USE OF THESES

This copy is supplied for purposes of private study and research only. Passages from the thesis may not be copied or closely paraphrased without the written consent of the author.
MEANING AND NECESSITY :

A STUDY IN THE PHILOSOPHY OF C.I. LEWIS

by

Graham W. Kerrison

This thesis was submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy in The Australian National University

September, 1969
With the exception of the acknowledgements made within the text, this thesis is my own work.

Graham W. Kerrison
# Table of Contents

**I**  
**SOME HISTORICAL PERSPECTIVES**  
§1 Introductory Remarks  
§2 Thomas Hobbes (1588-1679)  
§3 Gottfried Wilhelm Leibniz (1646-1716)  
§4 John Stuart Mill (1806-1873)  

**II**  
**THE LOGICAL BEGINNINGS**  
§5 Introductory Remarks  
§6 Implication in Principia Mathematica  
§7 The Paradoxes of Material Implication  
§8 The System of Strict Implication  
§9 Alternative Logics and the Foundation of Necessary Truth
### III
**THE A PRIORI IN "MIND AND THE WORLD ORDER"**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>§10 Introductory Remarks</td>
<td>91</td>
</tr>
<tr>
<td>§11 The Doctrine of &quot;The Given&quot;</td>
<td>94</td>
</tr>
<tr>
<td>§12 The Incommunicability of the Content of Experience</td>
<td>114</td>
</tr>
<tr>
<td>§13 The Legislative Character of the A Priori</td>
<td>127</td>
</tr>
</tbody>
</table>

### IV
**THE LINGUISTIC APPROACH**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>§14 Introductory Remarks</td>
<td>153</td>
</tr>
<tr>
<td>§15 The Modes of Meaning</td>
<td>155</td>
</tr>
<tr>
<td>§16 Some Further Terminological Distinctions</td>
<td>176</td>
</tr>
<tr>
<td>§17 Linguistic Meaning - Sense Meaning</td>
<td>193</td>
</tr>
<tr>
<td>§18 Analytic Meaning</td>
<td>206</td>
</tr>
<tr>
<td>§19 Propositions: A Kind of Term</td>
<td>216</td>
</tr>
<tr>
<td>§20 Analytic Truth</td>
<td>234</td>
</tr>
<tr>
<td>§21 Definitions and the Principles of Logic</td>
<td>252</td>
</tr>
</tbody>
</table>
I am grateful to the Australian National University whose financial assistance in the form of a research scholarship made this work possible.

The following persons kindly provided me with manuscripts of their contributions to the long-awaited volume on C.I. Lewis edited by P.A. Schilpp: Professors E.M. Adams, R. Firth, W.H. Hay, A. Moore and B. Peach. Because of the circumstances surrounding this book I have decided not to comment directly on these papers. Professor Adams' bibliography was particularly useful to the extent that my Bibliography A bears a very close resemblance.

I am also indebted to Professor J.D. Goheen of Stanford University where the Lewis Papers are now collected. I benefited from his knowledge of the papers. He also provided me with copies of the two unpublished papers listed in the bibliography.

My chief debt is to the members of the Philosophy Department in the Research School of Social Sciences. Professor J.A. Passmore and
Dr C.D. Rollins were particularly helpful in the early stages of defining the topic. Dr P.J. Sheehan read the entire manuscript through all its various drafts; every section of the thesis has been improved by his comments. Finally, I wish to thank my supervisor, Dr E.M. Curley. Without his constant stimulation, his criticism and his personal encouragement this thesis would have been much the poorer.
INTRODUCTION
To many students of philosophy, especially within the predominantly British tradition as we know it in Australia, Clarence Irving Lewis remains something of a mystery. His writings are conspicuously absent from the prescribed reading lists in Australian universities. Despite this remoteness, however, his name has always carried with it a respect which is customarily reserved for those who have been significantly influential in their own domain.

It was this seeming paradox between Lewis's stature and his remoteness that first attracted me - as much out of curiosity as anything else. This curiosity was further aroused by the obvious contrast between Australia and North America where interest in Lewis's work is so much greater. There was yet another factor which caught my interest. It was obvious that Lewis ranked among the more important philosophers of this century. There were signs of his influence in so many areas of philosophical discussion. Yet it puzzled me that in this age of prolific publications there was not a single volume devoted to the study of Lewis's work.
These were the factors which first prompted me to think in terms of searching for some well defined area in Lewis's work which would lend itself to a study of this kind. On reading Lewis it became clear to me that these accidents of history which had first attracted me were, in a sense, by-products of the very nature of Lewis's philosophical work. One historical commentator has expressed this very succinctly:

C.I. Lewis was one of the most indomitable, intransigent, and gifted philosophers of our time, surely a pragmatist, perhaps the greatest, but one never really in the pocket of any school or technique. His life was given to our discipline, and his endowments and energies produced substantial contributions in several fields, notably logic, epistemology, and axiology. His work was placed squarely where he wanted it, regardless of the compelling millieu of our day, and I think we might say that he was one of those rare philosophers among us whose contemporaries included such men as Hume and Kant.1

---

It is, I believe, this last fact which sets Lewis apart. He may well have been the last of the system-builders; in this regard he is certainly not a typical twentieth century philosopher. Lewis retained a kind of Kantian architectonic: ethics could not be viewed apart from epistemology; and epistemology could not be isolated from logic. For Lewis, the philosophical enterprise was a single whole.

An immediate consequence of this is that it is difficult to read any isolated portions of Lewis; the fragments presuppose a considerable understanding of the system as a whole. By this I mean that there are some fundamental philosophical issues which form the foundation for much of Lewis's thinking. These issues are reflected in a tightly knit vocabulary whose full significance is only available to those who are intimately familiar with his system. Consequently the effort involved in coming to grips with Lewis is qualitatively different from that which is typically required in the contemporary environment. These are the factors which have, in part, inhibited the discussion of Lewis's philosophy.
This dissertation presents a discussion of a cluster of philosophical doctrines which lie at the very heart of Lewis's philosophy. Throughout Lewis's philosophical career two questions presented themselves repeatedly: why do we regard some statements as necessarily true, and how do we determine what some term or statement means? In discussing Lewis's answer to these questions my purpose has been twofold. They are important philosophical questions. Consequently I have made some effort to place the discussion in a wider philosophical context. This is particularly the case in Chapters I, II and V. My major purpose, however, has been to penetrate to the roots of Lewis's philosophy. These roots, I believe, lie in his theory of meaning and in the doctrines that surround his views on the a priori and the analytic. To this extent this dissertation is only an introduction to Lewis. It does not extend to a general discussion of his epistemology though he has much of interest to say about empirical knowledge as well as a priori knowledge; nor does it extend to a discussion of his views on valuation although he sees direct links between all of these topics.
Lewis makes it quite clear that he regards the analysis of the *a priori* and the analytic as a prerequisite for any other philosophical endeavour. In the case of Lewis's own philosophical writings it is certainly true that these doctrines are fundamental, and if this study contributes to the understanding of Lewis my purpose will have been achieved.
CHAPTER I

SOME HISTORICAL PERSPECTIVES

§1 Introductory Remarks

§2 Thomas Hobbes (1588-1679)

§3 Gottfried Wilhelm Leibniz (1646-1716)

§4 John Stuart Mill (1806-1873)

Page

2

3

21

31
INTRODUCTORY REMARKS

The purpose of this first chapter is to provide some philosophical context within which we may more profitably discuss C.I. Lewis's theory of the a priori. It would be misleading to suggest that this chapter provides an adequate historical background for a complete study of Lewis. That would require a more general account of Pragmatism and its relations to the origins of modern philosophy in the seventeenth and eighteenth centuries.1 Instead, I shall introduce three philosophers whose contributions to the theory of meaning have been milestones in the history of philosophy. We shall find in their writings attempts to deal with many of the same problems which confronted Lewis.

But there is much more to interest us here in the three philosophers concerned, Thomas Hobbes, G.W. Leibniz and J.S. Mill, than the fact that they were troubled by the same problems which troubled Lewis. Their respective theories have a significant relation to each other. It

1 A detailed history of this kind may be found in H.S. Thayer, Meaning and Action: A Critical History of Pragmatism, (New York: The Bobbs-Merrill Company, 1968).
will be seen that Leibniz's theory was the complete antithesis of Hobbes's theory, whereas Mill's theory was a kind of synthesis of the two. To this extent the three theories discussed here offer a fairly comprehensive range of the alternative solutions to a common problem, which problem is at the heart of every theory of the a priori.

§2 THOMAS HOBBES (1588-1679)

The philosophical writings of Thomas Hobbes are voluminous, to say the least; and all the more surprisingly so when it is realized that he wrote all of them after the age of forty which, for those times, was almost his life expectancy. His interest in philosophy was sparked off by his encounter with geometry. He suddenly realized that the demonstrations of geometry provided one with conclusions which were necessarily true. Hobbes's love for geometry was not so much for the geometry per se, as for the method of deduction which it exemplified.

Hobbes had spent most of his days in the courts of noblemen; his companions were politicians and princes. His involvement in the political life of the time naturally led him to engage in arguments about the nature of man and society, and never more so than during the
troubled reign of Charles I. But political arguments never seemed to arrive at conclusions which had any high degree of certainty. This was what attracted him to geometry. Nothing could detract from the certainty of its demonstrations. Thus it became Hobbes's great ambition to resolve the practical problems of man's political life by writing a political theory modelled on the method of geometry. And it is for these political writings that Hobbes is mostly remembered. Quite naturally, however, Hobbes also wrote about the geometric method itself and in a more general manner about the structure of our language and the nature of its component elements. It is this aspect of Hobbes's writings which will concern us here.

The most elementary units of language are, according to Hobbes, names. Names serve as Marks by which we remind ourselves of the variety of our experiences; and they serve as Signs by means of which we communicate to others the conceptions in our mind.\(^1\) When words are so used

---

1 Richard Peters, *Body, Man and Citizen*, (New York: Collier Books, 1962), pp. 32-33. This volume comprises selections from Hobbes's writings. For the sake of brevity I shall refer only to this volume and not to the individual titles of Hobbes's works, though all my references are to two works, *De Corpore* and *Human Nature*. 
that they become signs of our thoughts they comprise what is called speech, "of which every part is a name". Hobbes does not explicitly draw a distinction between speech and the written word. Nevertheless, since our speech and written words are isomorphic with each other we may assume that he believes that language generally comprises nothing but names. This being so, perhaps we should look more closely at an actual definition given by Hobbes.

A name is a word taken at pleasure to serve for a mark, which may raise in our mind a thought like to some thought we had before, and which being pronounced to others, may be to them a sign of what thought the speaker had, or had not before his mind.

Three problems are immediately raised by this definition: the arbitrariness of names, what they are signs of, and what sorts of things they actually name. The first of these three seemed unquestionable to Hobbes. Although we may inherit established usages for words, they were originally "taken at pleasure" by some person to serve as a mark for his memory. In other words, Hobbes is stating that it is an arbitrary matter which word serves as a mark for some particular conception in our mind.

---

1 Ibid., p.33
2 Ibid., p.34
3 Ibid., p.34, p.197
For Hobbes, "names are signs not of things, but of our cogitations". The reasoning behind this is that the object itself is never present to the mind or in the mind. What is in the mind is a thought or a conception of some object. Words are used, according to Hobbes, to mark or identify these thoughts for our own benefit, or to signify to others some thought which we wish to communicate to them. Thus there is a distinction between the things of which names are signs and the things which they actually name.

There is in our language a natural tendency to regard names as always being names of particular things. Since Hobbes treats all the terms of our language as names, he is forced to qualify the sense in which it may be said that all names name something. He cites "a man", "a tree" and "a stone" as examples of names which name "the things themselves". But he recognizes that in dreams men have images of men and trees and stones; and that although these do not properly exist as objects, they are properly named by the same names as their "real" counterparts. Nor are illusions the

---

1 Ibid., p.34
2 Ibid., p.35
only non-objects named by names. "Future" is a name for which Hobbes could find no thing named; so also is "nothing". This did not deter him from his determination to call all terms "names". Instead, he argued that for the sake of simplicity it would be better to retain the word "thing" for whatever is named by a name, whether that thing be truly existent or not.

But seeing every name has some relation to that which is named, though that which we name be not always a thing which has a being in nature, yet it is lawful for doctrine's sake to apply the word thing to whatsoever we name; as if it were all one whether that thing be truly existent or be only feigned.

There is something very naive about this view. Hobbes seems to acknowledge that what he says about names is not universally true. Some names name things; others do not. But Hobbes seems to think that the difference between such names is not very significant. Why else would he persist in using the word "thing" for whatever is named by any name? Hobbes's difficulties here arise from the fact that he knew no way of distinguishing between things other than by the names which were given to them.

---

1 Ibid., p.35
2 Loc. cit.
Undoubtedly these are the factors in Hobbes's theory which caused later philosophers to label him a Nominalist. But we need to be sure what such a label means. Like so many "-isms", nominalism suffers from acute schizophrenia. Its different characters are barely recognizable. If we state it in its most extreme form, however, we shall then be in a position to indicate in what respect Hobbes's account falls short of this extremity. A.D. Woozley characterizes the extreme nominalist thesis in the following way: the only thing which is common to any class of particulars having the same name is the fact that they do have this same name. In other words, the extreme nominalist would reject any attempt to explain why some object is called a chair, or why it belongs to the class of chairs, in terms of the properties or qualities which inhere in the object itself; it is a chair if and only if it is named a chair.

By using a different vocabulary, perhaps we could state the extreme nominalist thesis in another way. All the terms in our language are names; what they name are particulars; the particulars named by any one name

---

constitute the denotation of that name. Since the extreme nominalist denies that there are in objects themselves any criteria for giving a particular name to a particular object, he implicitly denies that names have any connotation. Furthermore, since there are no terms other than names, we can force the extreme nominalist into the following position: all terms have denotation; no terms have connotation.

For our purposes the task now is to discover the extent to which Hobbes subscribed to such a doctrine and the extent to which he differed from it. I shall argue that Hobbes unnecessarily commits himself deeply to an extreme form of nominalism. I say "unnecessarily", because I believe there are passages in which Hobbes betrays his awareness of a need for moderation. Nevertheless, his failure to pursue these avenues leaves him deeply entrenched in the nominalist camp.

First, however, we need to look at some more definitions; in particular, of propositions and of truth.

A proposition is a speech consisting of two names copulated, by which he that speaketh conceives the latter name to be the name of the same thing whereof the former is the name; or (which is
all one) that the former name is comprehended by the latter.¹

A true proposition is that whose predicate contains or comprehends its subject, or whose predicate is the name of everything of which the subject is the name... That which is not true, or that whose predicate does not contain its subject, is called a false proposition.²

Hobbes obviously believed that sentences which did not conform to his simple subject-predicate form could be analysed in such a way that the propositions which they expressed did have the required form.³

These definitions together with many similar passages suggest a thoroughly nominalist doctrine. Although the vocabulary ("comprehends" and "contains") is perfectly compatible with doctrines which allow terms to have connotation, it is difficult to read any such sympathies into Hobbes's account here because he explicitly analyses these terms in a nominalistic manner. According to these definitions a predicate contains or comprehends a subject if and only if the predicate names all of the things named by the subject.

---

¹ Op. cit., p. 44
² Ibid., p. 48
³ Ibid., p. 51-52
A.D. Woozley points out that if all the individuals called by the same name had nothing in common but being called by the same name, no reasons could be given to explain why those particular objects and no others had that name. Or more generally, there can be, under these conditions, no criteria for determining whether or not some object is to be included in or excluded from a class.

That the only criteria for class inclusion should be that the objects be nameable by the same name, and that it be purely arbitrary which objects are named by which names, seems too blatantly wrong for a philosopher of Hobbes's stature to entertain. It would be a mistake, however, to suggest that Hobbes subscribed to such a view without reservations. There is evidence that he saw the need for quite a different account. In the *Leviathan* (Ch. 4) he explicitly states that "one universal name is imposed upon many things, for their similitude in some quality or other accident". This indicates that although it is an arbitrary matter which name is used to mark which class, there is a non-arbitrary element in the fact that

1 
some particular group of things form a class and are nameable by the same name. This non-arbitrary element resides in the fact that in these objects there is some "similitude in some quality or other accident". To my knowledge, however, Hobbes nowhere elaborates on what he means by "similitude in some quality or other accident". This passage modifies the extreme element in his nominalism; but, since he does not tell us what this modification means or how it functions, we are in no position to measure the extent of his departure from the extreme doctrine.

It should not be thought, however, that this passage from the Leviathan was simply an isolated passage which was inconsistent with all else that he wrote. I think there are a number of passages in which the tension between Hobbes's nominalism and a need to explain class-membership more clearly, is evident. Consider the following passage in which Hobbes defines evidence which, with truth, is necessary for knowledge:

It (evidence) is the concomitance of a man's conception with the words that signify such conception in the act of ratiocination: for when a man reasoneth with his lips only, to which the mind suggesteth only the beginning, and followeth not the words of his mouth with the conceptions of his mind, out of custom, of so speaking; though he begin his ratiocination with true
propositions, and proceed with certain syllogisms, and thereby make always true conclusions; yet are not his conclusions evident to him, for want of the concomitance of conception with his words: for if the words alone were sufficient, a parrot might be taught as well to know truth, as to speak it.

The key phrase here, of course, is "the concomitance of a man's conception with the words that signify such conception". The interpretation which we place on this phrase, and in particular on the word "conception", has a great bearing on Hobbes's theory of meaning. One thing seems fairly certain; the conception which is in the mind cannot simply be a name. It would be too trivial a doctrine to deserve the importance Hobbes gives to it if evidence simply consisted of the correlation of the words which we are thinking with the words which we utter. Indeed, it is not clear why such a correlation or concomitance should be called evidence for my knowledge, in any sense of "evidence". Hobbes, however, does attempt to clarify what he means by evidence, and thus what he means when he talks of the concomitance of a man's conceptions with his words.

Evidence is to truth, as sap is to the tree, which, so far as it creepeth along with the body and branches, keepeth them alive; where it forsaketh them, they die; for this

---

evidence, which is meaning with our words, is the life of truth. ¹

As the last phrase in this passage suggests, the evidence of which Hobbes is speaking deserves the importance he gives to it because it shows that a man understands the meaning of the words he is using. This is what is meant by the concomitance of a man's conceptions with his words.

It could be thought that Hobbes intended "conception" to be taken as a kind of sensory representation in the mind; of things seen with the eye, a visual image; of things heard, an auditory image; and so on. There are passages which would fit in quite well with such a theory. At one time, when explaining why universal names are required, Hobbes says that "because from divers things we receive like conceptions, many things must needs have the same appellation". ² The "like conceptions" which we receive could very well be sensory representations in the mind. But then Hobbes is left with the difficulty of explaining how we determine that one conception is like another. This problem is not basically different from the one with which we started.

¹ Loc. cit.
² Loc. cit. p.198
Before proceeding any further, let us take stock of the position so far. The most extreme nominalist doctrine states that the only thing which is common to any class of particulars having the same name is the fact that they do have this same name. Hobbes concedes, however, that particulars have the same name because of "their similitude in some quality or other accident". Because of these similarities we receive from such objects "like conceptions".

Given this departure from the nominalist doctrine, we may anticipate even further departures by Hobbes. In particular, we may expect him to analyse the "similitude of quality or other accident" in objects in terms of some common set of attributes or properties which they share. If Hobbes held that there is a specifiable set of properties which constitute the necessary and sufficient conditions for the applicability of a name, he would no longer be properly called a nominalist. Nor is such a theory inconsistent with most of what Hobbes says. It is a relatively simple matter to develop the theory in such a way that what Hobbes means by "the conception in our mind" is an articulate understanding of the necessary and sufficient conditions for the applicability of a name.
Thus the concomitance of our conceptions with the
words we use would amount to a proper understanding of
the connotation of words and the relation of such
connotation to the word's denotation. The fact that
the word "rectangle" names all of the things named by
the word "square" is sufficient to guarantee the truth
of "All squares are rectangles". But it does not entitle
me to say that I know that all squares are rectangles.
Such knowledge requires that I know what are the necessary
conditions for the use of those names.

If this is a fair interpretation of Hobbes then,
in effect, he thus recognizes the distinction between
denotation and connotation. That vocabulary, of course,
was not available to him;¹ but the two aspects of meaning
are sufficiently clear. In such a theory a name would
denote the individuals which it named; and a name would
connote either the properties or the names of the
properties which must obtain in an object if the name
is to be applicable to it.

¹ Hobbes does not seem to have been familiar with the
similar distinction which was marked with different
terminology in the Port-Royal Logic. See W. Kneale
and M. Kneale, The Development of Logic, (Oxford:
It would, however, be the wishful thinking of a non-nominalist to say that this was a fair interpretation of Hobbes's position. It may not be inconsistent with his theory; it may, indeed, solve for Hobbes the problem of explaining what a conception is, which problem he left unexplained; but the simple fact remains that Hobbes did not see his theory being developed this way, either explicitly or implicitly.

We have fairly clear evidence of this in the passages where Hobbes attempts to distinguish between necessary and contingent propositions. Without some distinction approximating to the denotation-connotation distinction, any theory will have difficulty in sustaining a distinction between necessary and contingent propositions. If names have only denotation and not connotation, then there are no criteria for the applicability of names. Thus it is difficult to conceive what could count as reasons for believing that any two names should necessarily denote the same objects. With any idea approximating to connotation, however, it is possible to construe a necessary relation between some names in terms of their criteria of applicability. Hobbes's account of the necessary-contingent distinction falls far short of the mark and reveals his commitment to the nominalist thesis.
A necessary proposition is when nothing can at any time be conceived or feigned, whereof the subject is the name, but the predicate also is the name of the same thing; as man is a living-creature is a necessary proposition because at what time soever we suppose the name man agrees with anything, at that time the name living-creature also agrees with the same. But a contingent proposition is that, which at one time may be true, at another time false; as every crow is black; which may perhaps be true now, but false hereafter.¹

Within these definitions there is a kind of circularity which is not explained. Necessary propositions are such that it cannot be conceived that the predicate does not name the things named by the subject. Contingent propositions are those which may now be true but may at another time be false. The use of these modal terms in the definitions needs to be explained. Hobbes provides no criteria for determining whether some predicate could conceivably fail to name the thing named by some subject; nor does he provide us with criteria for determining whether some proposition may be true now but false at some other time. Without some criteria of this kind Hobbes's distinction between necessary and contingent propositions is not viable.

¹ Ibid., p. 50
In defence of Hobbes it could be argued that the use of modal terms in his definition of the distinction between necessary and contingent propositions is unfortunate, but not essential since the spirit of the definitions could be captured in non-modal formulae. Consider the following:

A **necessary** proposition is one which is true at all times.

An **impossible** proposition is one which is false at all times.

A **contingent** proposition is one which is sometimes true and sometimes false.

