words have these meanings which they actually have. Hence, though a sentence, say, 'No bachelor is married' is necessary, yet the sentence, "'No bachelor is married' is necessary" is not necessary, for it depends upon the empirical fact that the words used in the first sentence have the meanings they have. (ii) Or, we may hold like
Carnap that if a proposition is necessary, then it is necessarily necessary. (iii) Or, we may hold that some necessary propositions are necessarily necessary, while others are not. For example, that it is necessary that everything has some property or other is no doubt itself necessary, but that the proposition mentioned on lines 27-28 of p. 272 of Lewis and Langford's Symbolic Logic is necessary is true but not necessary. For although the proposition mentioned on lines 27-28 of page 272 of Lewis and Langford's Symbolic Logic in fact is that everything has some property or other, this identity is presumably not a necessary one.¹

Thus whether to accept the doctrine that every necessary proposition (at the same time) is necessarily necessary should be determined by the construction of a formal system in which this is either an axiom or a theorem and deriving conclusions from the axiom set. If we find theorems which we are not prepared to accept we shall have to reject the doctrine itself, or else reject other axioms and try to build a new system which contains this doctrine but does not contain the undesirable theorems. As a matter of fact the different systems of modal logic have arisen in

¹ Alonzo Church, A Formulation of the Logic of Sense and Denotation, footnote 23.
this way. But unfortunately no single system has been found to satisfy all.

Pap, however, has tried another way to prove that "what is necessary is necessarily necessary" (which he calls the 'N N thesis'). He first of all distinguishes between sentences and propositions, and between the necessity belonging to sentences and the necessity belonging to propositions. Sentences are all relative to a language and the necessity belonging to (necessary) sentences is due to the conventions of the language. Thus the necessity belonging to a sentence is an empirical fact and hence not necessary. But the necessity belonging to a proposition is 'time-independent'. "Thus it must be concluded that it is inconceivable that an entailment which in fact holds from \( P \) to \( q \) should fail to hold between the same propositions at some other time, simply because it does not make sense to say that an entailment holds at some time." ²

To prove that necessity of a proposition is not an empirical quality of it Pap gives various other reasons. His most important reason is: "the same intellectual

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operations by which we would normally establish such a proposition as true also establish it as necessarily true." 1

But against this theory of Pap we may point out that it is not clear what he means by 'proposition' as distinct from a sentence. He rejects the usual definitions of propositions as (i) the class of synonymous sentences, (ii) as objects of propositional attitudes like belief etc. He does not also accept the realistic (Platonic) theory of propositions as having an ontological status. 2

Secondly, it is not clear how by proving that necessity is a 'time-independent' property of propositions Pap can prove that it is a necessary property. What is the nature of the relation which exists between 'time-independence' and necessity? The property of being three-dimensional, is, for example, a time-independent property of space; but we cannot argue that therefore it is a necessary property of space. Every triangle in Euclidean geometry has the time-independent property of having three angles equal to two right angles. But this does

1 Ibid, p. 127
2 Ibid, pp. 172 ff.
not mean that this property is a necessary property of triangles. For in non-Euclidean geometries triangles do not have this property. Moreover to prove that this property is a necessary property of all triangles what we have to do is to show that this property follows necessarily from the definition of triangle etc. We cannot prove it by merely pointing out that this property is a 'time-independent' property.

Thirdly, necessity is a time-independent property of propositions as much as of sentences. If it does not make sense to say that a proposition becomes or ceases to be necessary at a particular time so also it is nonsensical to say that a sentence becomes or ceases to be necessary at a particular time. Yet Pap holds that necessity is not a necessary property of sentences.

Pap's other reasons also for accepting the 'N N thesis' do not seem to be convincing. We may agree with him in holding that the same intellectual operations by which we establish a necessary proposition as true, also establish it as necessarily true. But this does not mean that necessity is an a priori property. All that it proves is that we do not need any additional evidence for the necessity
of a proposition. But the original evidence by which we prove it to be true may indeed be empirical like the examination of a truth-table of a tautologous function and so on. Thus we find that Pap has not succeeded in proving the NN-thesis or that necessity and apriority are one and the same thing.