This is not inconsistent with what Hobbes says about the necessity of "Man is a living-creature"; it seems sufficient for the necessity of that proposition that it be always true.¹ This kind of theory, however, is no more satisfactory than the one it is supposed to replace. In particular it classifies some propositions as necessary which would not ordinarily be called necessary. For example "The sun traverses the sky from east to west" is always true; but it is not traditionally regarded as a necessary truth. The theory could be amended to exclude

from the classification of necessary propositions those which, although they have always been true, could at some time be false. But this re-introduces the modal circularity; Hobbes would still be in need of some criterion for determining which propositions could at some time be false, though in fact they have always been true. He may have thought he was providing the required criterion when he stated later in the same paragraph:

In every necessary proposition, the predicate is either equivalent to the subject, as in this, man is a rational living-creature; or part of an equivalent name, as in this, man is a living-creature ...¹

Nowhere, however, does Hobbes define what it is for two names to be equivalent. Again we could impute to him the view that two names are equivalent if they have the same connotation. But he does not say that. Moreover, it would seem more likely in this context that Hobbes would say two names are equivalent if they name the same things.

If we accepted this notion of equivalence it would not be adequate for the definition of necessary

¹ Ibid., p. 50
propositions envisaged by Hobbes. It is a fact that all ruminant animals have cloven hoofs. Thus whatever is named by "ruminant animal" is also named by "animal with cloven hoofs". If names are equivalent when they name the same things, then these names would be equivalent; and "All ruminant animals have cloven hoofs" would be a necessary proposition. But, intuitively, there seem no grounds at all for regarding this proposition as necessary. It seems quite conceivable that some ruminant animal should have webbed feet. Thus the difficulty remains. Hobbes not only seemed incapable of specifying any criteria for the applicability of a name; he did not seem to be greatly worried by not having such criteria. For him it seemed sufficient that names should have denotation; he saw no need for connotation. But for his failure to see that need, he paid the price of having no satisfactory distinction between necessary and contingent truths.

§3 GOTTFRIED WILHELM LEIBNIZ (1646-1716)

In 1670, at the age of twenty four, Leibniz wrote a letter to Thomas Hobbes in which he said that he had read almost all of Hobbes's works. He also acknowledged
that he had "profited from them as much as from few others in our century".¹ The letter is indeed full of praise and admiration but it is primarily concerned with Hobbes's political writings together with some of his general principles of motion. There is no mention of Hobbes's theory of language. Perhaps even in his early enthusiasm for Hobbes, Leibniz had reservations about his nominalism. Certainly by 1677 these reservations were made explicit. In a dialogue, now known as a "Dialogue on the Connection between Things and Words", Leibniz attacks the Hobbesian position.

Leibniz here agrees with Hobbes that truth and falsity belong to our thoughts and the propositions which express them, not to things. But this raises problems about the cause or source of truth. "Certain men of learning" says Leibniz, "believe that truth arises from the human will and from names or characters."² The dialogue proceeds to show how the plausibility of this view arises from the fact that without characters we cannot think clearly of anything at all. "But can anyone

¹ Leroy E. Loemker (ed) Leibniz: Philosophical Papers and Letters, (Illinois: University of Chicago Press, 1956), Vol.1, p.162. Hereafter all references to this volume will be abbreviated as PPL.
² PPL., p.280.
depart so far from a sound mind as to persuade himself that truth is arbitrary and depends on names, though he knows that the geometry of the Greeks, Latins, and Germans is the same?"\(^1\) The fact that we recognize sentences in different languages as expressing the same truth suggested to Leibniz that something other than the arbitrary choice of names was the source of truth.

Therefore though truths necessarily presuppose some characters... yet they consist not in the arbitrary element in their characters but in the permanent element in them, namely, in their relation to things.\(^2\)

Leibniz does not give a clear account of this relation between words and things in this early dialogue. But it sets the stage for his later works and certainly makes clear his dissociation from Hobbes's nominalism. The most he says about this non-arbitrary element of characters is that it comprises "a definite analogy between characters and things, and the relations which different characters expressing the same thing have to each other".\(^3\) For a full account of this analogy or relation, however, we must look elsewhere.

\(^1\) [PPL.], p.281.
\(^2\) [PPL.], p.283.
\(^3\) [PPL.], p.282.
One of the central doctrines from which Leibniz never departed is that all propositions are of the subject-predicate form. In his early paper *Of the Art of Combination* (1666) Leibniz states this doctrine and from it concludes that "it is the business of inventive logic (as far as it concerns propositions) to solve this problem: 1. Given a subject, to find its predicates. 2. Given a predicate, to find its subjects."¹ There is no clear account in this article of the nature of subjects and predicates, nor of their mutual relations; but it is significant to notice that he thought it possible to determine the predicates of a given subject by means of logic.

The first clear evidence that Leibniz interprets the relation between subject and predicate intensionally is found in the *Elements of a Calculus* (1679).

This connexion (in the case of true propositions) is, that the predicate is said to be in the subject, or to be contained in the subject; either absolutely and regarded in itself, or at any rate in some instance, i.e. that the subject is said to contain the predicate in a stated fashion. This is to say that the concept of the subject, either in itself or with

¹ G.H.R. Parkinson, *Leibniz: Logical Papers*, (Oxford: Clarendon Press, 1966), p. 3. All future references to this volume will be abbreviated as LLP.
some addition involves the concept of the predicate, and therefore that subject and predicate are related to each other either as whole and part, or as whole and coincident whole, or as part to whole.¹

Leibniz obviously intends that concepts be regarded in some intuitively simple sense as the meanings of words. The contrast between this account and the Hobbesian doctrine is brought out explicitly in an example. Whereas Hobbes would have interpreted "Every pious man is happy" to mean this: the class of happy man includes the class of pious men; Leibniz takes it to mean this: "that the connexion between the concepts of the pious man and of the happy man is such that anyone who understands perfectly the nature of the pious man will realize that the nature of the happy man is involved in it directly."²

Although these views in the Elements of a Calculus represent a considerable advance on The Art of Combination, there is still much that needs explaining. In particular the notion of a concept is not unequivocal. Leibniz has given sufficient information for us to know roughly what

¹ LL.P., p.19
² Loc. cit.
kind of things concepts are; but the boundaries are still not defined. The year 1686 marked an important one in the development of this aspect of Leibniz's theory. In that year he wrote not only his Discourse on Metaphysics and the subsequent correspondence with Arnauld; he also wrote an important paper called General Inquiries about the Analysis of Concepts and of Truths. In these writings we find the clues to the manner in which Leibniz's theory is to be interpreted. In particular, article 13 in the Discourse on Metaphysics provides a sound basis for understanding what a concept is for Leibniz.

We have said that the concept of an individual substance once and for all includes everything which can ever happen to it and that, in considering that concept, one can see everything which can truly be predicated of it, just as we can see in the essence of the circle all the properties which can be deduced from it.¹

If we take seriously the analogy with the essence of a circle, a concept comprises, for Leibniz, all of the properties which must belong to any object which falls under the concept; or, to use a slightly different vocabulary, a concept comprises all of the necessary conditions which must obtain if the word signifying the concept is to apply to some object. As it stands, this notion of a concept seems acceptable were it not

¹ PPL, pp. 475-76.
for the fact that Leibniz also says here that a concept once and for all includes everything that can ever happen to the thing whose concept it is. If this proviso is conjoined with the idea that a concept comprises all the necessary conditions for its applicability, then it seems that the distinction between necessary and contingent truths has been destroyed. Leibniz was well aware of this consequence but he thought he could cope with it by distinguishing between what he called "absolutely necessary" truths and those which are "necessary ex hypothesi".

Some truths are eternal and absolutely necessary. These are expressed by those propositions in which the concept of the predicate is contained in the concept of the subject; and the denial of such a proposition involves a contradiction. Leibniz regards the truths of geometry as paradigms of absolutely necessary propositions; and absolutely necessary propositions are the only propositions which are strictly necessary, or necessary in themselves. Their necessity derives from their own nature and not from the will of God. There are other propositions which, though the concept of their predicate is contained in the concept of their subject (since, for
Leibniz, this is the case with all propositions), are neither eternal nor absolutely necessary; their denial does not involve a contradiction and is therefore not absolutely impossible. These propositions express what we would normally call contingent truths.

Nevertheless Leibniz says that God foresees all contingent truths and to that extent they are certain to him. God can know these truths a priori because his infinite intellect is able to discern that the concept of the predicate is included in the concept of the subject. Leibniz does not explicitly relate God's ability to foresee all things to the fact that all things are in some sense subject to God's will; nevertheless it is clear that he did envisage some direct relation between these two matters. All the truths which are not absolutely necessary are, in Leibniz's terminology, necessary ex hypothesi, i.e., they are in accordance with God's will.

Whatever happens in conformity to these divine anticipations is assured but not necessary and .... if anyone were to do the contrary, he would not do anything impossible in itself, though it would be impossible, ex hypothesi, for it to happen. 1

1 PPL., p. 477,
The notion of necessity _ex hypothesi_ is not without confusion. I interpret Leibniz to mean something like this: the concept of any particular includes everything that ever happens to that particular; therefore the concept of Caesar includes his crossing the Rubicon; it is a matter of dependence upon the free will of God which concepts are actualized; once God wills (directly or indirectly) that some particular concept shall be actualized, it follows that everything that ever happens to the thing concerned is therefore made necessary by God having willed it. In this sense the proposition, "Caesar crossed the Rubicon" is a necessary truth—necessary _ex hypothesi_, not absolutely. Of course it is not contradictory to deny that Caesar crossed the Rubicon. If he had not crossed it, however, the concept of Caesar would have been a different one from that which in fact God did choose to actualize.

In the _General Inquiries about the Analysis of Concepts and of Truth_, however, it seems to me that the account of the distinction between necessary and contingent truths differs significantly from the _Discourse_ account. Here he emphasizes that a necessary proposition can be proved by reducing it to an identical proposition.
A contingent proposition, however, cannot be reduced to an identical proposition;

but is proved by showing that if the analysis is continued further and further, it constantly approaches identical propositions, but never reaches them. Therefore it is God alone, who grasps the entire infinite in his mind, who knows all contingent truths with certainty.¹

This seems quite different from saying that contingent propositions can never be reduced to identical propositions, but are necessary in the sense that God has willed them. While this difference may pose problems for a consistent interpretation of Leibniz, it does not seriously affect our interests; it is more a problem for a Leibnizian scholar.

The contrast with Hobbes is indeed striking. Where Hobbes analysed propositions in terms of names, Leibniz did so in terms of concepts. For Hobbes the crucial thing about names was their denotation; for Leibniz the crucial thing about concepts was their connotation. Hobbes showed no interest in giving any criteria of applicability for names; Leibniz showed no interest in the actual things to which a concept applied. In fact

¹ LLP., p.77.
he explicitly stated on one occasion that he "preferred
to consider universal concepts, i.e. ideas, and their
combinations, as they do not depend on the existence
of individuals".¹ Yet both Hobbes and Leibniz, prima
facie, have difficulty in distinguishing necessary and
contingent truths.

§4 JOHN STUART MILL (1806-1873)

Since the revolution which dislodged
Aristotle from the schools, logicians
may almost be divided into those who
have looked upon reasoning as an affair
of ideas and those who have looked upon
it as essentially an affair of names.²

In this passage Mill marks the distinction which
is exemplified in the contrast between Leibniz and
Hobbes. But Mill has no intention of identifying
himself with either of these alternatives. He describes
the purely intensional analysis of the kind represented
here by Leibniz as "one of the most fatal errors ever
introduced into the philosophy of logic".³ Any theory
which considers that the investigation of truth consists
in contemplating our ideas or conceptions of things, Mill

¹ LLP., p.20
² J.S. Mill, A System of Logic, (London: Longmans Green
³ Ibid., p.57
regards as "tantamount to the assertion that the only mode of acquiring knowledge of nature is to study it at second hand, as represented in the mind."¹

In view of this rejection of the intensional analysis, it may be expected that Mill embraces some form of Hobbesian nominalism. He properly interpreted Hobbes as saying that "All men are living beings" is true "because living being is a name of everything of which man is a name".² But, Mill argues, this is not just because the people who invented the words intended that they should apply to these particular things. Some words, he concedes, do apply to objects just because it has been legislated that they serve this purpose. These are what Mill calls non-connotative names.³ They may signify either a subject or an attribute, but not both. By a subject, Mill means anything which possesses attributes. Thus John, London, and England, are non-connotative names since they signify a subject only; so also are whiteness, length and virtue, since they signify attributes only.

¹ Loc. cit.
² Ibid., p.58
³ Ibid., p.19
But non-connotative names represent only a minority of names. Connotative names are those which denote a subject (or, more likely, subjects) and imply an attribute. Mill illustrates this with the word "white", which denotes all the things that are white and implies that all the things denoted by it have the attribute of whiteness.

Thus it was inevitable that Mill should reject Hobbes's nominalism, not because it was blatantly wrong but because it could only deal adequately with that small number of all propositions whose subject and predicate were both non-connotative terms, such as "Hyde was Clarendon", or "Tully is Cicero". In order to account for propositions which include connotative terms, Mill adopted a different notion of a class. Where the nominalist doctrine holds that a class is absolutely nothing but an indefinite number of individuals denoted by a general name and, that it is the name given to them in common which makes them a class, Mill argues that individuals which share a common name do so because they belong to the same class. And they belong to the same class because they have common attributes.

1 Ibid., p.58
Hobbes' account of propositions satisfied Mill for propositions whose subject and predicate are both non-connotative terms. Now it is possible for Mill to explain how other propositions derive their meaning. If the subject is non-connotative and the predicate connotative, Mill says that "the meaning of the proposition is that the individual thing denoted by the subject, has the attributes connoted by the predicate".\(^1\) In more explicit terms, the proposition that John Smith is bald means that the individual denoted by "John Smith" has the attribute of baldness.

It becomes more complicated, however, when both the subject and the predicate are connotative terms. In such a case as "All men are mortal" the attributes connoted by "mortal" are not being predicated of any given individual; nor are they even being predicated of any number of previously known individuals. Rather, it is being asserted

that whatever has the attributes connoted by the subject, has also those connoted by the predicate; that the latter set of attributes constantly accompany the former set.\(^2\)

\(^1\) Ibid., p.62
\(^2\) Ibid., p.63
It could be thought on this basis that what Mill did was to embrace both the Hobbesian and the Leibnizian analyses - each for different kinds of propositions. But that would seriously misrepresent Mill. There are similarities between what Leibniz means by a concept and what Mill means by a connotation: they both comprise the necessary attributes which must obtain in any individual thing if the term in question is to be applicable to that thing. But the analogy is not complete. In particular, Leibniz and Mill had radically different ideas about the relations which could hold between sets of attributes. For Leibniz, the fact that one concept included another concept had nothing to do with empirical phenomena; for Mill, the fact that one set of attributes constantly accompanies some other set of attributes is derived from an empirical generalization. This is made clear in the following passage:

If it be remembered that every attribute is grounded on some fact or phenomenon, either of outward sense or of inward consciousness and that to possess an attribute is another phrase for being the cause of, or forming part of, the fact or phenomenon upon which the attribute is grounded; we may add one more step to the analysis. The proposition which asserts that one attribute always accompanies another
attribute, really asserts thereby no other thing than this, that one phenomenon always accompanies another phenomenon.¹

One obvious consequence of this doctrine is that Mill, like Hobbes and Leibniz, will have difficulty in accounting for necessary truths. His attempt to overcome this difficulty is twofold. First he draws a distinction between what he calls "real" propositions and "verbal" propositions. A proposition whose subject and predicate are both non-connotative terms will be a verbal proposition since it can tell us nothing other than the fact that two terms are used to name the same thing. A proposition whose subject is a non-connotative term but whose predicate is a connotative term will be a real proposition since its predicate provides us with information about the subject which is not provided by the subject. This leaves us with propositions whose subject and predicate are both connotative terms. Some of these will be real; others will be verbal. Those will be real whose predicate connotes something not connoted by the subject; those whose predicate connotes only those attributes which are separately connoted by the subject will be verbal.²

¹ Loc. cit.
² Ibid., pp. 72-74.
The most likely candidates for being necessary truths are the verbal propositions whose subjects and predicates are both connotative terms. These are the propositions whose predicates connote nothing which is not independently connoted by the subjects. Leibniz would say that the concept of the predicate was included in the concept of the subject. But for Mill such a proposition is not true because the connotation of the subject includes the connotation of the predicate; rather, the connotation of the subject includes the connotation of the predicate because the proposition is true.¹ This is really another way of stating his thesis that two sets of attributes constantly accompany each other because the respective phenomena in which they are grounded always accompany each other.

The distinction between real propositions and verbal propositions is certainly akin to the scholastics' distinction between essential and accidental propositions as well as to the Kantian distinction between analytic and synthetic propositions. But unlike those distinctions, Mill is neither able, nor does he wish, to use his

distinction to mark off some propositions which are necessarily true. The verbal propositions which are not stipulative are empirical generalizations.

The second aspect of Mill's account of necessary truth, deals with what he calls the truths of deductive science, such as geometry and mathematics. But here again, as in the distinction between real and verbal propositions, there is no compromise by Mill. He explicitly says that the character of necessity which is customarily ascribed to the truths of mathematics is an illusion.¹ His discussion of geometry is indicative of what he means.

Insofar as the theorems of geometry are derived from some initial definitions or axioms, Mill argues that the theorems can never be true of anything unless it is assumed that there exists a real world which conforms to the definitions. But in the case of geometry Mill says this assumption is false: there are no points without magnitude; no lines without breadth, nor perfectly straight; and so on. Nor would Mill accept as an alternative that the lines and circles and points which are the subject of geometry exist in our conceptions in the mind.² He rejected this possibility on the grounds

¹ Ibid., p.147
² Ibid., p.148
that it is psychologically impossible to conceive a line without breadth. He regarded conceiving or imagining as a kind of mental picturing.

Since there were no existing objects in nature, nor in the mind, which conformed to the definitions of geometry, and since it made no sense to say that geometry was true of non-entities, Mill tried to find some way in which geometry could be true of the points and lines and circles which did exist in nature.

The definitions, as they are called, must be regarded as some of our first and most obvious generalizations concerning those natural objects. The correctness of those generalizations, as generalizations, is without flaw: the equality of all the radii of a circle is true of all circles so far as it is true of any one: but it is not exactly true of any circle; it is only nearly true.¹

Thus Mill concludes that the only necessity which belongs to the theorems of geometry is that they correctly follow from the definitions and axioms from which they are deduced. But on Mill's view, "those suppositions are so far from being necessary, that they are not even true".² Nor, then, are the theorems of geometry necessary.

¹ Loc.cit.
² Ibid., p.149.
in any strict sense of the word. Mill likewise regards arithmetical truths as empirical generalizations.

Mill accepted neither the nominalist thesis of Hobbes, nor the intensionalist thesis of Leibniz. But he drew heavily from both. Consequently his own theory had considerably more versatility in that it was capable of analysing a wider range of propositions. But Mill was an empiricist, and, as such, he gave no place in his theory to necessary propositions which were about the world. It could be argued that Lewis took up the task where Mill left off; in particular, by attempting to show that a theory incorporating necessary propositions which are in some sense about the world, is not inconsistent with empiricism.
# CHAPTER II

THE LOGICAL BEGINNINGS

<table>
<thead>
<tr>
<th>§5</th>
<th>Introductory Remarks</th>
<th>42</th>
</tr>
</thead>
<tbody>
<tr>
<td>§6</td>
<td>Implication in Principia Mathematica</td>
<td>44</td>
</tr>
<tr>
<td>§7</td>
<td>The Paradoxes of Material Implication</td>
<td>52</td>
</tr>
<tr>
<td>§8</td>
<td>The System of Strict Implication</td>
<td>61</td>
</tr>
<tr>
<td>§9</td>
<td>Alternative Logics and the Foundation of Necessary Truth</td>
<td>77</td>
</tr>
</tbody>
</table>
The writings of C.I. Lewis are concerned primarily with problems in three areas of philosophy: those dealing with formal logic; those dealing with epistemology; and those dealing with the theory of evaluation. These different interests correspond closely, though with some overlapping, to the periods which may be distinguished as the early, middle and late periods of his life. Although his most explicit writings about the notions of meaning and necessity, and the doctrine of the a priori belong to middle period when his attention was focussed on the problems of epistemology, it was in the early period that most of the seeds were planted. Indeed, many of the doctrines which are crucial to his later theories of meaning, necessity and the a priori, are clearly recognizable in embryonic form in the early period.

In the academic year 1910-11 Lewis acted as an assistant to Josiah Royce in two courses in logic at Harvard. Volume I of Principia Mathematica was fresh from the press when Royce handed him a copy. Lewis spent the better part of a year studying it with undoubted admiration, though also with misgivings right from the start about the presence of the theorems
peculiar to material implication. These theorems were not new to him; he had seen them in Peirce and Schröder. But it was the *Principia Mathematica* which stimulated Lewis into critical action.

In consequence of this, he published his first challenge to the status of the system of material implication as an adequate calculus of propositions only eighteen months after the appearance of *Principia Mathematica*. In this article, *Implication and the Algebra of Logic*, Lewis drew attention to the so-called paradoxes of material implication with the purpose of exhibiting the characteristics and limitations of the implication relation around which the system was built; he also discussed its relation to the "implies" of ordinary valid inference.

In this article Lewis proposed an alternative propositional calculus which he subsequently published in 1913 under the title *A New Algebra of Implications and some Consequences*, and again in 1914 under the title *The Calculus of Strict Implication*. A more refined version of the calculus was also published in 1914 in *The Matrix Algebra for Implications*.

---


This system was more fully presented in Lewis's *A Survey of Symbolic Logic*[^1] published in 1918. Its final and definitive form appears as the system S2 in the book *Symbolic Logic*.[^2]

It is the purpose of this chapter to examine the issues involved in these early writings to see what bearing they have on Lewis's theory of meaning and necessity. Lewis once said of symbolic systems that "there is nothing in them which we have not put in ourselves, but they teach us inexorably what our commitments mean."[^3] Since the major point of difference between the systems of strict implication and material implication is the notion of necessity, we can reasonably anticipate that Lewis's commitments in the system of strict implication will be very informative.

§6  IMPLICATION IN PRINCIPIA MATHEMATICA

Among the most important theorems which are immediately derivable from the primitive propositions

assumed in *Principia Mathematica* are the following: ¹

* 2.02 \( q \supset (p \supset q) \)

* 2.21 \( \sim p \supset (p \supset q) \)

Whitehead and Russell provide in their text the following interpretations of these theorems: ²

* 2.02 A true proposition is implied by any proposition.

* 2.21 A false proposition implies any proposition.

To understand these interpretations properly it would seem helpful to look at what Whitehead and Russell have to say about the implication relation itself.

When a proposition q follows from a proposition p, so that if p is true, q must also be true, we say that p implies q. ³

On the basis of this we should be able to make substitutions in the interpretations of *2.02* and *2.21* offered by Whitehead and Russell to arrive at the following results:

1. All numbers prefixed by an asterisk refer to the propositions as marked in *Principia Mathematica*.


* 2.02 A true proposition follows from any proposition.
* 2.21 Any proposition follows from a false proposition.

Seen in this light, both * 2.02 and * 2.21 seem blatantly false; they offend against our intuitive understanding of what it is for one proposition to follow from another. "John has more money than Peter" follows from "John has more money than Peter and George and William combined"; but "Fido has canker" does not follow from "Mt Kosciusko is the highest mountain in the world" - at least, not in any acceptable sense of "follows from". Nevertheless, according to my derived interpretation of * 2.21, "Fido has canker" does follow from "Mt Kosciusko is the highest mountain in the world", since the latter is false. This reveals the sense in which * 2.02 and * 2.21 are said to be paradoxical: they each assert something to be true which, by all our ordinary standards, appears to be false.

In retrospect it must be said that I have presented this introduction to Principia Mathematica in an unfavourable manner. Nevertheless it is significant that I have been able to do this without departing from the actual text.
If I have done the text any injustice it has been through creating the impression that the passage I quoted about implication\(^1\) was a definition of implication. In fact, it was what Whitehead and Russell offered as an informal statement of what was about to be defined precisely. In case it should be thought that I have significantly distorted Whitehead's and Russell's views, the following observation is worth noting. Whitehead and Russell introduced the notion of implication in the passage which is now in question. They then proceeded after some further preamble to formulate a precise definition. They make no retractions with respect to their original statement. Therefore it seems reasonable to me to regard this informal statement as a kind of *definiendum* for which a precise *definiens* is about to be given. For this reason I regard any confusion which arises from these passages in *Principia Mathematica* as a consequence of the authors' manner of expression and not as a consequence of any misconstruction on my part. Let us then consider their formal definition.

---

1 See above, p.45.
The essential property that we require of implication is this: "What is implied by a true proposition is true". It is in virtue of this property that implication yields proofs. But this property by no means determines whether anything, and if so what, is implied by a false proposition. What it does determine is that, if \( p \) implies \( q \) then it cannot be the case that \( p \) is true and \( q \) is false, i.e. it must be the case that either \( p \) is false or \( q \) is true. The most convenient interpretation of implication is to say, conversely, that if either \( p \) is false or \( q \) is true, then "\( p \) implies \( q \)" is to be true. Hence "\( p \) implies \( q \)" is to be defined to mean: "Either \( p \) is false or \( q \) is true". Hence we put:

\[
* \ 1.01 \quad p \Rightarrow q = \sim p \vee q \quad \text{Df.} \ 1
\]

The preamble to this formal definition does nothing to lessen the confusion surrounding the notion of implication; it only accentuates it. There is a statement of what the authors call the essential property of implication. From this they derive some conditions for implication. In the first instance they derive some necessary conditions. If \( p \) implies \( q \), then the following conditions must obtain:

\[\text{Ibid.}, \ p.94.\]
C1  It cannot be the case that p is true and q is false.

C2  It must be the case that either p is false or q is true.

These conditions are equivalent and we need therefore concern ourselves only with one of them.

If we use the notation of Principia together with "◊p" for "p is possible" and "□p" for "necessarily p" then we can state the necessary condition in the following way:

(1) If p implies q then □(~p v q)

It is possible, however, to interpret this necessary condition quite differently. I shall argue that Whitehead and Russell were insensitive to the ambiguity of their statement. Before considering this different interpretation, however, it will be helpful to consider what Whitehead and Russell suggested as a sufficient condition for implication. Let us call this C3.

C3  Either p is false or q is true.

The obvious interpretation of this condition is as follows:

(2) 1.  (¬p v q) then 'p implies q'.
Now, in introducing this sufficient condition, Whitehead and Russell described it as the converse of the previously stated necessary condition; and this is the proper relation between necessary and sufficient conditions. But (2) is not the converse of (1); it lacks the modal operator which occurs in (1). On re-examining the text we see that the full statement of (2) says that if either p is false or q is true, then 'p implies q' is to be true. By reading the "is to be true" as "must be true" we get the following:

\[ (2') \quad \text{If } (\neg p \lor q) \text{ then } \square(p \implies q) \]

But this is still not the converse of (1). It does suggest, however, a different interpretation of (1) which would lead to yet another interpretation of (2). The scope of the modal operator could be reinterpreted with the following result.  

\[ (1') \quad \square\left[ \text{If } p \implies q \quad \text{then } (\neg p \lor q) \right] \]

The converse of this would then be:

\[ (2'') \quad \square\left[ \text{If } (\neg p \lor q) \quad \text{then } p \implies q \right] \]

---

1 I am indebted to Dr E.M. Curley for drawing my attention to the problems surrounding the scope of the modal operator.
In this sense the modal operator '□' modifies the "if-then" relation as a whole, rather than the consequent only. These interpretations are perfectly legitimate interpretations of the text although Whitehead and Russell were obviously unaware that what they had written could be thus interpreted. There are, indeed, good reasons for believing that they placed no importance at all on the presence or absence of modal terms in their preamble. I think this is borne out by the subsequent definition which they offered; "'p implies q' is to be defined to mean: 'Either p is false or q is true'". We could expect such a definition to be derived from the following necessary and sufficient conditions in which no modal terms occur.

(1) If p implies q then either p is false or q is true.

(2) If either p is false or q is true then p implies q.

It should be pointed out that there is nothing in the discussion so far which discredits the formal definition encapsulated in *1.01. It is unassailable in the sense that the authors have the right to define
their terms as they see fit. What has emerged is that in the preamble which supposedly explains why the particular definition in *1.01 is adopted, Whitehead and Russell were ambiguously misleading. Through their imprecise use of modal terms they created the impression that their symbol '⊃' adequately represented the ordinary notion of implication.

§7 THE PARADOXES OF MATERIAL IMPLICATION

The derived propositions *2.02 and *2.21 are the customary referents of the label "the paradoxes of material implication": a true proposition is implied by every proposition, and a false proposition implies every proposition. But in fact there is a whole cluster of propositions involving material implication in the same paradoxical sense, whatever that may be. In this section, therefore, I will be primarily concerned with the objections which Lewis raises against the definition *1.01 as a definition of implication.

* 1.01 \( p \Rightarrow q = \neg p \lor q \) \hspace{1cm} \text{Df.}

Lewis thought that the definiens in this expression was equivocal.¹ 'Either .... or' propositions may be

¹ "Implication and the Algebra of Logic", p. 523.
interpreted in any one of three different ways. (1) One, but not both, of the disjuncts is true. (2) At least one of the disjuncts is, as a matter of fact, true. (3) In some sense yet to be defined, one of the disjuncts is necessarily true. The first of these was explicitly excluded by Whithead and Russell.\(^1\) Lewis thus concentrated on the other alternatives. He illustrated type (2) by the following disjunction:\(^2\)

\[
\text{Either Caesar died or the moon is made of green cheese.}
\]

Since one of the disjuncts is true, the whole disjunction is true. But it is not possible to determine the truth of the disjunction without recourse to the facts which determine the truth or falsity of the constituent disjuncts. Thus the truth of the disjunction is a contingent truth. This is the main point of contrast between disjunctions of type (2) and those of type (3). Lewis illustrated the latter with this example:

\[
\text{Either Matilda does not love me or I am beloved.}\(^3\)
\]

\(^3\) Loc. cit.,
Lewis says of this disjunction that at least one of the constituent disjuncts is necessarily true. He perhaps should have said of the disjunction that it is necessary that one of the disjuncts be true. Nevertheless he makes his purpose clear. "Suppose one of its propositions false and you are in consistency bound to suppose the other true." A disjunction of this kind is such that it is possible to know that it is true without knowing which of the disjuncts is true; it would still be the case however that a disjunction which is allegedly intensional would be falsified by the falsity of the two disjuncts.

Disjunctions of type (2) were classified by Lewis as extensional disjunctions; those of type (3) he classified as intensional disjunctions. Thus he thought that the definition of implication was ambiguous, depending on the kind of disjunction used in the definiens. If 'p implies q' is defined as "As a contingent matter of fact, either p is false or q is true", then the implication relation so defined differs substantially from one in which "p implies q" is defined as "As a matter of logical necessity either p is false or q is true".

1 Loc.cit.
When Lewis described Whitehead's and Russell's definition \*1.01 as equivocal it is clear that these were the alternatives which he had in mind. What is not clear is whether Lewis thought that every instance of disjunction, and consequently every occurrence of \( \lor \), in *Principia Mathematica* was ambiguous in this sense. If Lewis did believe this, he was certainly mistaken. As was indicated in §6, the authors' explanatory notes are ambiguous; but in the formal development of the system the use of the disjunction sign \( \lor \) is made unequivocal by the inclusion of the postulate \*1.3.

\[
\*1.3 \quad q \lor (p \lor q)
\]

The principle of addition, as this postulate is known, could not be true if the disjunction sign signified an intensional disjunction. If that were the case, the principle would assert that every true proposition is intensionally disjoined with every other proposition. But such a conclusion would nullify Lewis's distinction between extensional disjunctions and intensional disjunctions. If every proposition is intensionally disjoined with every other proposition,
then there can be no extensional disjunction unless it be a kind of intensional disjunction. Prima facie, however, Lewis's distinction is valid and is worth preserving. Because of these unacceptable conclusions if we interpret the disjunction in *1.3 intensionally, it, at least, must be interpreted extensionally. Furthermore, there are no propositions in *Principia Mathematica* incorporating the sign '∨', which are false if interpreted extensionally but true if interpreted intensionally. The disjunction sign in *Principia Mathematica* is unequivocally an extensional disjunction. What, then, could Lewis mean when he says that the definition *1.01 is equivocal? I take it that the point which he is trying to make is that it would be possible to incorporate the same outward expression of *1.01 into a system of logic while giving to the logical constants a different meaning. In particular the implication relation could be what Lewis calls a strict implication, if we interpret the disjunction sign as an intensional disjunction. But if we interpret *1.01 in this manner we shall be forced to adopt an entirely different
calculus. As was indicated earlier, the axiom of addition would have to be dropped since it is not true of intensional disjunctions; and without the axiom of addition it is not possible to derive the so-called paradoxes * 2.02 and * 2.21. Lewis makes it quite clear that he intends that they should be excluded, and along with them the closely related theorems * 2.5, * 2.51, * 2.52, * 2.521. Also if disjunction is to be interpreted intensionally, it would be inconsistent to retain the definition of a logical product, * 3.01.

* 3.01 \( p \land q = \sim(\sim p \lor \sim q) \) \( \text{Df.} \)

And so the differences multiply! Indeed, the adoption of strict implication defined in terms of intensional disjunction instead of material implication defined in terms of extensional disjunction, is, according to Lewis, the first step towards the adoption of an entirely different system of logic. Furthermore, Lewis argues, there are good reasons for rejecting the calculus of material implication and adopting this (yet to be articulated) calculus of strict implication in its place. His chief reason is that he regards some of the theorems of material implication as absurd "in the sense that they are utterly inapplicable to our
modes of inference and proof"; whereas the proposed new calculus would have for its implication relation one which "is precisely that of ordinary inference and proof".

The paradoxical nature of * 2.02 and * 2.21 may be highlighted by considering some special substitution instances of each. By substitution we can derive from * 2.02 \([q \Rightarrow (p \Rightarrow q)]\) the special case \(p \Rightarrow (\neg p \Rightarrow p)\). In other words, if a proposition is true and therefore implied by any proposition whatever, then, a fortiori, it is implied by its own denial. But, according to Lewis, "any proposition that is implied by its very denial is necessarily true". This is a time-honoured definition. Thus Lewis concludes that in a system of material implication every true proposition will be necessarily true. Similarly we can derive from * 2.21 \([\neg p \Rightarrow (p \Rightarrow q)]\) the special case \(\neg p \Rightarrow (p \Rightarrow \neg p)\) which says that every false proposition implies its own denial. For Lewis, this is the same as saying that every false proposition is absurd or impossible.

1 "The Calculus of Strict Implication", p. 244.
2 "Implication and the Algebra of Logic", p. 531.
3 "The Calculus of Strict Implication", p. 244.
4 Ibid., p. 245
These consequences, that all propositions are either necessarily true or absurd, brought home all the more strongly to Lewis that there was something unacceptable about the system of material implication proposed in *Principia Mathematica*. Whitehead and Russell believed that their definition of implication preserved the essential characteristic of implication - which is that if \( p \) is true and \( p \) implies \( q \), \( q \) cannot be false. They thought their definition captured "the most general meaning compatible with the preservation of this characteristic". The deficiency in this definition was that although it captured the characteristic which is essential for implication, Lewis thought it was too weak a relation to be called implication. Lewis's own definition also satisfied this requirement but was in other respects much stronger.

That the definition of implication in terms of extensional disjunction is in accord with any ordinary or useful meaning of the term can hardly be maintained with success. There can be, however, with regard to such a definition, no question of truth or falsity in the ordinary sense. As one of the assumptions or conventions of the calculus of propositions, the definition represents only the exact statement of the way in which expressions

---

are to be equated or substituted for one another. Provided it is possible so to equate them without contradiction it is meaningless to call the equations untrue.¹

Lewis thus acknowledges the right of Russell and Whitehead to define their terms as they wish. Definitions are not the sort of things of which truth and falsity are ordinarily predicable. But that does not mean that Lewis thought there were no criteria for the acceptability or unacceptability of a definition.

We may, however, object to the definition on the ground that a more useful one is possible; and especially will this be the case when the system in question is one, like logic, which we wish to apply in some field of practical human endeavour. The present calculus of propositions is untrue in the sense in which non-Euclidean geometry is untrue; and we may reproach the logician who disregards our needs as the ancients might have reproached Euclid had he busied himself too exclusively with the consequences of a different parallel postulate.²

Lewis often compared the relationship between the systems of strict implication and material implication with the relationship between Euclidean and non-Euclidean geometries. The nature (and defects) of this comparison

1 "Implication and the Algebra of Logic", p. 530.
2 Loc. cit.
will be more fully discussed in §9. What is important here is that in this formative period Lewis thought that the two systems were incompatible with each other and that only one of them was applicable to our actual modes of inference. In the next section, therefore, I shall discuss more fully the development of Lewis's system of strict implication.

§8 THE SYSTEM OF STRICT IMPLICATION

Between the years 1912 and 1914 Lewis published four articles concerned with the calculus of strict implication.¹ Then in 1918 he published an account of the system in A Survey of Symbolic Logic² and in 1932 in Symbolic Logic, which he wrote jointly with C.H. Langford, he published a final account of it which, as late as 1960, he regarded as the definitive version. In the years between its original conception and the definitive version, it underwent a number of transformations which, in themselves, are highly informative. One of the most dramatic changes occurred

¹ See §5, pp. 43-44.
² Hereafter all references to this work will be abbreviated as Survey.
between the penultimate version in the *Survey* and the final version in *Symbolic Logic*. In the 1960 Dover edition of the *Survey* the chapter in which the system of strict implication was developed is omitted; Lewis explains the omission in the preface.

Dr E.L. Post of Columbia University pointed out an error with respect to one postulate of my system of Strict Implication. Notice of this error, together with the necessary correction was printed in the *Journal of Philosophy Psychology and Scientific Method* (Vol. XVII, p. 300) in 1920.¹

What Post had shown was that with the axioms as they were in the original *Survey*, it could be proved that "〜◊p = 〜p"; which says that there is no difference between calling a proposition false and calling it impossible. But this was one of the very deficiencies for which Lewis criticized *Principia Mathematica*. In effect Post had shown that Lewis's system was equivalent to a system of material implication. Although this was a serious criticism of the *Survey* system, the defect was only a technical one. By this time Lewis knew what he wanted his system to contain; he had simply made a mistake about what it did contain. All that

¹ Op.cit., p.vii
was required to remedy the situation was the weakening of the offending axiom from an equivalence to an implication. Despite the apparently dramatic nature of this transformation, I think it is much less informative than some of the earlier changes. These earlier changes reflect much more than the technical modifications which were necessary to represent the system as Lewis intended it to be; they display the evolution of Lewis's own thoughts about his system, its status and in particular, its relation to the system of material implication. For a closer look at this evolution of the system, let us turn now to the 1912-1914 articles.

It is convenient to consider these articles in two classes: Implication and the Algebra of Logic, A New Algebra of Implications and some Consequences and The Calculus of Strict Implication represent a more or less chronological development without any major discontinuity of ideas; The Matrix Algebra for Implications, however, is not continuous with its predecessors. In my discussion of the paradoxes of material implication (§7) I introduced Lewis's proposal for an alternative definition for implication.
It would take the same outward form as *1.01 in *Principia Mathematica* \[(p \supset q) = (\neg p \lor q) \text{ Df}\] but the disjunction sign represents an intensional disjunction rather than an extensional disjunction. This definition dominated the nature of the system developed in the three earlier articles. Lewis recognized that extensional disjunction was a perfectly proper and useful logical relation. He symbolized this by the sign '+', whereas he retained the wedge, 'v', for intensional disjunction.

One of the most significant features of the system proposed in these early articles is that within the actual system of strict implication there is no kind of implication relation defined in terms of extensional disjunction. Nothing is defined as equivalent to \((\neg p + q)\). Of course material implication is equivalent to \((\neg p + q)\), and Lewis defined it as such;¹ but he would not allow a separate symbol for material implication to occur within his system of strict implication. He was convinced that you could have a system based on either of these implication relations, but no single system

---
could incorporate both. The error of this conviction and the consequences of adhering to it will become clear as we proceed.

In his first attempts to outline his new calculus Lewis excluded all the theorems which were paradoxical in the sense discussed in §7. The foundations for this exclusion were laid in Implication and the Algebra of Logic (p.531); he categorically excluded these theorems in A New Algebra of Implications and Some Consequences (p.435) and The Calculus of Strict Implication (p.243). Indeed, the impression one gets from these articles is that the omission of the theorems peculiar to material implication is, for Lewis, a sufficient condition for regarding the calculus of strict implication as superior to the calculus of material implication.

It is important to notice, however, that the exclusion of these theorems from the proposed calculus was a rather hollow and meaningless exclusion. It was more an achievement of self-delusion. What I mean is best illustrated by considering a particular example. Lewis says that the proposition * 2.02 in Principia Mathematica does not occur in his proposed calculus; and it is true that the formula \([q \supset (p \supset q)]\) is not
derivable in the system of strict implication as he then proposed it. Lewis did not seem to realize, however, that \([\neg q + (\neg p + q)]\) is derivable within his system.\(^1\) This formula differs from Principia Mathematica's *2.02 only with respect to its notation. Interpreting \([\neg q + (\neg p + q)]\) we get: either \(q\) is false or it is the case that either \(p\) is false or \(q\) is true; but this is a precise interpretation of *2.02 in Principia Mathematica. From this we can only assume that the importance which Lewis attributed to the absence of the troublesome theorems was a consequence of his failure to recognize their re-appearance under disguise.

\(^1\) In this proof I use the system as set out in A New Algebra of Implications and Some Consequences. The notation, 'P1', 'P2' etc., refers to the postulates, rules of inference and theorems as numbered in that system.

1. \(p \supset (p + q)\) \(\text{P23}\)
2. \(\neg p \lor (p + q)\) \(1, \text{P26, P13}\)
3. \(\neg p + (p + q)\) \(2, \text{P10, P13}\)
4. \(\neg p + (q + p)\) \(3, \text{P27, P1}\)
5. \(\neg q + (\neg p + q)\) \(4, \text{P16, q/p, } \neg p/q.\)
This is an appropriate place to make a slight digression foreshadowing a later development in Lewis's work. The confusion surrounding the occurrence or non-occurrence of \([q \supset (p \supset q)]\) in the calculus of strict implication exemplifies the need for some distinctions which Lewis marked later in *An Analysis of Knowledge and Valuation*. There he distinguished between the physical symbol, the expression which that symbol symbolizes, and if the expression is of the appropriate kind, the proposition which the expression expresses. In this case the expression symbolized by \([q \supset (p \supset q)]\) in *Principia Mathematica* does not occur in Lewis's calculus of strict implication; but the proposition expressed by \([q \supset (p \supset q)]\) in *Principia Mathematica* is among the propositions of the system of strict implication although it is expressed by a different expression which is likewise differently symbolized. These distinctions will be discussed in Chapter IV.

The Matrix Algebra for Implications represented a radical advance even compared with *The Calculus of Strict Implication* which was published in the same year, 1914. I do not intend presenting a complete account of the system developed in this article; rather, I shall
concentrate on those respects in which it differs from the earlier system. The differences are evident right from the set of primitive ideas adopted. Implication is no longer a primitive idea. In its place Lewis has introduced two new primitive ideas: **Impossibility** - \( \neg p \) symbolizes "p is impossible" or "it is impossible that p be true"; and **Equivalence** - \( p = q \) means "p is equivalent to q" and this is the defining relation. It should be noted that **negation**, previously represented by the symbol '\(^\sim\)', is in the notation of this system represented by '\(-\)'. Thus '\(-p\)' symbolizes "p is false".

The addition of the notion of impossibility is by far the most significant development. Lewis regarded this addition as one which gave his system five truth values instead of the traditional two.

1. \( \neg p \) p is impossible
2. \(- p\) p is false
3. \( \neg \neg p \) p is possible
4. \( p \) p is true
5. \( \neg \neg p \) p is necessarily true.

---

The introduction of modalities into the system was, of course, a major development. His earlier system was not totally lacking in modal distinctions; the distinction between extensional and intensional disjunction was a modal distinction. It was an adequate distinction to allow him to distinguish contingently true propositions from necessarily true propositions, and false propositions from absurd or impossible propositions. Had he wished, he could even have introduced operators for necessity and impossibility \([\square p = (\neg p \rightarrow p)]\). To this extent I do not think that the addition of impossibility as a primitive idea allowed Lewis to represent any fundamental distinctions which were not implicitly present in his earlier system. It did, however, present a considerable notational refinement which was, in itself, very significant. The degree of flexibility which was available in the new system thrust the modal distinctions into a position of prominence which they could never have achieved in the early system because of its notational complexity.

1 "The Calculus of Strict Implication", p.245.
This new system incorporated another change which represented an entirely new approach by Lewis. Among the definitions he included two kinds of implication: one which he just called \textit{implication} (or inference), and the other being \textit{material implication}.

\begin{align*}
\text{Implication} & : (p \supset q) = \sim(p \cdot \neg q) \\
\text{Material Implication} & : (p < q) = - (p \cdot \neg q)
\end{align*}

These are, of course, equivalent to the earlier definitions which were in terms of intensional and extensional disjunction. This was the first time, however, that Lewis had incorporated both definitions in a single calculus. In consequence of this, the so-called paradoxes of material implication are explicitly theorems in Lewis's new calculus, though notationally different. Obviously there was a change in Lewis's understanding of the relation between the system of strict implication and the system of material implication. This will be discussed in §9.

There were no important changes in the nature of the system between this 1914 version and the 1918 version in the \textit{Survey}. The \textit{Survey} system was much more rigorous and more fully developed. The primitive
ideas were the same; and, with the exception of some notational differences, the definitions were the same. To avoid confusion he abolished the use of the symbols \( \Rightarrow \) and \( \lor \) which he had taken over from Principia Mathematica. For strict implication he used a new symbol \( \rightarrow \); for material implication he used a reversed Principia symbol, \( \subset \); and for intensional disjunction, which he now called a \textit{strict logical sum}, he used \( \land \). Extensional disjunction was still symbolized by \( + \), though he now called it a \textit{material logical sum}.

The major change between the Survey and the definitive account in Symbolic Logic was discussed at the beginning of this section. The other changes were of a minor kind: "possibility" replaced "impossibility" as a primitive idea, and there were further notational changes. These notational changes are, I think, indicative of the changes that occurred during the evolution of the system. Lewis began by using some of the symbols of Principia Mathematica to represent meanings that were quite foreign to the system of material implication: \( \Rightarrow \) for strict implication;
'v' for intensional disjunction; and '¬' for impossibility. Now, in *Symbolic Logic*, all of these symbols have been restored to their original use: '⊃' for material implication; 'v' for extensional disjunction; and '¬' for negation. Although these changes were undoubtedly prompted by the desire to avoid confusion and the need to have a uniform notation, they represent much more. The fact that Lewis was able to use them all in the sense given them by Whitehead and Russell is simply indicative of the changing status which he progressively bestowed upon the system of material implication.

Before concluding this discussion of the calculus of strict implication it is worth noting that the system contains a number of theorems which are analogous to, and seemingly paradoxical in the same sense as, the paradoxes of material implication. Lewis recognized the presence of these theorems and acknowledged that they cast doubts upon the equivalence of his formal notion of strict implication with the converse of the ordinary notion of deducibility. Two of the suspect theorems are:

19.74 \[ \sim \Diamond p \rightarrow (p \rightarrow q) \]
19.75 \[ \sim \Diamond \sim p \rightarrow (q \rightarrow \sim p) \]
These theorems are interpreted respectively as "If p is impossible, then p strictly implies any proposition q" and "If p is necessary then any proposition q strictly implies p". The apparent paradoxicality of the theorems peculiar to material implication was resolved by making it clear that 'p ⊃ q' does not signify that q is deducible from or follows from p. But that solution is not available for the paradoxes of strict implication since Lewis has explicitly stated that p → q is to signify that q is deducible from p.

If p → q is equivalent to "q is deducible from p," then to satisfy these theorems it must be the case that, from any proposition which negates a necessary or tautological truth, anything whatever can be deduced; and that any proposition whose truth is necessary or tautological can be deduced from anything whatever.¹

Lewis saw no reason, however, for withdrawing his claim that p → q is equivalent to "q is deducible from p". Instead, he thought he could show that these theorems are "paradoxical only in the sense of expressing logical truths which are easily overlooked".²

¹ Symbolic Logic, p. 248
² Loc. cit.
In other words, they are not really paradoxical; they are simply unexpected. These theorems and a number of closely related ones are customarily referred to as the paradoxes of strict implication. The critics say that a necessary proposition such as "All bachelors are unmarried" cannot be deduced from any proposition whatever, say, "The moon is made of green cheese". Likewise the critics object to the idea that any proposition whatever can be deduced from an impossible proposition. Thus the critics argue that strict implication is not equivalent to the converse of deducibility; and it is not the same as entailment.

To support his claim that strict implication is identical with entailment, Lewis offers a number of independent proofs of the paradoxes; independent, that is, of the system itself.\(^1\) He endeavours to show that from any impossible proposition we may deduce any proposition whatever, and by using only time-honoured rules of inference. One such proof runs something like this:

\(^1\) e.g., *Symbolic Logic*, p. 250
1. \( p \land \lnot p \)  
   Hypothesis

2. \( p \)  
   1, Simplification

3. \( \lnot p \)  
   1, Simplification

4. \( p \lor q \)  
   2, Addition

5. \( q \)  
   3,4, Disjunctive Syllogism

This demonstrates, according to Lewis, that from any pair of contradictory propositions we can deduce any proposition whatever. Furthermore Lewis argues that for every impossible proposition we can choose some other proposition which, when conjoined with its own denial, is equivalent to the impossible proposition in question. Thus any proposition at all can be deduced from any impossible proposition: in Lewis's words, the theorem

\[ \lnot \diamond p \rightarrow (p \rightarrow q) \]

states a fact about deducibility.

There are a number of these independent proofs or demonstrations throughout Lewis's writings; and there have been as many objection. I do not propose to attempt any full-scale survey of the literature concerning the paradoxes of strict implication. That would constitute a whole dissertation itself.
Nevertheless much of Lewis's later theory of meaning and necessity is heavily dependent on the truth of these so-called paradoxes. This will become clear in Chapter IV. At the risk of being accused of begging an important question, I accept the paradoxes as true statements about the nature of deducibility. I accept them because I know of no reason for rejecting them. None of the published criticisms have convinced me that the theorems are paradoxical in any sense other than that acknowledged by Lewis; nor have they convinced me that Lewis's proofs are importantly deficient; but the issue is certainly not without its controversies.

Perhaps I should conclude this section by referring to a much later passage of Lewis's from *An Analysis of Knowledge and Valuation*. This passage has considerable bearing on the paradoxes, and in particular on 19.75

\[ \sim \Box p \rightarrow (q \rightarrow p) \].

It has been pointed out that every analytic statement is deducible from any premise whatever; but deducibility, in the ordinary and most useful sense of that word, is a different matter from formal derivability according to some limited set of rules of linguistic derivation. The deduction of, for example, "All men are animals", from any premise one might choose, cannot be accomplished without recognizing, at some
point and in some manner, the meaning of 'man' and the meaning of 'animal' and the relation of those two by virtue of which 'non-animal man' is a contradiction in terms. ¹

In terms of 19.75, this passage reminds us that if we wish to derive some necessary proposition, p, from any proposition whatever, say, q, then we need to know antecedently that p is necessarily true. The point of this reminder by Lewis is that it is a mistake to regard theorems like 19.75 as having any particular epistemological significance. Rather, the theorem displays a logical characteristic of the entailment relation.

§9 ALTERNATIVE LOGICS AND THE FOUNDATION OF NECESSARY TRUTH

Frequent reference has been made to the fact that in the early years of the system of strict implication Lewis thought that the theorems peculiar to material implication should be excluded from his

¹ C.I. Lewis, An Analysis of Knowledge and Valuation, (La Salle, Ill.: Open Court, 1946), p.166. All page references are to the Second Printing, 1950, which varies slightly from the original edition. Hereafter all references to this work will be abbreviated as AKV.
new system. This was symptomatic of his more fundamental belief that systems based on strict implication and material implication were alternative systems of logic. It was also clear that he thought that only one of these systems could be true; he regarded the system of material implication as untrue in some sense of that word. It will be helpful to see in what sense Lewis regarded them as alternatives and in what sense he regarded the system of material implication as untrue. About the latter he was quite explicit. He regarded the system of material implication as "untrue in the same sense in which non-Euclidean geometry is untrue".¹ In view of Lewis's frequent use of the analogy between the two systems of logic and the two systems of geometry we can reasonably presume that he regarded the systems of strict implication and material implication as alternatives in the same sense that Euclidean geometry and the non-Euclidean geometries are alternatives.

It is important in this context that we be clear about the sense in which the different systems of geometry are said to be alternatives. For the sake of convenience I shall use short names for certain

¹ "Implication and the Algebra of Logic", p.530.
propositions in accordance with the following scheme which was devised by William Kneale:

"E" for Euclid's axiom of parallels, or rather for Playfair's substitute, i.e. the proposition that through a given point there can be drawn one and only one line parallel to a given straight line;

"R" for the conjunction of the other axioms of Euclidean geometry as they may be found in some rigorous modern presentation, e.g., in Hilbert's Foundations of Geometry;

"M" for the proposition that many lines can be drawn through a given point parallel to a given straight line;

"N" for the proposition that no lines can be drawn through a given point parallel to a given straight line.

E conjoined with R constitutes the set of postulates for a standard system of Euclidean geometry; M conjoined with R constitutes the standard postulate set for Lobachevskian geometry; and N conjoined with R constitutes the standard postulate set for Riemannian geometry. Obviously they differ in respect of E, M and N. Moreover, E, M and N are such that there is no single interpretation under which more than one of these can be true. By this I mean that no matter what meaning I give

---

to the terms in $E$, $M$, and $N$, or no matter what I understand these terms to designate, no more than one of these propositions can be true so long as the same meanings are given to the corresponding terms in each proposition. Therefore when $E$, $M$, and $N$ are considered as members of their respective postulate sets, it follows that no more than one of the postulate sets can be satisfied by any one interpretation of the terms common to all three postulate sets. This characteristic of their relation to each other is sometimes expressed by saying that the postulate sets (and hence the systems derivable from them) are inconsistent with each other.

There is something unsatisfactory about this way of describing the situation. My objections are in general directed at some of the risks involved in talking about postulate sets being inconsistent with each other. I shall state briefly the factors which give rise to my qualms.

(a) It has been shown conclusively that the postulate sets $E + R$, $M + R$ and $N + R$ are relatively consistent, i.e., Riemannian geometry and Lobachevskian geometry are both consistent systems if Euclidean geometry is consistent.¹

(b) Although there is no one interpretation which satisfies all three postulate sets, there is for each postulate set an interpretation under which its propositions are true.

Thus it is quite proper to say that Euclidean, Lobachevskian and Riemannian geometries are each consistent systems, each having some interpretation under which it is true. My objections to calling these systems inconsistent arise from the fact that I can see no good reason which compels us to give the same interpretation to all three postulate sets. Or, conversely, it seems to me that there is no impediment to my giving different interpretations to each of the postulate sets simultaneously. And if this is so, there is no impediment to my saying that the propositions formed by giving these different interpretations to each of the systems are all simultaneously true. And propositions which can be simultaneously true are not inconsistent!

Perhaps the following illustration will be helpful. Suppose that two persons are reading the front page of identical editions of the same daily newspaper. One says to the other, "I see that the Treasurer has
announced that consolidated revenue for the financial year just ended represents an increase of twenty percent." The other persons says in surprise, "But my paper says that the Treasurer has announced that consolidated revenue for the financial year just ended represents a decrease of twenty percent." After looking at each other's paper they discovered that they had been reading different news items which appeared on the same page. Prima facie, it would seem that the newspaper had printed two statements which were inconsistent with each other. A more detailed examination, however, reveals that the two news items are about entirely different matters. One is a report of a speech made by the Federal Treasurer; the other is a report of a speech made by the New South Wales Treasurer.

The purpose of this illustration should be clear. It does not follow from the occurrence of two symbolic representations, one of which is the negation of the other, that the propositions which they express are inconsistent. It is necessary first of all to assign meanings to each of the symbols involved. Of course it is necessary to assign the same meanings to the same
symbols that occur within any one postulate set. But there is no reason for insisting that when the same symbols recur in different postulate sets they should still be assigned the same meanings.

I have stated this objection to talking about two postulate sets or their respective systems being inconsistent in order to draw attention to the fact that this could be misinterpreted. It could suggest that we must choose between the systems - accepting one and rejecting the other, which is precisely what Lewis did. Nevertheless there is an element of truth in saying that Euclidean and non-Euclidean geometries are inconsistent and this element is worth capturing. Notwithstanding all that I have said it remains true that if we should give the same interpretation to the common terms in Euclidean, Riemannian and Lobachevskian geometries, it would be the case that only one of the resultant sets of propositions could be true. By this I mean that if we insist that "straight line" as it occurs in each of the geometries shall denote the same class of entities in every instance, then no more than one of the geometrical systems will ascribe the proper set of properties to the objects which we now call "straight lines".
It is in this sense that I think we can properly describe Euclidean and non-Euclidean geometries as alternatives. It is, nevertheless, a weak sense of alternation and is not to be confused with the sense in which 'p' and '¬p' are alternatives in the Law of the Excluded Middle, 'p v ¬p'. I shall now return to consider the sense in which Lewis thought that Euclidean and non-Euclidean geometries were alternatives.

When it becomes necessary to choose between a Euclidean and a non-Euclidean system for purposes of practical application, the following points are worthy of note: First, both are self-consistent systems and their theorems, as pure mathematics, are equally true. But they are true of different kinds of space. Second, it may be maintained that our space is actually Euclidean and the non-Euclidean system, therefore, false as an applied geometry... But, third, it is conceded on all sides that the Euclidean system is at least more convenient, because it accords with our practical and useful ways of dealing with space-filling objects, and is thus pragmatically the true one.1

This passage suggests that Lewis thought there were three possible ways in which they could be alternatives. (a) One system may be a consistent system (i.e. it is not possible to derive a contradiction from its postulates) while another

system may be inconsistent. In the case of the geometries he immediately rejects this possibility. (b) As an empirical matter of fact one system (or, more correctly, its propositions) may be true while the others are false. (c) Although we may never be able to verify the truth of (b) with absolute certainty, the weight of available evidence suggests that there are no counter-examples to the true propositions of one of the systems and that there are no occasions on which the contentious propositions of the other systems are true.

Lewis does not make it clear which of (b) and (c) he thinks is the case. But they are so closely related that this does not matter. After making the analogy between geometries and logics, Lewis expands what he has to say about geometries in such a way that his intention is clear enough. He concedes that as formal systems, material implication and his early version of strict implication are both self-consistent.\(^1\) In the same way that he thought non-Euclidean and Euclidean geometries would be "true of different kinds of space", so Lewis thought that the systems of material implication and strict implication were true of or applied to different kinds of worlds.

---

\(^1\) Ibid., p.241.
Because of the paradoxes of material implication he argued that the system of material implication could only be true of a particular kind of world:

In such a world the all-possible must be the real, the true must be necessary, the contingent cannot exist, the false must be absurd and impossible, and the contrary to fact supposition must be quite meaningless.¹

I shall not repeat here Lewis's reasons for considering that the world of material implication must be this particular world. These reasons coincide with his reasons for rejecting the system of material implication as an adequate propositional calculus; and these have already been discussed in §7. What is important here is that he did believe this and that it was in sharp contrast with the nature of the world in which strict implication applied.

The system of strict implication distinguishes the false from the absurd, the merely contrary to fact from the impossible, and the merely true — the contingent — from the necessarily true whose very denial implies it.²

¹ Ibid., p. 244.
² Ibid., p. 245.
These are the different worlds of material implication and strict implication. Lewis thought it was not possible to make a categorical decision about which of these worlds coincided with the actual world. Instead he thought we should at least reject material implication on pragmatic grounds. It contains too many theorems about the implication relation which "are not capable of any proper use as rules for reasoning." 

During the formative years of the system of strict implication, Lewis obviously changed his mind about the relation between his system and material implication. The strongest evidence for this is in the change from the exclusion to the inclusion of material implication within his system. At the outset he thought that the systems were alternatives in the sense that only one of them could be true; this was the same sense in which he thought that only one of the geometries could be true of our space. I have indicated why I think this is a misleading way of describing geometries. There is a sense, however, in which it is proper to describe the geometries as alternatives; namely, by giving the same

1 Ibid., p.246.
2 Loc. cit.
interpretations to the symbols common to the different systems. But this sense is not applicable in the case of the systems of material implication and strict implication. When the terms common to these two systems are given the same interpretation it is possible for the resultant propositions of both systems to be true, as Lewis himself recognized.

In concluding this chapter I would like to draw attention to a passage in *Symbolic Logic*. In many ways this passage acts as a bridge between the early and the middle periods which were identified at the beginning of the chapter.

Geometry did not wait for Euclid, nor logic for Aristotle. Inference or other system-building sets up guide-posts or makes maps of facts, but it does not creat the geography of them. This is true even of logical facts. We cannot relate them in certain ways! they either are so related or they are not. We can only select certain relations to be our guides. But it is important to realize that there are genuine alternatives for such selection of relations and consequent types of order utilized. And so far as such choice is possible, the result of our system-making answers to pragmatic criteria which are quite outside any question of absolute truth.¹

¹ *Symbolic Logic*, p.257.
This suggests a quite different explanation of the relation between different systems, whether they be geometries or logics. The differences are no longer absolute differences determinable by some empirical criteria; nor are they pragmatic differences determinable by the same kind of empirical criteria as the absolute differences, only less rigorously. Now Lewis is saying that in our system building we select from all the available data a certain limited range which will serve our particular purpose; and in so doing we partly determine the nature of the criteria which we will count as acceptable for determining the truth or falsity of the system. In arriving at this conclusion Lewis moves into the domain of his general theory of conceptual pragmatism which is the subject of the next chapter.
CHAPTER III

THE A PRIORI IN "MIND AND THE WORLD ORDER"

§10 Introductory Remarks 91

§11 The Doctrine of "The Given" 94

§12 The Incommunicability of the Content of Experience 114

§13 The Legislative Character of the A Priori 127
§10. INTRODUCTORY REMARKS

In the Preface to *Mind and the World Order*, Lewis acknowledges that the general epistemological theory which is presented in the book is the outcome "of investigations which began in the field of exact logic and its application to mathematics".\(^1\) He believed that this was a perfectly natural process because of the peculiar exactitude and precision of mathematics.

If only one could come at the basis of this ideal character, the key conceptions of epistemology might be disclosed. Thus every major discovery in theoretical mathematics, and every fundamental change in the manner in which the subject is conceived, is sure to find its sequel, sooner or later, in epistemology.\(^2\)

It is clear to anybody familiar with the history of mathematics in the fifty years prior to *Mind and the World Order* that the developments had been revolutionary. This was the era of Bolyai, Reimann and Lobachevski, of Frege, Russell and Poincaré. Perhaps one could

\(^1\) C.I. Lewis, *Mind and the World Order*, (New York: Scribners, 1929), p.vii. Hereafter all references to this work will be abbreviated as MWO. All page references are to unabridged 1956 Dover edition.

\(^2\) *Loc.cit.*
characterize this as the era of axiomatization, for it was during this time that the powers of the axiomatic method were fully developed. Lewis's own concern with mathematical logic was primarily a concern about the status of its axioms. Thus we can expect to see in *Mind and the World Order* a general epistemology which is radical and revolutionary in a manner that is analogous to the mathematical developments. The most striking respect in which we see these expectations fulfilled is in Lewis's thesis that the necessity which belongs to analytic propositions and *a priori* truths is not a necessity which excludes the possibility of alternatives. For Lewis "that which is utterly incapable of any alternative is utterly devoid of meaning",¹ and, whatever else he would want to say about analytic statements and *a priori* truths, he would not want them to be devoid of meaning.

In this present chapter, therefore, I shall be examining Lewis's early epistemology with a specific purpose in mind. This purpose is to unfold Lewis's reasons for holding that *a priori* truths do not exclude the possibility of alternatives. Because

¹ *MWO*, p. 197.
of this limited purpose I cannot emphasize too much that this will not be a full and complete account of Lewis's theory of knowledge. Not only would that require a completely different approach; it would also distract from the task at hand.

This does not mean that we can totally ignore what Lewis has to say about empirical knowledge. It is important to notice the relation between Lewis's theory of the a priori and his general epistemology to which he himself gave the label conceptual pragmatism. Unlike some preceding epistemological theories in which the only relation between a priori knowledge and a posteriori knowledge was that they were distinct from each other, Lewis bonds these two in a very close relation. He holds that if there is to be any knowledge at all, some knowledge must be a priori.¹

In the next section (§11), therefore, I shall examine one particular aspect of Lewis's epistemology which is crucial for an understanding of his theory of the a priori. The doctrine of "the given", or the distinction which Lewis draws between that which is given in experience and mind's interpretation of this

¹ MWO., p.196.
data, is an indispensable part of the theory of the a priori. §12 is somewhat of a digression from the main purpose of the chapter but is included since it comprises a discussion of a serious criticism by Max Black of Lewis's doctrine of the given and its consequences. In §13 I examine closely the theory of the a priori which Lewis puts forward in Mind and the World Order. Particular attention will be paid to Lewis's claim that the necessity which belongs to the a priori does not exclude the possibility of alternatives.

§11 THE DOCTRINE OF "THE GIVEN"

For Lewis the distinction between "that which is given in experience" and the order which we ourselves seek to impose on the given is of the utmost importance. These two elements, the given and mind's interpretation of the given, provide the stuff out of which epistemology is built.

If there be no datum given to the mind, then knowledge must be contentless and arbitrary; there would be nothing which it must be true to. And if there be no interpretation or construction which the mind itself imposes, then thought
is rendered superfluous. The possibility of error becomes inexplicable, and the distinction of true and false is in danger of becoming meaningless.\footnote{MWO., p.39.}

This distinction between the given and mind's interpretation of it could suggest that Lewis recognizes two different kinds of knowledge: direct knowledge of objects gained by acquaintance with them in the presentation of the given, and propositional knowledge in which the mind conceptualizes and relates each experience with other experiences and thereby imposes on our experience a pattern of conceptual relationships. But such a conclusion would misrepresent Lewis. He holds that there is no knowledge merely by acquaintance. "The merely contemplated or enjoyed may possess esthetic significance, but if it is to have cognitive meaning this immediacy must become the subject of an interpretation which transcends it".\footnote{MWO., p.118.}

The doctrine of the given together with Lewis's denial that there can be any knowledge by acquaintance provide a convenient starting point for a closer look at his epistemology.
It should not be necessary here for me to document in detail my claim that Lewis makes this distinction between the given and mind's interpretation of the given. In one form or another it appears in every chapter of Mind and the World Order; but more specifically it is found in Chapters II and V. Like many philosophical doctrines it is much easier to state than it is to justify.

Attempts to demarcate the distinction between the immediate data given in experience and the interpretation which the mind places on this data are as old as philosophy itself. I think that one of the most distinctive characteristics of Lewis's attempt to explain what this distinction involves is evident in his remark that "we must distinguish the given from the object which is given". For Lewis "the given" is the brute-fact element in our experience; it is the unalterable factor. What is given cannot be altered; what we make of it, how we interpret it, or what place we give in our conceptual schema to some particular element of given - these are the factors over which we have control and which are therefore

1 MW0, pp.57-58.
alterable. Lewis finds some difficulty in making clear what he means by this distinction between the given and the object which is given. One factor which contributes to this difficulty is that many of the terms which come close to designating what Lewis means by "the given" have been preempted to slightly different uses.

"Sense-data" is one term which is obviously similar in its meaning to "the given" in Lewis's vocabulary. While not wanting to deny that these similarities exist, Lewis is careful to preserve for his notion of the given what we might call a pre-analytic character. By this I mean that there are no distinctions of categories within the given.

"Sense-datum" may connote relation to particular sense-organs (as in the distinction between taste and odor), and hence mark a division where none can be drawn by direct inspection. Also other qualities than the strictly sensory may be as truly given; the pleasantness or the fearfulness of a thing may be as un-get-overable as its brightness or loudness - that question, at least, must not be prejudiced. Hence "sense-data", defined by correlation with nervous processes, should have no place in our program. It is the brute-fact element in perception, illusion and dream (without antecedent distinction) which is intended. ¹

¹ *MWO*, p. 57.
The reasoning in this passage is not altogether clear, although it is obviously intended as an argument against regarding the given as some kind of sense-datum. The first step in this argument is that there are some sense-data which can only be properly identified by reference to the sense organs. This is the point of the reference to taste and odour. Presumably this counts against the identification of the given with any particular sense-datum because the identification of the corresponding organs which are needed for identifying the sense-data depends in turn on a whole lot of physiological theory. Thus the identification of the given with sense-data would involve the given in a whole theoretical framework; and that is precisely what Lewis wishes to exclude from the given.

There is a second argument which Lewis also employs here in support of his position. There are instances of the given which are in no way received through any particular sense organ. This is presumably the point of his reference to the pleasantness or fearfulness of some experience. This seems an unfortunate choice of examples. It could be argued that pleasure and fear are not themselves given, but are some kind of response
to the given. In fact this seems more than just an unfortunate choice of examples. I find it difficult to conceive anything being given other than by means of the senses; and it would seem inconsistent with the rest of Lewis's theory if there could be any non-sensory qualities in the given.

Nevertheless, Lewis is quite explicit: the given is not to be identified with any sense-datum. Since our purpose is to find out just what is the nature of the given we must therefore look for some other account.

The given is presentation of something real, in the normal case at least; what is given (given in part) is this real object. But the whatness of this object involves its categorial interpretation; the real object, as known, is a construction put upon this experience of it, and includes much which is not, at the moment, given in the presentation.¹

My interpretation of this passage is as follows: in our normal experience of the given, what is given (i.e. the object which is given) is a real object; but every attempt to describe this object, every attempt to say what it is, involves some categorization; every such attempt presupposes a conceptual schema which we

¹ MWQ., p.58.
can apply to the object. Lewis is uncompromising on this matter. There is, in effect, nothing descriptive that can be said about the elements which constitute the given. Even the distinction between what is real and what is illusory is not a distinction that is itself within the given.\(^1\) These are distinctions which are applicable to what is given; but they do not hold within the given itself. What is given in a dream, or in an illusion, is as much a part of the given as is any presentation of a real object. Illusions are not second-rate or inferior specimens of the given. They qualify as instances of the given solely by virtue of the fact that they are given. There is no other kind of category to which the given must belong. All this could suggest that the given is in some sense a smooth undifferentiated flux. Lewis regards this as wholly fictitious.

Experience when it comes, contains within it just those disjunctions which, when they are made explicit by our attention, mark the boundaries of events, "experiences" and things. The manner in which a field

\(^1\) *MWQ.*, p. 143.
of vision or a duration breaks into parts reflects our interested attitudes, but attention cannot mark disjunctions in an undifferentiated field.

The nature of these "disjunctions" within the given, and the nature of the elements which are the disjuncts remain very elusive. Lewis refers to these elements as the "recognizable qualitative characters of the given", and gives them the name "qualia". Qualia, as such have no names in ordinary discourse. Indeed, Lewis regards them as strictly ineffable. "All that can be done to designate a quale is, so to speak, to locate it in experience, that is, to designate the conditions of its recurrence or other relations of it." Lewis's disposition to use metaphors where he cannot accurately describe the situation is a continually frustrating characteristic of his writing; and never more so than in this passage. It is difficult to understand clearly what Lewis means by "locating a quale in experience and designating the conditions of its recurrence", especially in view of what he says about this immediately afterwards.

---

1 MWO., p. 59.
2 MWO., p. 121.
3 MWO., p. 124.
Such location does not touch the quale itself; if one such could be lifted out of the network of its relations, in the total experience of the individual, and replaced by another, no social interest or interest of action would be affected by such substitution.1

The only interpretation I can give to this which is consistent with other passages is as follows: suppose I strike the note named middle-C on my piano but it sounds unlike my recollection of previous experiences; I play the B immediately below middle-C and find that the interval between the two sounds is much greater than a normal semi-tone; in fact the sound produced by the note named middle-C sounds somewhere in the order of two octaves above the B. I check other semi-tone intervals on the piano and find that they sound normal. But when I strike the D immediately adjoining the middle-C I find that instead of it sounding one tone higher than middle-C, it sounds much lower than middle-C. The D sounds normal in relation to all the other notes, but middle-C sounds almost two octaves higher than it. I take it that this is the kind of experience that would follow if one quale could be lifted out of the network of its relations and replaced by another.

1 Loc. cit.
If this is the kind of situation envisaged by Lewis, what could he mean by saying that no social interest or interest of action would be affected by such a substitution and in what way does this contribute to our understanding of the given? In the first instance Lewis's claim that such a quale-substitution would not affect any social interest or interest of action seems to be quite false. For example, if surfaces which are at room temperature give me a burning sensation of the same kind which other people experience when they touch something that is red hot, it would seriously affect my social interests. I would not be able to sit down or hold my fountain pen or indeed come into contact with any other surfaces.

I think Lewis's error here is mainly one of overstating his case. There are some circumstances in which a quale substitution could be hidden from all other persons. Suppose for example that a footballer found one day that when the referee blew his whistle to start the game, he heard not the usual shrill sound of a whistle but the crack of a rifle shot. He may have been momentarily startled but because all his team-mates played normally, he said
nothing. As play progressed he heard rifle shot after rifle shot every time the referee blew his whistle. After a short time of re-adjustment he simply associated this new sound with the blowing of a whistle. Having done this he could continue playing as if nothing had ever happened and nobody need know what had happened.

The possibility of this kind of situation has important consequences; in fact I think it allows us to establish what was the main point that Lewis had in mind here. If it is possible for me to have at one time a particular kind of experience and at another time a qualitatively distinct kind of experience though on both occasions they are stimulated by the same stimuli, then it follows that I have no guarantee that other people have experiences qualitatively identical with mine. The fact that we use a common concept is not a guarantee that our experiences are the same.

It does not seem unreasonable to interpret, or rather, amend Lewis in this way. His general claim that a quale-substitution would affect no social interest or interest of action is too strong. But, furthermore, there seems no need for such a strong claim; he does not use it for any purposes for which
the weaker claim is not sufficient. This weaker version is also more consistent with some earlier passages.

Suppose it should be a fact that I get the sensation you signalize by saying "red" whenever I look at what you call "green" and vice versa. Suppose that in the matter of immediate sense-qualities my whole spectrum should be exactly the reverse of yours. Suppose even that what are for you sensations of pitch, mediated by the ear, were identical with my feelings of color-quality, mediated by the eye. Since no one can look directly into another's mind, and the immediate feeling of red or of the middle C can never be conveyed, how should we find it out if such personal peculiarities should exist? We could never discover them so long as they did not impair the power to discriminate and relate as others do. 1

This passage reinforces the notion that the qualia which are the recognizable qualitative characters of the given are not the sort of thing for which we can establish identity criteria. Indeed, they are not the sort of thing whose individual character we can successfully convey to other persons. But this doctrine will be discussed more fully in §12. For the present our

1 MWO., p.75/
purpose is more towards establishing some positive things that can be said about the given. To this end it will be necessary to consider some fundamental things which Lewis says about philosophy.

Lewis assumes that it is one of the more important tasks of philosophy, or more particularly, of metaphysics, to determine the criteria by which the adjective "real" is correctly applied. It is the task of the metaphysician to determine the nature of the real just as it is the task of the logician to determine the nature of the valid. But just as the logician does not define "validity" in the sense of arbitrarily stipulating some meaning, nor is it the metaphysician's prerogative to be arbitrary about what is to be called real and what is not to be called real. For Lewis, the problem of metaphysics, or the problem of reality is "the problem of the categories".

The ascription of reality to the content of any particular experience is always elliptical: some qualification - material reality, psychic reality, mathematical reality - is always understood. And whatever is real in one such sense will be unreal in others. Conversely, every given content of experience is a reality of some sort or other; so that the problem of distinguishing real from unreal, the principles of which metaphysics
seeks to formulate, is always a problem of right understanding, of referring the given experience to its proper category.\(^1\)

The implications of this are quite clear. When a mirage is seen, we may be inclined to say that the trees and water which we see are unreal; and as ordinary trees and water they are unreal. But Lewis objects that "to relegate it to the limbo of nothingness would be to obliterate a genuine item of the objective world".\(^2\)

Though a mirage differs from real trees and real water, it is nevertheless a real state of atmosphere and light. Understanding this difference is a matter of understanding the categories concerned. This is what Lewis calls "the categorial interpretation of the given".

The categories themselves are not part of the given; they are imposed on the given by the mind in the process of interpreting what is given. To this extent Lewis argues that the categories are in sharp contrast with the given; the given is that part in our experience which is unalterable whereas the categories, being created by the mind, are alterable. This important part of Lewis's doctrine about categories must wait

\(^1\) MWO., p.11.
\(^2\) Loc. cit.
until §13 for closer examination. My present purpose is to see what this introduction to the categories can tell us about the given.

In the first place it helps towards an understanding of Lewis's distinction between the given and the object which is given. Before we can identify any object as an object we must have a category in which we can place it and within which it is a real object. It may be a physical object, or it may be an optical illusion; it may be a dream or it may be a projected image; it may be a number or it may be a relation; these are all objects which could be given. But as such each depends for its reality on its specific category. But the distinctions between these categories are not part of the given. They are evolved by the mind in the process of interpreting the given or in the process of making order out of the chaos of the given. The given is category free.

This does not imply that there are no distinctions of any kind within the given. We have already observed that Lewis drew attention to such distinctions. It is the nature of qualia that they are distinct from each other. These distinctions serve an important function
in the structure of our categories. I am referring here to what Lewis means when he says that "the clues to the categorial interpretation of any presentation of sense must be empirical clues". The categories cannot mark distinctions which are not already present in the given. The extent to which the categories must be regulated by the structure of the given will be discussed in §13.

If we accept Lewis's distinction between the given (prior to any categorial interpretation) and the object which is given (being in some sense a construction of the mind) it is fairly natural to question what kind of ontological status is properly ascribable to each. In particular, is Lewis committed to the view that there is no reality which exists outside the mind? It is worth considering the text on this matter.

What is given may exist outside the mind - that question should not be prejudiced. But in order that we should meaningfully assert such existence, it is essential that there be an answer to the questions: What would it mean if that which is given has such an independent existence? In what respect would experience in general be different if it had no such independent reality?

1 MWO, p.12.
2 MWO, p.64.
Lewis adopts the view that the answers to the latter questions deprive the original question of any purpose. He regards any account of what it would mean to posit an independent existence of the given as a purely speculative piece of metaphysics. "It would explain the immediate and indubitable by something intrinsically unverifiable and highly dubious".¹ Furthermore Lewis argues that the question of whether the given exists outside the mind or not makes no difference to the extent of our common knowledge. There is no knowledge merely by acquaintance, according to Lewis; knowledge is always within some conceptual framework or some structure of categories; but this framework is not presented in the given itself. Thus Lewis says that regardless of the ontological status of the given, "we shall still agree that there are three feet to the yard; that yellow is lighter than blue; and that middle-C means a vibration of 256 per second".² He does not mean that there could never be any disagreement about these matters. What he means

---

¹ *MWQ.*, p.65.
² *MWQ.*, p.75.
is that our agreement or disagreement here is independent of the ontological status of the given. It is a conceptual matter.

This is a strange kind of argument for Lewis to use in this context. In fact it just is not adequate to establish the point it is intended to establish. From the fact that there are some instances of our common knowledge which are not affected by questions about the ontological status of the given, it does not follow that the ontological status of the given could make no difference to the extent of our common knowledge. The examples discussed by Lewis in support of his claim are *a priori* truths, with the possible exception of the one about yellow being lighter than blue. But he does not consider straightforward cases of empirical knowledge such as "The cat is on the mat". *Prima facie*, this seems to be a case where our common knowledge could be affected by whether or not the given existed outside of the mind. It should at least be considered by Lewis; but he did not consider such cases and so he argued that it served no purpose to speculate about the nature of the given.
It seems to me that Lewis did not use his own theory to his best advantage here. Instead of arguing that there is no purpose in speculating about the ontological status of the given, I think his own theory commits him to the much stronger thesis that it is logically improper to ascribe any ontological status to the given. Lewis himself points out that it is not possible to describe any particular given in any way whatever because, in doing this, "we qualify it by bringing it under some category or other, select from it, emphasize aspects of it, and relate it in particular and avoidable ways". These categories and distinctions are not in the given: they are imposed on the given. And surely the same would be true of any ontological status we assigned to the given. When we ascribe an ontological status to something we are, presumably, categorizing that thing. We are saying that it is a physical object, or a logical construct, or some such thing; but this is part of our categorial interpretation of the given, and not part of the given itself.

It may be thought that this evasion of the question of the ontological status of the given only transfers the
question to that of the ontological status of the object which is given. But here there is no simple answer. There is no one ontological status which is ascribable to every object which is given. The ontological status will vary from object to object; some will be physical objects, some will be hallucinations, some will be dreams, some will be logical constructs and so on. According to Lewis, this is what the whole business of categorial interpretation is about.

But some people will not be satisfied with this answer. They do not want to know what categories some object belongs to. They want to know whether some object, say the table on which I am working, has an existence which is independent of the mind or outside of the mind. Lewis's reply would presumably be as follows: what do you mean by having an existence outside of the mind? Certainly the table on which I am working is an object which I say exists outside of my mind; and by saying this I distinguish it from objects like the food which I may dream about when I am hungry and the number which I am thinking about right now. But when I say that the table exists outside of my mind I am simply subsuming it under
a particular category. Perhaps it is what we might call an objective category. But Lewis does not regard this kind of category as having any special mystique. Although the word "objective" is sometimes used as a label to identify the members belonging to the category of things which we say exist outside of the mind, this category itself does not have any special kind of objectivity. The members of this category are not given in any special way which distinguishes them from other things that are given. All of the categories are imposed on the given by the mind in the process of its interpretation of the given.

§12 THE INCOMMUNICABILITY OF THE CONTENT OF EXPERIENCE

In the preceding section we encountered a doctrine which was referred to as "the incommunicability of the content of experience". This particular title was given to it by Professor Max Black and it refers to Lewis's thesis that the qualia which constitute the given are, strictly speaking, ineffable. In his essay Linguistic Method in Philosophy¹ Black argues that Lewis's thesis involves "a very peculiar type of reductio ad absurdum."

For if this thesis were true, it would be meaningless to us; therefore we cannot be expected to understand it; therefore we cannot be expected to believe it … Conversely if we can understand him and his contention is meaningful, then his thesis is untrue.

If Black is correct in his criticism then the consequences are far-reaching for Lewis. The thesis of the incommunicability of the content of our experience, which Black is attacking, is a consequence of Lewis's distinction between the given and our interpretation of the given. Thus Black's criticism, if justified, collapses the whole basis of Lewis's epistemology and of his theory of the a priori. What, then, is the strength of Black's claim?

Fortunately Black provides us with a précis of Lewis's thesis. He interprets Lewis as saying "that another person never succeeds in conveying all that he intends to say; for he means to refer to the felt and enjoyed content of his experiences, while we are able to apprehend only their relational structure". What, then, are Black's objections to Lewis's thesis? The following passage contains the basis of Black's reasoning.

2 Ibid., p.4.
On Lewis's showing, we ought to find every utterance of every speaker as baffling as Jabberwocky. For the very same considerations which inculcate skepticism concerning the individual qualia of another person's experiences ought to raise insuperable doubts concerning the character of the classes to which they belong. If we cannot be sure that another person means by "red" or "middle C" the same as ourselves, we have no better grounds for believing that such relatively general terms as "sensations", "sense-quality", or "feeling" mean the same to hearer and speaker. We cannot even be sure that the names of colors and tastes apply at all to sensory experience rather than to some features of, say, logical deduction.¹

Black has invoked a very ingenious argument here against Lewis. In effect he is saying that there is no half-way house along the road to skepticism. If Lewis believes that we cannot be certain about what another person means by terms like "red" and "middle C", then why do not all terms share in this uncertainty? Black goes so far as to say that "On Lewis's view indeed, we ought to be in no position to understand any of his own statements."² If Lewis's thesis is true, then Black argues that all terms used by another person are meaningless to me; therefore Lewis's thesis

¹ Ibid., p.6.
² Ibid., p.7.
is meaningless to me. And by *modus tollens*, if I find his thesis meaningful, then I must conclude that it is false. **Prima facie**, Black has reduced Lewis's thesis to a kind of *reductio ad absurdum*.

I believe, however, that Lewis is on safe ground here and that Black's argument hangs on a serious misinterpretation of Lewis's thesis. Before proceeding with my own argument, however, perhaps I should refer to an article by Vincent Tomas.¹ To my knowledge this is the only published criticism of Black's article. Unfortunately, however, I think he concedes too much to Black by not noticing the misinterpretation of Lewis on which Black's argument depends.

One of the difficulties in dealing with Black's essay is that, as the title suggests, its purpose is as much to display a philosophical technique as it is to dispose of a skeptic's paradox. Nevertheless, Black uses the technique to dispose of Lewis's skepticism and we can only take his arguments at their face value. Black takes great care in introducing what he calls a "limiting sense" of the term "color-blindness".² When

---

used in this limiting sense, it seem intelligible to say that it is possible for some case of color-blindness to exist which no tests could ever reveal. But color-blindness is, according to Black, defined in terms of certain tests and therefore it is self-contradicting to use "color-blindness" in such a manner. To use such a term in this limiting sense is, says Black, like regarding the limiting value of a converging sequence as a member of that sequence. What is true of every member of the sequence may not be true of its limiting value. Every member of an infinite sequence may be greater than zero, while the limiting value may be equal to zero.

If "color-blindness" has ever been used in the way described by Black then the techniques of linguistic analysis which he displays here make short work of revealing the source of any subsequent paradoxes which may arise. But as Tomas points out,¹ not only does Lewis not use "color-blindness" in this limiting sense, he does not use the term at all.

Can it be that Black uses "color-blindness" to refer to that "personal peculiarity" Lewis mentions which consists in my seeing "red" where you see what I call

"green", and vice versa or in "my whole spectrum" being "exactly the reverse of yours?" If so, he is mistaken about Lewis's meaning. Such a peculiarity would not be the peculiarity known as color-blindness. ¹

Color-blindness is a peculiarity which prevents people from making normal discriminations between objects on the basis of their color. Lewis, on the contrary, is describing a peculiarity which he explicitly says does not affect one's ability to make color discriminations. Because of the close similarity between the examples discussed by Black and Lewis, and because Black commenced his paper by discussing this particular passage in Lewis, one can only assume that Black imagined the "slum clearance" on which he was engaged to consist of the demolition of Lewis's thesis. Tomas has shown that Black has detonated his charge under the wrong building: Lewis's thesis is still intact. But the weakness with Tomas's argument is that it does not remove the suspicion that if Black had placed a similar charge in the right place he may have produced the proper result. In other words, is Lewis still vulnerable to the kind of objections raised by Black?

¹ Loc. cit.
In what follows I shall argue that Black commits a number of non sequiturs. I shall also indicate two respects in which Black has seriously misinterpreted Lewis. Thus I hope to show that Black's arguments are impotent - at least as far as Lewis is concerned. Consider the following example with which Black illustrates his argument:

Let it be supposed that some Latin American, lately arrived from Venezuela is giving a report on political conditions in his native land; and that his account is enlivened by constant references to the intrigues and struggles of the so-called "Greens" and "Yellows". Our Venezuelan friend, we may further suppose, is acquainted with members of the Green and Yellow parties; he has encountered specimens of the denotation of each of these terms. We, his hearers, having never visited Venezuela, are, however, unacquainted with any individuals who are "Greens" or "Yellows"; the two terms accordingly mean less to us than to the man who uses them. To be more precise, "Greens" means to us exactly the same as "members of some Venezuelan political party, we don't know which"; and "Yellows" exactly the same as "members of some other Venezuelan political party, we don't know which". More concisely, the two terms have, for us, connotation but no denotation; while for the Venezuelan they have both connotation and denotation.¹

From what Black has said, it does not follow that "Greens" means to us exactly the same as "members of

some Venezuelan political party, we don't know which. Depending on how much our Venezuelan friend told us about the intrigues and struggles of these parties we may know a great deal. We may know that the Greens are pressing for social reforms, better education, a re-organization of taxation, better medical facilities and so on; we may know that the Yellows had conspired to have the President assassinated, were advocating a close alliance with Cuba and had been the instigators of most of the recent violent demonstrations in the capital. To this extent we do know, or at least, may know which party is which; and there is, in principle, nothing which our Venezuelan friend could know about the Greens and the Yellows by his acquaintances with them which he could not communicate with us.

Nor does it follow from Black's account of the situation that these terms "have, for us, connotation but not denotation". Of course they have denotation! "Greens" denotes for me the members of a Venezuelan political party known as the Green party which has pressed for social reforms and all those other things which my Venezuelan friend told me; and likewise for "Yellows". I may never have had a personal acquaintance
with any members of these parties, but that has nothing to do with whether or not I know what the denotation of the term "Greens" is.

Black has confused a number of distinct uses of the verb "to know" here. In the first place he has not recognized the difference between knowing somebody personally and knowing something about that person. Knowing a person personally, is not one of the things that I know about that person.¹ If I know Tom personally but Bill does not, there is nothing which I can communicate to Bill which will result in Bill knowing Tom personally. Nevertheless it does not follow that there is anything which I know about Tom which I cannot communicate to Bill. Similarly, there is a difference between knowing a person personally and knowing the denotation of some term which refers to that person; this is another distinction which Black fails to observe. I do not know the Prime Minister of Australia, but that does not mean that the term "Prime Minister of Australia" has no denotation for me. It has denotation and I know what that denotation is.

¹ Of course, one of the things that I may know about somebody is that he or she is known personally by me.
So much for Black's non-sequiturs; but let us see how he intended to use this argument against Lewis:

This situation (of the Venezuelan) is, in some respects, very similar to that depicted in Lewis's account. When any man uses the words "green" or "yellow", the words are understood by him to refer to certain experiences to which he has direct access. But we, the hearers, are barred from visiting the country of his mind; nor could we ever find conveyance to transport us into that permanently inaccessible region. The word "green" in the mouth of our interlocutor, denotes some distinctive "feelings of color-quality" (to use Lewis's language); to us, who cannot "look directly into his mind", it can, at best, connote "some experiential quality, we don't know which". ¹

It is clear in this passage that Black imputes to Lewis a conclusion which is a non sequitur of the same kind which he himself committed in the passage previously quoted. Furthermore, it is a conclusion which Lewis categorically rejects. The word "green" does not, at best, connote "some experiential quality, we don't know which". Nor does it denote some distinctive "feelings of color-quality". What, then, does "green" connote in this context for Lewis? and what does it denote?

¹ Ibid., p.5.
Nowhere in *Mind and the World Order* does Lewis define either "denotation" or "connotation". Presumably one of his reasons for undertaking such an extensive study of the modes of meaning in *An Analysis of Knowledge and Valuation* was that these notions had given rise to some confusion in the earlier work. I shall not attempt here a complete analysis of Lewis's use of these terms; that must wait until the next chapter. However, it is worth noting some fairly obvious defects in Black's account.

The most fundamental error, it seems to me, is that Black has failed to observe the significance of Lewis's distinction between the given and the object which is given. This is made evident by the fact that Black interprets Lewis as saying that a term denotes the qualia with which it is correlated. If that was Lewis's view, then "green" would denote some "distinctive feelings of color quality". But for Lewis a term does not denote the given; it denotes the object which is given. Black has in fact chosen a term whose denotation is somewhat ambiguous. It is what Lewis calls an attributive. Sometimes it functions as a concrete term having as its denotation

---

1 See below, pp. 183-84.
all green objects; other times it functions as an abstract term having as its denotation the color green. But in neither case is its denotation an ineffable quale or qualia as Black would have it. We know a whole variety of things about green objects and about the color green; and what we know we can express. We know the frequency of light waves which be emitted from any surface which is green; we know various things about its relations to other colors in the spectrum; we know that green is soft on the eyes and so on. This distinction between qualia and properties is essential to Lewis's distinction between the given and mind's interpretation of the given.

The quale is directly intuited, given, and is not the subject of any possible error because it is purely subjective. The property of an object is objective; the ascription of it is a judgment which may be mistaken; and what the predication of it asserts is something which transcends what could be given in any single experience.¹

What is asserted about an object, when a property is predicated of it, is the connotation of the term which denotes that property; for the connotation of a term is, very briefly, the criterion which we have in mind for

1

MWO. p. 121.
determining when that term is applicable to some object. It could be thought that Black was right in regarding such a criterion as some kind of experiential quality. While such an interpretation may be plausible I think there is ample evidence that Lewis did not regard it this way. Consider the following passage in which Lewis discusses the criteria for saying that two terms have the same meaning:

You and I mean the same by "red" if we define it as the first band in the sun's spectrum, and if we both pronounce the same presented objects to be red. It does not matter if neither the red rug nor the first band of the spectrum give to the two of us identical sensations so long as we individually discover that same sense-quality in each thing which we agree in describing as "red".1

Lewis explicitly excludes the need for two persons to have qualitatively identical sensations in order that they mean the same thing by "red". All that is necessary is that, individually, we recognize the same sensation when it recurs and that we agree in what we say about that sensation. In saying that these are the conditions for sameness of meaning, Lewis is implicitly saying that these are the conditions for two terms having the same

MWQ, p.76.
connotation. The connotation of a term is not some ineffable experiential quality, for that may vary between two persons even though they are in agreement about the connotation of the term. As will be seen in the next chapter, the connotation of a term is more closely identified with the term's conceptual relations with all the other terms in the language. In the vocabulary of *Mind and the World Order* perhaps we could say that knowing the connotation of a term is a matter of knowing the precise location of that term in the structure of the categories.

This is an inadequate account of connotation but it serves its purpose here in making quite clear that the connotation of a term is not some experiential quality. Black's argument misrepresents Lewis's theory and is invalid.

§13 THE LEGISLATIVE CHARACTER OF THE A PRIORI

It is now possible to embark on a more detailed account of Lewis's theory of the *a priori*. Such an account must fulfil two particular needs: to explain what Lewis means by and how he justifies his claim that the necessity which belongs to the *a priori* does
not preclude the possibility of alternatives; and also to examine his claim that if there is to be any knowledge at all, some knowledge must be a\_priori. 

First, however, it is necessary to observe the consequences of Lewis's distinction between the given and the mind's interpretation of the given for his theory of the a\_priori. This distinction is the key to understanding his claim that there are alternatives to the a\_priori. The given, it will be remembered, is the brute-fact element in knowledge "which the mind must accept willy-nilly". But there is no knowledge without the mind's interpretation of the given; it is in this process of interpretation that there is some possibility for alternatives, according to Lewis; and this is the domain in which the a\_priori belongs.

The a\_priori represents the activity of the mind itself; it represents an attitude in some sense freely taken. That we elicit some formula as a principle means that we take it as forbidding something or denying something which in some sense has significance. That which is utterly incapable of any alternative is utterly devoid of meaning. The necessity of the a\_priori is its character as legislative act. It represents a constraint imposed by the mind, not a constraint imposed upon the mind by something else.\(^1\)

\(^1\) MWO., p. 197.
This passage sets the pattern for all that Lewis has to say about the necessity that belongs to the \textit{a priori}. But there are some important questions which need to be answered. In what sense does the \textit{a priori} represent an attitude which is freely taken? What is it that the \textit{a priori} forbids? What does Lewis mean when he describes the necessity of the \textit{a priori} as "its character as legislative act"? Before attempting to answer these questions, however, there is a second fundamental characteristic which Lewis ascribes to the \textit{a priori}. The \textit{a priori} is not only necessary, it is also independent of experience.

And the \textit{a priori} is independent of experience, not because it prescribes a form which experience must fit or anticipates some preestablished harmony of the given with the categories of the mind, but precisely because it prescribes nothing to the content of experience. That only can be \textit{a priori} which is true no matter what.\footnote{Loc. cit.}

This passage is particularly important in that it seems, prima facie, to be incompatible with the earlier passage about the necessity of the \textit{a priori}. If the \textit{a priori} is true no matter what, then the question of what it is that the \textit{a priori} forbids or denies becomes
all the more puzzling. In view of the relation between these claims by Lewis, it will be advantageous to examine first this matter of the a priori being independent of experience. More particularly, what sense are we to give to Lewis's claim that the a priori is true no matter what? Consider the following passage:

What is anticipated (in the a priori) is not the given but our attitude toward it; it formulates an uncompelled initiative of mind, our categorial ways of acting. Truth which is a priori anticipates the character of the real; otherwise it would possess no significance whatever. The real, however, is not the given as such, but the given categorially interpreted. In determining its own interpretations — and only so — the mind legislates for reality, no matter what future experience may bring.¹

This is a particularly important and unfortunately obscure passage. When Lewis says that our attitude toward the given is anticipated in the principles which we adopt as a priori, he means that these are the principles by means of which we categorize the given or make our interpretation of the given. Our attitude toward the given is anticipated in the sense that what we call reality, i.e. our interpretation of

¹ Loc. cit.
the given, will be limited by the categories which we have at our disposal. But these categories, unlike their Kantian counterparts, are not predetermined and unalterable. They are, in a sense, freely taken. And so we return to the questions which I raised earlier about the necessity that belongs to the a priori.

How free is the mind to determine its own categories in terms of which it will interpret the given? Lewis sometimes gives the impression that there are no limits to this freedom, but this impression is misleading. Admittedly, in the passage we have been considering he qualifies this freedom by the phrase "in some sense"; but he does not specify which sense. When considered within the total framework of his theory, it is clear that there are quite substantial limitations upon the freedom we have in adopting a priori principles for interpreting the given. These limitations are dictated by some fundamental features of Lewis's doctrine of the given.

In §11 I drew attention to a passage in which Lewis speaks of the given as containing within it certain disjunctions "which, when they are made
explicit by our attention, mark the boundaries of events, 'experiences' and things." These disjunctions may be more accurately described as the relations that hold between the qualia that constitute the given. When I experience some particular quale, it is identifiable for me by the fact that it is distinct from other qualia - and being distinct means that there are certain patterns of similitude and dissimilitude, certain relationships between the various qualia. In any one experience there will be a large number of qualia and an even larger number of relations holding between them. Only some of these relations will be noticed because only some of them will be in any way relevant to my purposes. The crucial point, however, is that all the relationships that hold between the qualia are as much a part of the given as are the qualia themselves.

Insofar as these relationships are a part of the given, they are an important limiting factor in the freedom with which the mind can create its own interpretive categories and a priori principles. Nor is it the case that Lewis had totally failed to

---

1 MWO., p.59.
emphasize it enough in the right places. Lewis explicitly warned against misunderstandings that could arise through regarding the given as "the material or content element" in knowledge, and the conceptual interpretation of the given as the "formal element". Such a contrast suggests, mistakenly, that the given itself is formless.

The given is not formless in the sense of being indefinite. One kind of definiteness which the given has — its qualitative specificity — is too obvious to need pointing out. Further, it is not formless in the sense that this qualitative and ineffable character of it is indifferent for knowledge. If there were no correlation in the individual mind between the concept and particular qualia, then no experience could be the signal for any particular meaning. It is also to the point that the implicitly predicted relationships, comprised in the conceptual interpretation of what is presented, must be such that further possible experience could verify or fail to verify them. Without the correlation of concept and qualia, no experience could verify or fail to verify anything.¹

Here Lewis reveals that he is well aware of the limitations upon the mind's freedom to choose its own categories and conceptual schema. Unless the conceptual

¹  MWO., pp. 143-44.
schema reflects the pattern of disjunctions presented in the given, that conceptual schema would be arbitrary to the point of being useless as a vehicle for the articulation of knowledge. It could be thought that this requirement which our conceptual schema must meet is more than a limitation upon the freedom with which the mind adopts such a schema. It could be regarded as a denial of any such freedom. If this were the case then Lewis would be guilty of an inconsistency in his system. But such apparent inconsistency arises out of an ambiguous interpretation of 'freedom'.

There is a sense in which I am free to assassinate the Prime Minister; but this freedom is not without its limitations or restrictions. Such an act has serious consequences, sufficiently serious to deter me from doing it. The fact that I am not prepared to accept the consequences ensures that I shall not assassinate the Prime Minister; but it does not deprive me of my freedom to assassinate him. Similarly there is a sense in which I am free to choose any postulate set I wish for a system of geometry; but again there are very compelling reasons which ensure that I shall not
knowingly choose an inconsistent postulate set. Nevertheless, this does not deprive me of my freedom

This is the kind of freedom which I believe Lewis ascribes to the mind's creation of a conceptual schema. There is a logical sense in which the mind is free to create any kind of conceptual schema; there are, however, pragmatic factors which ensure, or at least make it more probable, that the schema adopted will be of one kind rather than another. Since my purpose in having a conceptual schema at all is to provide me with a means of interpreting the given, it is obvious that I shall adopt a schema which is appropriate to and adequate for that task; it will reflect the pattern of disjunctions presented in the given. But the pragmatic needs which help to determine the likely nature of any acceptable conceptual schema do not alter the fact that this schema is created by the mind; and what the mind creates, Lewis says it can also alter.

This leads naturally to the question which lies at the heart of Lewis's doctrine. In what sense are there alternatives to the a priori. Lewis regards definitions as paradigms of the a priori. Thus

1 *MWO.*, p.239.
we can use what he says about alternative definitions as indicative of the way in which the a priori generally can have alternatives.

The alternative to a definition or rule is not its falsity but merely its abandonment in favour of some other. ¹

This could be interpreted in several ways. For example there are a number of ways of defining a cube, each definition denoting the same class of objects. If these different definitions were to be regarded as alternatives then certainly one would not imply the falsity of another. Rather they would be regarded as equivalent definitions. And it is abundantly clear that Lewis is concerned with a much more radical kind of alternative. Unfortunately, however, the confusion which prevailed throughout Lewis's discussion of alternative logics recurs in his discussion of alternatives to the a priori. Consider the following passage:

Not only is the meaning assigned to words more or less a matter of choice - that consideration is relatively trivial - but the manner in which the precise classifications which definition embodies shall be affected, is something not

¹ MWO., p.232
dictated by experience. If experience were other than it is the definition and its corresponding classification might be inconvenient, useless or fantastic, but it could not be false. Mind makes classifications and determines meanings; in so doing it creates that truth without which there could be no other truth.¹

What could Lewis mean when he says that a definition could not be false? Even though his analogy between logic and geometry was an unhappy one, he did say in that context that the system of material implication was untrue in the same way that non-Euclidean geometries were untrue. In Mind and the World Order he speaks of thoroughly false logics and explicitly points out that these may still satisfy the criteria for mathematical consistency.² Although there are obvious differences between systems (of geometry or logic) and definitions, it seems that what Lewis says about false systems is equally applicable to definitions, especially in view of his belief that the distinction between definitions and postulates is arbitrary and unimportant.³ Definitions do not occur in isolation. Unless the terms used in a definition

¹ MWO., p. 240.
³ MWO., p. 243.
have other definitional connections with other terms, the definition in question will be impotent as a vehicle for conveying truth about the given.

It would seem that to be consistent Lewis should say that definitions may be false in the same sense in which non-Euclidean geometry is false, i.e., that it does not accord with what is given in experience. But he says just the opposite, viz., that no matter what happens in experience it cannot falsify a definition. Admittedly, he made the references to untrue geometries in the early articles and his views underwent a considerable change during the intervening years. But in *Mind and the World Order* he still retains the notion of a false logic; so it does not seem that the changes have been so radical as to make it impossible for a system or one of its postulates to be false.

I think that it is possible to highlight the extent of Lewis's confusion even in this later period by considering one passage in which he talks about geometry and mathematics. Lewis thought that since the axiomatic method showed how mathematics could be developed from a minimum number of assumptions, all
pure mathematics was abstract in the sense of being independent of any particular application. So far so good; but then comes the confusion.

If all the theorems follow logically from the definitions and postulates, then we can alter at will what we let the terms, such as "point" and "line", denote without in the least disturbing any step in the proofs. Whatever "point" and "line" may mean, given these assumptions about them, these consequences - the rest of the system - must also hold of them, since the theorems follow from the assumptions by rigorous and purely logical deduction.¹

There is a sense in which what Lewis says here is correct, but the overall impact is grossly misleading. It is true that if it makes sense at all to speak of arbitrary alterations of the denotation of a term, those alterations will not invalidate any steps in the proofs for the different theorems. But does it make sense to speak of such arbitrary alterations of a term's denotation? And if it does, what, then, are the consequences of such an alteration?

Lewis must have thought it possible to alter the denotation of terms in this way, or else he would not have used this illustration. Part of the difficulty is that Lewis had not clearly defined denotation. In the next chapter I shall discuss fully the factors

¹_ MWO._, p. 242.
which, in *An Analysis of Knowledge and Valuation*, Lewis says govern the denotation of a term. For the moment it will suffice to say that denotation is to a large extent, though not absolutely, determined by connotation. In the context of his discussion about geometry in *Mind and the World Order*, this later principle would suggest that it is not possible to alter arbitrarily the denotation of terms whose logical relationships to each other are fixed in the postulates of a system.

What is confusing about Lewis's exposition is that he often does not seem to realize the full importance of his own statements. For example, he says that "the question of the truth of the mathematical system in application [is] completely separated from its mathematical or logical integrity".¹ This conforms with his view that it is possible for a system of logic to be perfectly consistent, yet thoroughly false. The grounds for calling such a system false are pragmatic; but pragmatic criteria are not independent of empirical data. If this is the case, however, why does he persist in saying that nothing in experience could ever falsify a definition? The only possible answer to this seems to be that Lewis is speaking of definitions in some

---

¹ *MWO*, pp.242-43.
way as analogous to postulates in an uninterpreted system. To preserve his doctrine that experience can never affect the truth of a definition, Lewis must regard definitions as expressing nothing other than relations between terms which are totally abstracted from any material content. But again there is confusion because Lewis makes it quite clear that this is not what he means.

If there should be a priori truth only with respect to concepts in utter abstraction from experience, and if this a priori character were to vanish when these concepts are given a concrete denotation, then the significance of the a priori for the natural sciences and for common practice would be largely, if not completely, lost.¹

For Lewis, however, it is important that the a priori should have this general epistemological significance. And he affirms that "there is an a priori truth of concepts which have concrete denotation".² Arithmetic is an example of this kind for it depends in toto upon the operation of counting or correlating,

¹ MWO., p.249.
² MWO., p.250.
an operation which can be carried out in any world containing identifiable things; and yet its truth is in no way affected by the course of experience. One of the few persons to challenge this a priori character of arithmetic was J.S. Mill.

He [Mill] asked us to suppose a demon sufficiently powerful and maleficent so that every time two things were brought together with two other things, this demon would introduce a fifth. The conclusion which he supposed to follow is that under such circumstances $2 + 2 = 5$ would be a universal law of arithmetic.¹

Lewis's reply to this is quite straightforward. "In such a world we should be obliged to become a little clearer than is usual about the distinction between arithmetic and physics."² In the circumstances supposed by Mill, Lewis says we would not alter our arithmetic; rather we would formulate some extraordinary physical law to the effect that whenever two pairs of things were brought into proximity with each other, an additional and similar thing was always created in the process.

Mill's world would be physically most extraordinary. The world's work would be enormously facilitated if hats or locomotives or tons of coal could be

¹ Loc. cit.
² Loc. cit.
thus multiplied by anyone possessed originally of two pairs. But the laws of arithmetic would not be affected. It is because this is true that arithmetic is a priori.

The last two sentences in this passage are extremely helpful in understanding Lewis's doctrine.

First, it should be noticed that it is not because arithmetic is a priori that its truth is unaffected by the circumstances supposed by Mill. On the contrary, it is because they are unaffected, that they are a priori. Furthermore, it is important to note that Lewis does not say that the laws of arithmetic could not be affected by such circumstances; he says they would not be affected. And they would not be affected because we give them a special status which protects them in this way. This is what is meant by the legislative character of the a priori.

As this example serves to illustrate, such categorial interpretation of the concrete and empirical throws out of court what would otherwise violate the a priori principles which embody the category, but it does not thereby legislate anything phenomenal out of existence.2

1 MWO., p.251.
2 MWO., pp.251-52.
Sometimes it may be in the interests of simplicity or economy to abandon a particular \textit{a priori} principle rather than make myriad other complex adjustments to the system. This is always open to Lewis because the \textit{a priori} has this legislative character. Thus the sense in which an \textit{a priori} principle is true "no matter what" is severely limited. It does not mean that it cannot be abandoned in favour of some other principle. Indeed many principles which were once regarded as \textit{a priori} have been abandoned in favour of others. What it does mean is that while we do regard some principle as \textit{a priori} we intend that its truth shall not be called in question by any isolated empirical evidence.

The necessity that belongs to the \textit{a priori} is therefore something which we choose to bestow upon these principles; and we can choose to deprive a principle of this necessity if the circumstances call for it. There is a striking similarity between Lewis's doctrine of the legislative character of the \textit{a priori} and Quine's thesis that there are no propositions (Quine prefers to speak of statements) which are immune from the possibility of revision. The relationship between Quine and Lewis will be
more fully explored, however, in Chapter 5. One important question arising out of the legislative character of the a priori still has not been satisfactorily answered. In what sense are there alternatives to the a priori?

I think there are a number of different senses in which it is possible to speak of alternatives to the a priori. Some of these senses have already been discussed in Chapter 2. First there is the sense in which Riemannian geometry and Euclidean geometry are alternatives. Then there is the sense in which intuitionist logic is an alternative to classical logic. I do not mean just that there are alternatives to the a priori in some analogous sense to these alternatives. These are alternatives to the a priori. Geometry, and more especially logic, are examples par excellence of the a priori. But the principles which belong to formal systems constitute only a minority of a priori truths. The question which I have not answered is whether there are alternatives to the more mundane kind of a priori truth such as "All bachelors are unmarried."
Let us consider an example. Suppose there is a community of people whose social structure includes no kind of relationship equivalent to marriage. It is not simply a polygamous society as opposed to our monogamous society. There are no permanent relations between male and female and no family groupings. Reproduction is organized on a random basis. Because of the nature of things there is no word in their vocabulary which is equivalent to "bachelor". Nor is it possible to define bachelor by means of the terms available in their vocabulary. Their conceptual schema is such that it simply does not have the capacity to express the principle "All bachelors are unmarried." It does not follow, of course, for the members of this community that "All bachelors are unmarried" is false.

The circumstances described here are such that these two conceptual schemas are related to each other in much the same way as intuitionist logic is related to classical logic. The absence of the classical negation sign or anything equivalent to it means that the Law of the Excluded Middle cannot be expressed in the intuitionist calculus. It is not that the Law of
the Excluded Middle is false in their logic; it simply cannot be considered as a candidate for being either true or false. This is still a weak sense of "alternative". The stronger sense of "alternative" would require a community whose language differed from ours in the respect that they regarded "All bachelors are married" as an a priori truth.

There is no logical reason why such a language should not exist. It would simply mean that either "married" or "bachelor" had a meaning in that language which was different from its meaning in our language. If we knew that "marriage" meant the same in this language as it means in ours, then we could deduce that "bachelor" has a meaning which is different from the meaning we give to it. The concepts in this language would then be related to the concepts in our language in the same way as Riemannian geometry is related to Euclidean geometry.

At the commencement of this section I indicated two features of Lewis's theory which would need to be examined: first there was the sense in which there could be alternatives to the a priori; second there was the claim that if there is to be any knowledge at
all, some knowledge must be \textit{a priori}. In fact these
two characteristics of Lewis's theory are closely
related to each other. They both depend upon Lewis's
notion of the categories - how they are established,
and what their function is.

There are alternatives to the \textit{a priori} because
the categories by means of which we interpret the
given are created by the mind. And it is for this
very same reason that Lewis is able to say that there
must be some \textit{a priori} knowledge if there is to be any
knowledge at all. All knowledge, including empirical
knowledge, presupposes the categories. But categories
are not given; they are established by the mind; and
they are identified by the series of \textit{a priori} truths
which comprise the conditions for inclusion in, or
exclusion from, the category in question. Therefore
Lewis argues that knowledge of any kind presupposes
some \textit{a priori} knowledge.

Against this it could be argued that it is
possible for a language to comprise terms whose
meanings are not determined by the categories but
by a series of ostensive definitions. If this were
possible then there could be some knowledge without
any \textit{a priori} knowledge. The problems raised by this
alternative, however, are similar to those discussed
in Chapter 1 in relation to Hobbes's nominalism.
Lewis would presumably reply by saying that ostensive definitions do not provide adequate criteria for deciding whether or not some particular object is properly named by some particular term.

There are, however, more internal difficulties for Lewis's theory which have not yet been mentioned. It could be thought that Lewis reduces all empirical knowledge to a kind of hypothetical truth because of its dependence on the *a priori* principles which constitute the categories: given our conceptual framework, such and such is true; but our conceptual framework is created by the mind and could have been created differently; therefore all empirical truths are dependent upon the hypothesis that we accept one particular conceptual framework. If we accept this framework, then such and such is true. Lewis certainly does not wish to have this as a consequence.

That would be nothing but a cheerful form of skepticism... Rather the point of the pragmatic theory is, I take it, the responsiveness of truth to human bent or need, and the fact that in some sense it is made by the mind.¹

¹ *MWO*, p.271.
For Lewis empirical propositions are knowable; they are categorically true or false. Their dependence on the categories does not alter this. We might say, however, that there is a need for understanding clearly what it means to say of some empirical proposition, like "The cat is on the mat", that it is true. It is beyond the scope of this study to pursue this in any detail. What can be said, however, and what needs to be said, is that for Lewis the notion of truth is heavily dependent on the categories. By this I mean that a full analysis of "It is true that the cat is on the mat" includes important and unavoidable references to the categories. Since cats and mats are both subsumed under the category of "physical objects" there are certain general consequences about physical objects which must follow if the proposition that the cat is on the mat is true. These consequences are generally stated in the form of hypotheses: if I look at the mat, and if nothing obscures my vision, I shall see the cat. Because the cat belongs to the category of "animals" there are further consequences which will follow if the proposition is true: if I set fire to the mat, and if the cat is healthy, and if there is nothing preventing
the cat from moving, it will probably run away; whereas no matter what I do the mat will not run away. If an empirical proposition is true, there will be an indeterminate number of these "if - then" which must also be true. Nevertheless it is not possible to verify an empirical proposition solely by appealing to the nature of the categories. At some point some appeal must be made to the nature of what is presented in the given. This is a necessary though insufficient procedure for verifying empirical truths. Likewise some appeal to the categories is another necessary though insufficient procedure for verifying empirical truths. Necessary truths may, according to Lewis, be distinguished from other truths by the fact that a proper understanding of the categories is not only necessary, but also sufficient for determining their truth; no appeal to the given is required for their verification.
the cat from moving, it will probably run away; whereas no matter what I do the mat will not run away. If an empirical proposition is true, there will be an indeterminate number of these "if - then" which must also be true. Nevertheless it is not possible to verify an empirical proposition solely by appealing to the nature of the categories. At some point some appeal must be made to the nature of what is presented in the given. This is a necessary though insufficient procedure for verifying empirical truths. Likewise some appeal to the categories is another necessary though insufficient procedure for verifying empirical truths. Necessary truths may, according to Lewis, be distinguished from other truths by the fact that a proper understanding of the categories is not only necessary, but also sufficient for determining their truth; no appeal to the given is required for their verification.
CHAPTER IV

THE LINGUISTIC APPROACH

§14 Introductory Remarks

§15 The Modes of Meaning

§16 Some Further Terminological Distinctions

§17 Linguistic Meaning - Sense Meaning

§18 Analytic Meaning

§19 Propositions: A Kind of Term

§20 Analytic Truth

§21 Definitions and the Principles of Logic

Page

153

155

176

193

206

216

234

252
Some seventeen years passed between the publication of *Mind and the World Order* and the publication of *An Analysis of Knowledge and Valuation*. Although the two books overlap considerably in their major interests, the overall objective of *An Analysis of Knowledge and Valuation* represents a substantial shift from Lewis's earlier interests. It is important to recognize this shift especially if one is concentrating, as I am, on those parts of the book which overlap with his earlier work.

Lewis says that the original studies which he undertook for this book "were addressed to topics in the field of ethics". ¹ He soon found the need to place these studies into a wider context of valuation generally. This function is served by Book III of *An Analysis of Knowledge and Valuation*. One of Lewis's theses is that valuation is a form of empirical knowledge. For this reason he needs to give some account of empirical knowledge; this is the purpose of Book II. But because of his view that there is no knowledge at

---

¹ *AKV.*, p. vii.
all unless there is some a priori knowledge Lewis also needed to give some account of the a priori, which is the purpose of Book I. The foundations which Lewis needed for his studies in ethics were so extensive that he had to defer his primary objective until after he had built the foundations. To this extent he regarded the contents of An Analysis of Knowledge and Valuation as prolegomena.

For the reader who is already familiar with Lewis's earlier writings and who turns to Book I to see how Lewis develops his theory of the a priori, there is some cause for surprise. There is no looking back by Lewis; and the approach to the topic is entirely different. He does not draw at all from his earlier works, and his former preoccupation with the nature of formal systems has been replaced by a much more general interest in semantics. In particular, he develops a fairly detailed theory of meaning in terms of which he offers his account of analytic propositions and a priori truths.

Because of the way in which Lewis deals with his topic it is necessary here to write an almost exclusively exegetical chapter. The theory is laden
with an extensive vocabulary which in itself requires considerably effort to be mastered. At the risk of being boring I have therefore confined critical comment to a minimum in this chapter in the hope that this will result in as clear a picture as is possible of Lewis's theory. Chapter V will be devoted to a critical review of the theory.

§15 THE MODES OF MEANING

One of the fundamental tasks which Lewis undertakes in An Analysis of Knowledge and Valuation is to provide an analysis of "meaning" which will form the basis for his defence of the traditional definition of analytic truth. It is not adequate to say that those propositions are analytic whose truth can be assured solely by reference to the meanings of the terms involved. Lewis maintains that there are a variety of ways in which terms can have meanings. These need to be identified so that we can isolate that sense of meaning which is relevant to the analyticity of propositions. For this purpose Lewis introduced four modes of meaning which he defined in the following way:
(1) The **denotation** of a term is the class of all actual things to which the term applies.

(2) The **comprehension** of a term is the classification of all possible or consistently thinkable things to which the term would be correctly applicable.

(3) The **signification** of a term is that property in things the presence of which indicates that the term correctly applies, and the absence of which indicates that it does not apply.

(4) Formally considered, the **intension** of a term is to be identified with the conjunction of all other terms each of which must be applicable to anything to which the given term would be correctly applicable.¹

Consider the term "transparent". Its denotation (or extension²) is the class of all those existent or actual objects which are properly described as transparent. Now this class comprises an indefinitely large number of members and it is common to say that these members are denoted by the term "transparent". Lewis takes trouble to show how misleading this can be. A class may comprise

¹ *AKV.*, p.39.
² These terms are interchangeable.
a number of members but the class is not identical with those members. Similarly the denotation of a term may comprise a number of members but is not identical with those members. Lewis defines "denotation" as a class.

This has one particularly important consequence. When a term is such that there are no actual objects to which it is applicable, e.g., "unicorn", it does not follow that the term has no denotation. Although, in ordinary language, it might be said that "unicorn" denotes no objects, Lewis's definition is such that the denotation of "unicorn" is the class comprising all actual unicorns; i.e., the null class. "Unicorn" is a term having zero denotation. This characteristic is essential to Lewis's claim that all terms which have meaning in any mode of meaning have meanings in all of the modes of meaning.

The comprehension of a term is, by definition, closely related to that term's denotation in that the comprehension of a term includes its denotation. All of the possible or consistently thinkable things to which the term "transparent" is applicable naturally includes all of the actual things to which it is applicable. Lewis defines "comprehension" as a classification of things rather than as a class of
things solely in order to avoid any controversy about the nature of classes. It could be objected that classes can only comprise actual objects. But the classification comprehended by "transparent" has many more members than the class denoted by that term. Whereas the lens which I propose to make for my telescope is a constituent of the comprehension of "transparent", it is not a constituent of the denotation of "transparent", since the lens does not in fact exist. Other terms, like "unicorn" which denote the null class, certainly do not comprehend the null class. The comprehension of "unicorn" has infinitely many members. In case this should be doubted, the following should be kept in mind: for every unicorn which I can consistently think of, I can also think of another one weighing one pound more.

The signification of "transparent" is the property of transparency. Sometimes there may not be a single term which names the property in question. For instance, there is no simple name for the signification of "unicorn". Nevertheless, we can specify a number of properties whose joint presence in some object indicates that it is a unicorn and whose joint absence from some object indicates that it is not a unicorn.
The intension (or connotation\(^1\)) of the term "transparent" will comprise the conjunction of the following terms: "able-to-be-seen-through", "not-opaque", "translucent", "diaphanous" and so on. If any of these terms is not applicable to some particular object, nor is "transparent" applicable. It so happens that "transparent" is a term which is difficult to analyse. The terms listed above as comprising the intension of "transparent" are all synonymous with "transparent". That is a peculiarity of this term, and of many others; but it is not a necessary condition for terms connoted by some term to be synonymous with that term. Perhaps we could include in the intension of "transparent", the term "extended object"; for what is not an extended object cannot be transparent.

Whereas Lewis takes great care to ensure that denotation be regarded as a class of objects, he is equally careful to ensure that the intension of a term be not regarded as a class. This is the point of specifying the intension of a term as the \textit{conjunction} of all the other terms it connotes. Lewis's explanation of this is not a paradigm of clarity.

\(^1\) These terms are interchangeable.
The relation which the terms connoted have to one another, in constituting this connotation, is that of mutually modifying or limiting one another (in the usual sense of 'modify' or 'limit' in grammar.) The particular importance of observing this fact, is that if a connotation should be thought of as a class, then it might be suggested that a term having zero connotation is one which connotes no other term. That would be incorrect: a term has zero connotation if and only if its connotation imposes no limit on the application of it but allows it to apply to anything and everything thinkable.¹

It is clear from this passage that "intension" is a more obscure notion than the other three modes of meaning. In the first place the definition of "intension" is prefixed with the words "Formally considered". This prefix gives the definition a status which is different from the other three definitions. There is a good reason for this. The intension of a term is not a property which some object exemplifies, though "connotation" has sometimes been used this way. Yet nor is the intension of a term simply some other terms. That is the point of the earlier remark that Lewis did not regard intension as a class: it is not simply a class of terms.

¹

AKV, p.
As suggested by the derivation of the word, the intension of a term represents our intention in the use of it; the meaning it expresses in that simplest and most frequent sense which is the original meaning of 'meaning': that sense in which what we mean by 'A' is what we have in mind in using 'A', and what is oftentimes spoken of as the concept of A. We shall wish to preserve this original sense of 'intension' and, specifically to identify it with the criterion in mind by which it is determined whether the term in question applies or fails to apply in any particular instance.¹

While this is the sense which Lewis intends to preserve for "intension", it is not sufficiently clear for the purposes of logic. There is a need for some identity criterion for the intension of each term; or, in slightly different language, there is a need for something clearly identifiable which exhibits this intension. Before we look at this more closely, I think it should be said that Lewis confuses the issue here by taking insufficient care in his use of some terms. By saying that the intension of a term is to be identified with a conjunction of other terms, he makes it difficult for himself to override this definition in his explication of it. I think that

¹ AKV., p.43.
what emerges from Lewis's discussion is that there are a number of different angles from which intension may be viewed. It is useful to talk about the intension of a term as the conjunction of all the other terms which must apply to any object to which the term in question applies; this helps to come at the heart of the problem. The terms themselves are not the intension; but in their conjunction with each other they display the intension. The emphasis is on the conjunction rather than the terms, for it is in their conjunction that they act upon each other, modify each other and limit each other. This is more easily seen if we consider an example. Consider the following terms:

figure
plane
rectilinear
four-sided
equiangular

The term 'figure' (in the geometric sense) can be used to describe any conceivable combination of lines. "Plane figure", however, can only be used of combinations of lines which lie on the same plane. If we add "rectilinear" to the term then its use is
further restricted to plane figures whose constituent lines are all straight. By conjoining all of the terms "equiangular", "four-sided", "rectilinear", "plane" and "figure", they limit each other in such a way that, jointly, they are only applicable to a very special kind of figure, viz. a rectangle. The intension of "rectangle" is some criterion which we have in mind for the use of this term and by means of which we determine the applicability or inapplicability of the term in particular cases; and this criterion is displayed in the conjunction of the terms which we have just been considering.

One particular consequence of regarding intension or connotation this way is that it is incorrect to say that terms like "round-square" have no connotation, or that they are meaningless. According to Lewis the intension of "round-square" comprises the conjunction of all the terms which must be applicable if "round" is applicable and if "square" is applicable. "And it is only by reason of this meaning - this connotation - which it has, that one determines its inapplicability to anything consistently thinkable."¹ Thus Lewis thinks

¹ _AKV_, p.48.
that what is intended by the inaccurate statement that such terms are meaningless, can be stated precisely by saying that they have zero comprehension.

I have had occasion to use some terms such as "zero denotation" and "zero-comprehension" in the course of introducing the modes of meaning. As briefly as possible I shall now explain the meaning of all the terms of this kind, since they form an important part of the vocabulary of Lewis's theory of meaning. As has already been explained, a term has zero denotation if and only if there exists no object to which the term is applicable.\(^1\) A term has universal denotation if it is applicable to every existent object. Such a term would be "blue or not-blue". A term has zero-comprehension if it is such that there are no consistently thinkable objects to which the term is applicable. Such a term may involve an explicit contradiction, such as "blue and not-blue"; or it may involve only an implicit contradiction or inconsistency, such as "round-square". A term is said to have universal comprehension if it is such

\(^1\) See above, p.156.
that there is no consistently thinkable object to which it does not apply. Obviously a term whose comprehension is universal will also have universal denotation; but the converse does not necessarily hold.

A term has zero intension or zero connotation "if and only if its connotation imposes no limit on the application of it but allows it to apply to any thing and every thing thinkable." ¹ A term is said to have universal intension if its applicability to some particular object requires that every other term in our language is also applicable to that object. An example Lewis gives of such a term is "round-square". ²

One may well ask why every term is applicable to any object to which "round-square" is applicable. The answer which Lewis offers is that for any term, say X, it can be proved that if some object A is both X and not-X, then A is also Y, where Y is any other term. ³ This view is obviously a reassertion of Lewis's commitment to the paradoxes of strict implication.

¹ AKV., p.45.
² AKV., p.47.
³ For such a proof, see AKV., p.47,n.
Lewis accepts these proofs because, in his opinion, they depend only on logical assumptions which have traditionally been regarded as paradigms of logical truths. Lewis does not use the terms zero signification or universal signification to my knowledge. I think there are considerable difficulties in these notions and they are not difficulties which Lewis can avoid by omitting any reference to them. But a discussion of these must wait until our discussion of intension as sense meaning.

It should be clear from what has already been said that there are certain necessary relations that hold between the various modes of meaning. Of the four modes, intension, signification and comprehension stand together in some kind of contrast to extension. All of these three modes are meanings in a similar sense: they all refer to meaning as "something which we have in mind when so and so is meant, or something which should be in mind or may be brought to mind by thinking, or is logically determined by what we have in mind when we entertain a meaning."¹ Because of this similarity Lewis calls these three the intensional modes of meaning.

¹ AKV., p. 65.
It is important to note that the intension or connotation of a term determines that term's comprehension. The range of thinkable things to which a term is applicable is limited by the criterion in mind for the use of that term. Conversely, any determination of a term's comprehension would likewise determine that term's connotation.\(^1\) If it were possible to draw up a list of all the thinkable things to which a term was applicable, then certainly the criterion for that term's applicability, i.e., its intension, would be thus limited. Of course it is never possible to enumerate exhaustively the comprehension of a term can only be precisely specified by reference to its connotation.\(^2\)

Nevertheless, Lewis thought that this relation between comprehension and connotation was worth remarking for one particular consequence of it. A term of zero comprehension has universal connotation or intension.\(^3\) This is evident from what has already been said about these notions. A term having zero

---

1. *AKV.*, p.46.
comprehension is one for which there is no consistently thinkable object to which the term could apply. But such a term must involve a contradiction according to Lewis, and he had a proof for demonstrating that a self-contradictory term entailed that any and every term was applicable to any object to which the term in question was applicable. And this is precisely what is meant by the term "universal connotation".

Similarly it can be shown from what has already been said, that a term having zero intension or zero connotation will have universal comprehension. A term has zero intension if and only if its connotation imposes no limit on its applicability but allows it to apply to anything and everything thinkable; again, this is precisely what is meant by the term "universal comprehension".

The relation between intension and comprehension on the one hand, and signification on the other, is not quite the same since it is asymmetric. Whereas any determination of either the intension or the comprehension of a term will result in the signification being likewise determined, the converse is not always
true. In particular, the converse fails to hold in the case of abstract terms; but an explanation of this phenomenon must wait until some account of the distinction between abstract and concrete terms. Meanwhile the general point can be made that if the criterion in mind for the applicability of some term is fixed, then the property which must be present in any object properly described by that term must also be fixed.

In view of these relations between the intensional modes of meaning it seems fair to say that they are not distinct types of meaning at all. They are perhaps more properly described as three distinctly identifiable facets of one kind of meaning. Lewis does not put it quite this way; but he nevertheless bonds them closely together.

Whoever understands the intensional meaning of an expression, or the comprehension of it, can always determine the other two of these three modes of meaning, merely by thinking about it consistently and without any recourse to experiences he has not yet had or to facts of existence as yet unknown to him. (Also one who understands the signification of an expression may so determine its intension and comprehension, provided only he observes whether the given expression is abstract or not.)

---

1 *AKV.*, p. 65.
It is possible to demonstrate in another way how these intensional modes of meaning stand together in contrast to the mode of extension. Lewis thought it important that the truth of one statement in which an expression occurs may depend on one mode of meaning while the same expression may occur in another statement whose truth depends on the meaning of that expression in some other mode of meaning. Unfortunately Lewis is quite mistaken about the example which he uses to illustrate this point.\(^1\) This error, however, does not vitiate his original claim. For instance, "No ruminant animals are vegetables" may be determined as true without referring to the extension of the terms "ruminant animal" and "vegetable"; it is sufficient to appeal to their intensional modes of meaning. In contrast to this it is necessary to refer to the extension of the terms in "All ruminant animals have cloven hoofs" in order to determine its truth; it is not sufficient to appeal to their intensional modes of meaning.

In neither of these cases, however, would Lewis think that the terms in question only have meaning in one or other of these alternatives. For Lewis all

\(^1\) AKV., p.76.
terms have meaning at all times in all four modes of meaning, even though one mode may in any given instance be more significant epistemologically. One factor, however, which emerges here seems to bond the intensional modes into an even closer union. I am referring to the fact that it seems unlikely, or even impossible, that the kind of contrast which has here been drawn between intensional meaning and extensional meaning could be drawn between any two intensional modes of meaning. It makes no sense to say that the truth of some proposition depends on the connotation of particular terms, but is independent of their comprehension or signification.

Between denotation and connotation, or extension and intension, there is a definite relation; but, according to Lewis, the classic dictum that denotation varies inversely as connotation is false. Lewis points out that "rational featherless biped" has the same denotation as "featherless biped" despite their differences in connotation. ¹ Nevertheless, once the connotation of a term is given the denotation is thereby limited even though it is not fixed. ² Things which do not comply with the criteria incorporated in

¹ AKV., p. 47.
² AKV., p. 46.
the intension of a term are automatically excluded from that term's denotation. To this extent the
denotation of a term is limited by its connotation. But what is included in the denotation depends also on what happens to exist, and this is in no way determined by a term's intension.

The converse of this relation also holds: once the denotation of a term is established, the connotation is thereby limited but not fixed.¹ The criteria for the applicability of a term (i.e. its intension) cannot include any attribute which is absent from one or more of the things denoted by the term in question. It is not necessary, however, that every attribute which is common to all the things denoted by the term be incorporated in that term's connotation. Such attributes may, or may not, be included in the connotation of the term.

¹"Featherless biped", for example, does not connote 'rational being', even if the class denoted contains only rational beings.²

For our present purposes this introduction to Lewis's modes of meaning should be adequate. All terms

¹
²

¹ AKV., p. 46.

² AKV., p. 47.
have meaning in all the modes of meaning. In fact it could be said that having meaning in all four modes of meaning is both a necessary and sufficient condition for being a term in Lewis's theory. A term must have meaning in all four modes; nonsense expressions such as "brillig" do not have meaning in any of the modes, and consequently are not regarded as terms by Lewis.

There is one more important characteristic of the mode of extension which needs to be observed. Of terms in general Lewis says, "that when a term denotes a thing that thing must likewise be denoted by one or other of every pair of mutually negative terms which could meaningfully be applied to it". In case it be thought that Lewis wrongly refers here to the denotation of a term as a thing rather than a class, it must be remembered that he allowed himself the freedom (albeit confusing) to say that a term denotes things so long as the denotation is always thought of as a class.

It now remains to decide what Lewis means by "meaningful" in the above passage. When is a term meaningfully applicable to some other term's denotation;

---

1 AKY., p. 52.
and when is it not meaningfully applicable? Presumably the terms "odd", "even", "real", "prime", and "irrational" are meaningfully applicable to any member of the denotation of 'number'. Some people would say that the term 'blue' is not meaningfully applicable to numbers. It is not simply that it is false that numbers are blue; they are not 'not-blue' either. In other words, what is denoted by 'number' is not denoted by either of the disjuncts "'blue' or 'not-blue"."

Lewis does not specifically discuss this kind of example. If he accepts that there are some kind of category mistakes, then the sort of example which has just been discussed does not falsify his thesis. It is an instance of a term denoting something which is not denoted by either of the disjuncts in another term; but the reason for this is that the disjuncts are not meaningfully applicable to the kind of object denoted by the first term. While this does not falsify his thesis, it does reduce it to a rather trivial claim.

There is, however, some textual evidence which suggests that Lewis did not accept any notion of a category mistake. In the case of contradictory terms like 'round square' which have zero comprehension,
Lewis has said that it is incorrect to call them meaningless. 'Round square' has a signification; any object describable by that term must exemplify the properties of roundness and squareness jointly. There seems no good reason why this is not also true of a term like 'a blue prime number'. Any object properly described as a blue prime number must exemplify the properties of being a number, having no factors other than itself and the number one, and blueness. In other words 'a blue prime number' is an expression having a specifiable signification. It is not an abstract term and we can therefore derive its intension and comprehension from its signification; its denotation is, of course, the null class. On this account 'a blue prime number' has meaning in all four modes and is therefore not what Lewis would call a meaningless term. It would seem that Lewis commits himself to saying that 'blue' can be meaningfully applied to numbers. Indeed, we can make a general point here: there is no basis in Lewis's theory for

1

AKV., p. 48.
rejecting as meaningless any complex expression which is grammatically well-formed and whose constituents have meaning in all four modes. If the above arguments are correct this ought to commit Lewis to the thesis that any term which has meaning in all four modes is meaningfully applicable to anything denoted by any other term (which has meaning in all four modes). To use a different vocabulary, this commits Lewis to denying that there are such things as category mistakes, if category mistakes constitute a class of meaningless expressions.

§16 SOME FURTHER TERMINOLOGICAL DISTINCTIONS

Before proceeding to discuss propositions it is necessary to examine some other distinctions which Lewis introduces. The first distinction to be noted is between abstract and concrete terms. Lewis defines this distinction in the following way:

Abstract terms are those which name what some other term signifies; e.g. 'roundness' names that character or property which is essential in order that the term 'round thing' should apply. Non-abstract terms are concrete. ¹

¹ AKV., p.41.
Lewis further claims that for every concrete term there is a cognate abstract term.¹ For any concrete term, 'C', we may represent its cognate abstract term by 'C-ness'; in many cases, however, there may be no linguistically simpler expression for this cognate abstract term than "The character which a thing must have in order to be nameable by 'C'." In such cases this cumbersome expression is the abstract term cognate with 'C'. Lewis regards the converse as true also: for every abstract term, 'C-ness', there is a cognate concrete term, 'C', whose signification is named by 'C-ness'. Again, if no simpler alternative is available then the cognate of which Lewis speaks may have the clumsy form of 'thing having the property C-ness'.

By means of this distinction Lewis further ensures that all terms will have some meaning in all four modes of meaning. Some doubt may have

¹ AKV., p. 42.
arisen about the signification of abstract terms. The
definition makes it clear enough what the denotation
of an abstract term such as "roundness" is; it names
what some other (concrete) term signifies, in this
case, the property of roundness. It is conspicuous
in the text that Lewis does not speak of the denotation
of an abstract term. Instead, he says that the abstract
term "roundness" names the signification of the term
"round". It seems to me, however, that in this context
"naming" is used interchangeably with "denoting". Lewis's
reluctance to speak of denotation here probably arises
from his cautious approach to the doctrine of classes.
He defined denotation as a class of actual or existent
objects; now it seems that the denotation of an abstract
term is a class whose members are properties. I doubt
if Lewis would find this objectionable himself, but he
seems reluctant to enter into any unnecessary controversies
at this point.

If the denotation of an abstract term is a property,
the question arises: what is its signification? In
order that the term "roundness" should apply to
something, is there some property whose presence is
essential? Lewis thinks the answer to this is self-
evident. Since "roundness" names or denotes the property of roundness, this property must be present whenever "roundness" is properly applicable; thus the signification of "roundness" is the property of roundness itself. Hence we have a new situation arising: for any abstract term, its denotation is identical with its signification. This is a considerable departure from the relation which holds between denotation and signification in the definitions. Professor C.A. Baylis has a proposal which, if it is acceptable to Lewis, will relieve him of the need to have these variations.

Baylis argues that Lewis was mistaken about the nature of abstract terms.\(^1\) In particular he objects to Lewis's account of the signification of abstract terms; his objection is based on the peculiar consequence which I noted earlier, viz., that the denotation of an abstract term is the same as its signification.

Since it follows at once from Lewis's account of denotation and signification that a term denotes those entities which have the character signified by that term, it would appear that if "sweetness" both

---

denotes and signifies the character signified by "sweet", then this character sweetness has itself the character sweetness. But this seems no more true than to say that hotness has the character hotness or redness has the character redness.1

At first sight I found this argument rather confusing. The last sentence in the passage quoted gives the impression that Baylis is relying on his reader to regard it as obviously false to say that hotness has the character hotness, or to say that redness has the character redness. But this is something which needs to be argued rather than stated. Presumably Baylis had Plato's Third Man Argument in the back of his mind; but I think something more is needed than he offers in the text if the argument is to be persuasive. Nevertheless, Baylis introduces another argument which reveals more clearly the cause of his concern. It is perfectly proper, he says, to say that the implication relation is transitive; transitivity is a property which some dyadic relations possess; "but one would be unlikely

to say that transitivity has transitivity". ¹ In this case the reasons are clearer. Transitivity is a property which is ascribable to dyadic relations. But transitivity is not itself a dyadic relation and is therefore not the sort of thing to which transitivity can be ascribed.

I think Baylis could have expressed himself more clearly in all of the examples he uses to illustrate his argument. Anything which has the character sweetness is what we call sweet; things which have the character hotness are what we call hot, and so on. Just as we do not say that transitivity is transitive, nor do we say that sweetness is sweet or hotness is hot; and this is the point which Baylis is trying to make. We do not say that sweetness is sweet because properties do not have themselves as properties.

Baylis's solution to this problem is quite simple. He retains Lewis's statement that an abstract term denotes what the corresponding concrete term signifies;² but he rejects his statement that an abstract term also signifies what this corresponding concrete term signifies. Instead he holds that an abstract term signifies not this

---

¹ Ibid., p.478.  
² Ibid., p.476.
character itself (e.g. sweetness)" but rather a character one level more abstract, a character this character must have in order to be the character it is."¹ There is a prima facie difficulty in this manner of expression because of the unusualness of talking about the character of some character which is exemplified in some particular. Again the problem is more easily recognizable in the case of propositions where first-order and second-order propositions are readily distinguishable; but this must wait until later. For ordinary abstract terms, nevertheless, Baylis is able to offer specific examples which illustrate his point sufficiently well.

Thus, for example, "sweetness" denotes the character sweetness, a character all sweet things have, the same character which is signified by "sweet", but "sweetness" signifies the higher level character, being-the-character-sweetness. The character sweetness doesn't have, that is, exemplify, the character sweetness but it does have the character of being-the-character-sweetness.²

This proposal by Baylis seems to accord more fully with Lewis's established doctrines about the modes of meaning than does his (Lewis's) own account

¹Ibid., p. 472
²Loc. cit.
of abstract terms. Nor does it seem that the benefits gained are at the expense of any other important feature of Lewis’s scheme of things. Indeed, Baylis seems to have proposed an amendment whose only effect is to resolve an otherwise awkward peculiarity in Lewis’s system. However, the real criterion for the acceptability of Baylis’s view will be in its effect upon the treatment of propositions in the next section. Meanwhile I can see no reason for supposing that Lewis would object to such an amendment though I know of no place where he discusses it.

Before leaving the subject of the distinction between abstract and concrete terms, it is worth drawing attention to a further classification of terms which Lewis identified to avoid certain confusions about abstract and concrete terms which might otherwise be possible. There are in our language certain terms which, when they occur as a grammatical subject, are abstract in sense, but which may occur as concrete terms in the predicate. Such words or phrases are sometimes referred to as attributive terms. Lewis prefers to refer to them simply as attributives "because they are not strictly terms but only ambiguous symbolizations or locutions having now one,
now another meaning".¹ What is involved in the distinction between a symbol and a genuine term or expression will be discussed later in this section. This distinction is not crucial, however, to understanding what Lewis means by an attributive. A sentence like "This rose is red" is, according to Lewis, elliptical, and the term 'red' should be read as "a red thing"; in this context it is thus a concrete term. "Red is a colour", however, is elliptical in such a way that the term "red" should be read as "redness" and is thus an abstract term. "Red" is thus a paradigm of an attributive.

The second major distinction which I wish to note here is one which Lewis draws between singular and general terms.

Confining ourself to terms which would apply to at least one consistently thinkable thing - that is to terms whose comprehension is not zero - a term is singular if and only if its connotation precludes application of it to more than one actual thing. A non-singular term is general.²

---

¹ AKV. p.43.
² AKV. p.45.
In commenting on this distinction Lewis says that it is not significant in the case of abstract terms. If it should be applied to them, however, all abstract terms would be singular. Also, in the case of concrete terms, he emphasizes that the question whether a term whether a term is singular or general "is a question of its connotation, not its denotation, even though a singular term can denote no more than one thing".\(^1\) This is made somewhat clearer by an example. 'The red object on my desk' is, according to Lewis, a singular term whereas 'red object on my desk' is a general term; and this is so regardless of the facts about red objects on my desk. It should be noticed that the comprehension of a singular term is not confined to a single object.

For example, 'the red object on my desk' comprehends all the red objects which imaginably might be the only one on my desk; and differs from the comprehension of the general term 'red object on my desk' only be excluding any actual or imaginable red objects which are members of inseparable pairs or triads, etc.\(^2\)

This manner of distinguishing between singular and general terms raises a rather general problem for Lewis's theory, namely, how to deal with proper names. If the

---

\(^1\) Loc. cit.

\(^2\) Ibid., p. 46.
question of whether a term is singular or general is
determined by its connotation, what would Lewis say
is the connotation of, say, "John Smith" or "Mt
Kosciusko"? One possible answer is that they are
not terms at all; that they are merely symbols and
as such have no meaning in any of the modes of meaning.
The distinction between linguistic symbols (which have
no meaning) and terms or linguistic expressions (which
have meaning) will be discussed next in this chapter.
But it is clear that Lewis could not have regarded
proper names as symbols. If "John Smith" were a
meaningless symbol, then "John Smith is the only son
of William and May Smith" would not express a proposition.
The reason for this will become clear in the ensuing
discussion of propositions.

To my knowledge Lewis nowhere discusses proper
names. Nevertheless I think there are some general
things which may be said on his behalf. Proper names
are generally regarded as singular terms; but if they
are singular terms in Lewis's sense, they must have
some connotation or intension. Their intension must
be such that it precludes the application of any proper
name to more than one existent thing. This seems in
conflict with the fact that "John Smith" is applicable to a large number of people. Lewis's probable defence here would be to say that on every occasion that "John Smith" names a different person, a different expression is being used. Each would be an instance of the same symbol «John Smith», but each would have a different intension and therefore no two of them would be instances of the same expression. One may include in its intension the following terms: 'the father of William Smith', 'the husband of Mary Smith', 'weighing one hundred and fifty pounds' and so on. These terms are applicable to any object to which this particular expression 'John Smith' is applicable.

This is only a sketchy account and it is certainly imputing to Lewis something which he did not actually say. Nor is this account without its difficulties. What I have just stated as the intension of one of the many expressions symbolized by «John Smith», differs in an important respect from Lewis's definition of intension. The intension of a term is the conjunction of all those other terms which must be applicable to any object to which the term in question is applicable. But if the John Smith we are talking about did not
marry Mary, he would still be John Smith. Therefore it could be argued that "being the husband of Mary Smith" is not part of the intension of "John Smith".

I do not propose to take this discussion any further. This is undoubtedly a problem which Lewis has left unexplained and it calls for an explanation. I do not see, however, how this can greatly affect what Lewis has to say about analyticity which is my major concern.

The next distinction, or rather series of distinctions, concerns the elements of our language and how they came to function in the way that they do, i.e., in conveying meanings. The first of these distinctions is between what Lewis calls a verbal symbol and a linguistic expression.

A verbal symbol is a recognizable pattern of marks or of sounds used for purposes of expression and communication. (What is regarded as the same pattern, in different instances, is partly a matter of physical similarity, and partly a matter of conventional understanding.) Two marks, or two sounds, having the same recognizable pattern, are two instances of the same symbol, not two different symbols.  

\[1\]

AKV., p.73.
Symbols are thus purely physical entities which have no meaning, though they may be used to convey meanings.

A linguistic expression is formed or determined by the association of a symbol with a fixed meaning.¹

Lewis is clear, however, that a linguistic expression is not to be identified with either the symbol or the meaning whose association constitutes the expression. In any two cases where the same symbol is used, but with different meanings, there are two expressions; not one. "But if in two cases - as at different times or in different places - the symbol is the same and the meaning is the same, then there are two instances of the expression, but only one expression."² To avoid any confusion about whether a symbol is a symbol of an expression, or a symbol of a meaning, Lewis says that he will "try always to say that the symbol symbolizes the expression, and that the expression expresses the meaning."³

¹ Loc. cit.
² AKV., p.74.
³ Loc. cit.
As a further protective device against ambiguity Lewis specifies the use of certain punctuation marks. When he wishes to represent a linguistic expression he encloses the symbol with single quotation marks. Thus 'cat' is a linguistic expression used for naming cats; it connotes 'mammal', denotes the class of cats, and signifies the properties essential to felines. If Lewis wishes to name not cats, but the expression 'cats', he encloses that expression with full quotation marks. Thus, "'cat'" connotes 'linguistic expression', but not 'mammal'; it denotes a class with only one member, viz. that expression which names cats and is symbolized by a certain three letters. And, according to Lewis, it signifies nothing other than those properties which are essential to being just that expression. To differentiate the symbol which symbolizes the expression which names cats from the expression itself, Lewis resorts to the use of French quotation marks, «cats».

Thus we shall speak of cats, which are animals having fur but no connotation; and of the expression 'cat' which has connotation but no fur; and of the symbol «cat» which has neither fur nor connotation but does have a recognizable shape and consists of three letters.1

---

1AKV., p.100.
Within the class of linguistic expressions Lewis further distinguishes between those which are elementary and those which are complex.

An expression ... is elementary in case it has no symbolized constituent, the intension of which is a constituent of the intension of the expression in question itself. Otherwise the expression in question is complex. ¹

Thus an expression like 'cat' is elementary; its only constituents are the letters 'c', 'a' and 't', which do not themselves have any intension. It is not just that they have zero intension: they are not terms and therefore have no intension. Since they have no intension, the expression 'cat' has no constituents whose intension is a constituent of the intension of 'cat'. A term like 'the black cat', however does have constituents whose intension forms part of the intension of the whole expression, and is therefore what Lewis calls a complex expression.

Before concluding this section I wish to note, though not discuss in detail, Lewis's claim that all the terms in our vocabulary are linguistic expressions, i.e. they are all symbols associated with some particular

¹ *AKV*, p. 78.
meaning. He takes the trouble to go through the various types of terms - articles, adverbs, adjectives, pronouns, etc. - one by one to illustrate how they function as the bearers of meaning. I see no reason in this context for doing the same. It is worth remarking, however, what he has to say about words which have traditionally been classified as syncategorematics. Lewis presumed that the traditional denial of meaning to syncategorematics is based upon the mistaken notion that meaning is denoting or comprehending; that to have meaning is to be the name of something. His general defence of syncategorematics as meaning-bearers is as follows:

It must occur to us to inquire how a meaning or a context can be 'modified' or 'limited' except by a meaning; how if 'S' be some syncategorematic word, and 'A' be categorematic, the specific meaning of 'SA' arises if 'S' has no understandable and specific intension or signification. There must be, it would seem, some fixed and intelligible sense attaching to 'S' if 'SA' has a fixed meaning different from that of 'A'.

For Lewis, all words have meaning, else they are not properly linguistic expressions. It is now clear that I must examine in some detail how the meaning of

---

1 AKV., p.79.
a complex term is to be determined. In an earlier discussion of intensional meaning there was some reference to the terms which comprise the connotation of a particular term, "modifying" or "limiting" each other.\(^1\) This is closely analogous to the problems involved in determining the meaning of complex terms. Also such a discussion is necessary for any detailed Lewisian analysis of propositions, since they are a kind of complex term. But before we can do this effectively it will be necessary to consider Lewis's distinction between two senses of intension.

§17 LINGUISTIC MEANING — SENSE MEANING

In §15 we encountered some difficulty in providing a precise definition of the mode of intension. This difficulty, it will be remembered, arose out of the fact that the conjunction of terms by means of which Lewis defined "intension", was not identical with the intension of a term; rather, it displayed the intension of the term. This distinction will be more precisely understood if we consider the differences between what

---

\(^1\) *AKV.*, p.79.
Lewis called linguistic meaning and what he called sense meaning. First, let us consider what Lewis has to say about linguistic meaning.

The linguistic meaning of an expression is the intension of it as that property which is common to all expressions which could be substituted for the one in question without altering the truth or falsity of any statement, or altering the signification of any other context in which this expression in question should be constituent. It is intensional meaning in the sense in which the intension of a term would be discursively exhibited by the totality of other terms which must be applicable to a thing if the term in question applies.... It is intensional meaning in the sense in which what a word means is other words and phrases.¹

I have quoted this passage at length because, prima facie, it displays an inconsistency which, if not resolved, will cause confusion. In the first sentence Lewis says that intension, when regarded as linguistic meaning, is a property. This property is not to be confused with the signification of a term. Lewis is not referring here to the property whose presence in, or absence from, some object determines whether or not the term in question applies to that object. Here Lewis says that linguistic meaning is that property which is common to all expressions which

¹ AKV., p.132.
could be substituted in any statement in which the term in question occurs without altering its truth value. But the last sentence in the passage quoted above says that linguistic meaning is intensional meaning "in the sense in which what a word means is other words". It is not clear that these two accounts of linguistic meaning are compatible.

The difficulty here, however, is more apparent than real. When Lewis first introduced these alternative ways of specifying intensional meaning he described linguistic meaning as "constituted by the pattern of definitive and other analytic relationships holding between linguistic expressions."¹ This gives the clue, I think, to what Lewis means by the property which is common to all expressions which can be substituted, salva veritate, for the term in question in any statement in which that term occurs. The property which these terms have in common is a pattern of definitive and analytic relationships to other terms; and it is in virtue of these relationships that the terms in question may be substituted for each other. When Lewis says that linguistic meaning is intensional meaning in the sense in which what a word means is other words, I think he

¹ AKV., p.37.
is not being as careful or as precise as he might be.
The linguistic meaning of a word or term is not, strictly speaking, other words or terms. But in order to convey this meaning fully and completely we need nothing other than words. Words are sufficient for capturing the linguistic meaning of any term.

The linguistic meaning of 'red', for example, is its meaning in a sense which can be conveyed to the man born blind as easily as to another.¹

This sense of meaning is obviously deficient. Prima facie, there is some element of the meaning of 'red' which cannot be conveyed to the man born blind. Although the relations which words have with each other are important, it is still necessary to have some bridge between the linguistic structure provided in these relations and the data that is given to the senses. Lewis considers the plight of a person trying to learn the meaning of an Arabic word with nothing to aid him other than an Arabic dictionary. After looking up the word in question, he then has to look up the words used in defining the original word, and then he has to look up the words defining these and so on.

¹ AKV., p.140.
If the process of this example could, by some miracle, be carried to its logical limit a person might thus come to grasp completely and with complete accuracy the linguistic pattern relating the term in question to all other terms in Arabic with which it had any essential or analytic relationships. But—supposing the person in question to be also lacking in wit, so that he learned nothing through his investigation excepting that of which the dictionary informed him—he might still fail to understand, in a sense which will be obvious, what any one of these words meant. What he would grasp would be their linguistic meaning. And what he might still fail to grasp would be their sense meaning. 

For some limited purposes it may be adequate and even advantageous to construe meanings exclusively in this linguistic manner. The development of the axiomatic method provides us with numerous examples of this. It is possible, for example, to be perfectly competent in deriving the theorems of Riemannian geometry or in proving the propositions of Principia Mathematica without knowing what the terms really mean.

According to Lewis the reverse situation may also occur. A person who can apply or refuse to apply a term correctly under all imaginable circumstances would,

---

1 AKV., p.132.
according to Lewis, grasp its sense meaning perfectly. "But if through faulty language or poor analytic powers, he could still not offer any correct definition, then he would fail to grasp (at least to grasp explicitly) its linguistic meaning." Here it is necessary to note the subtle, though nevertheless real, distinction between the sense meaning of a term and the signification of a term. The signification of a term is the property or properties which must be exemplified in any object to which the term is applicable. As such this property or properties has an existence which is independent of any linguistic usages; it would be no different if it had never been recognized or classified. But intension as sense meaning is not such an objective character or property. In Lewis's words, the sense meaning of a term is that in mind which refers to the signification of that term. Lewis thought that Kant had properly understood what this sense meaning was:

A sense meaning, when precise and explicit, is a schema; a rule or prescribed routine and an imagined result of it which will determine applicability of the expression in question. We cannot adequately imagine

---

1 _AKV._, p. 133.
a chiliagon, but we can easily imagine counting the sides of a polygon and getting 1000 as the result.¹

This way of regarding the sense meaning of a term has a number of interesting consequences. First, it is clear that sense meaning as a criterion in mind is independent of the question of whether or not that meaning is exemplified in any existent object. Lewis supports this claim by appealing to our use of the term "centaur". The fact that there are no centaurs has no bearing on the meaningfulness of "centaur". That we should be able to recognize a centaur if we saw one, is, for Lewis, sufficient proof that we know the sense meaning of the term.

The second consequence of this manner of regarding sense meaning is in the form of a problem. Lewis explicitly states that all terms have meaning in all four modes; furthermore, he implicitly assumes that for every term its intension may be specified both as linguistic meaning and as sense meaning. That is, every term has a linguistic meaning and a sense meaning. This seems to be a rather dubious assumption. Let us

¹ AKV., p.134.
consider first the possibility of a term having no sense meaning. When Lobachevski first developed his system of geometry he could define his term "straight line" by means of the other terms in his system. He could say of straight lines that they were such that through any point not on a given straight line there may be drawn an infinite number of straight lines parallel to the given straight line. But he did not know the sense meaning of the term; he could not draw a straight line of this kind. And his inability to draw such a line was quite different from our normal inability to draw a Euclidean straight line.

Against this it could be argued that Lobachevski's term "straight line" has and always has had a sense meaning; Lobachevski simply did not know what it was whereas Poincaré discovered a way of specifying its sense meaning.

Suppose we have a circle passing through three points A, B and C. The arcs of any circle intersecting the circle ABC orthogonally will be lines which behave as a Lobachevskian straight line. Through any point, D, not on the Lobachevskian
straight line AEB, there can be drawn an infinite number of other Lobachevskian straight lines. I do not propose to reproduce geometric proofs here. What is important is that Poincaré was able to specify the sense meaning of Lobachevski's term "straight line", whereas Lobachevski was not able to do this. Or, we might say that Poincaré knew what the sense meaning of the term was whereas Lobachevski did not know its sense meaning.
Lewis confined his examples almost exclusively to geometry but we can find other examples without too much difficulty. Perhaps the theological concept of God may serve as an example here. The various doctrines of God provide us with a conceptual framework, with a linguistic meaning, for the term 'God'; but is there such a thing as the sense meaning of the term 'God'? Many, if not most, doctrines say that God is not the sort of being which can be apprehended by the senses; and therefore the term could not be expected to have sense-meaning as Lewis defines it. This is quite a different situation compared with the geometrical example. Here, the absence of sense meaning is not a temporary consequence of the state of the game, as it were. Rather, it is a logical consequence of the nature of the concept. Lewis did not specifically consider terms of this kind. Prima facie, however, they pose a problem for his analysis since he implicitly requires all terms to be capable of having sense meaning. Of course it could be argued that this is not a problem
for Lewis; rather it is a problem for the theologians, but I do not intend to pursue that argument here.

The point which needs to be made here is that if a term denotes or signifies something which is sense apprehensible, then that term would be significantly deficient if it had not specifiable sense meaning. The issues involved in the absence of sense meaning will be discussed again in §20 in relation to analytic truth.

The question still remains whether or not there can be terms having sense meaning but no specifiable linguistic meaning. Linguistic meaning was originally defined as that property which is common to all expressions which could be substituted, *salva veritate*, for the one in question in any statement in which that term occurred. The property in question here is the pattern of definitive or analytic relationships which hold between the term in question and other terms in the language. Thus there seem to be two ways in which a term may fail to have linguistic meaning. First, there may be no other expressions which can be substituted, *salva veritate*, in any statement in which the term in question occurs; or, second, there may be no pattern
of definitive or analytic relationships between the term in question and other terms. Candidates for this classification would be the sort of term which G.E. Moore regarded as simple and unanalyzable: terms like "yellow", "good", and perhaps "beautiful". These are the terms which, allegedly, defy definition. To my knowledge Lewis does not discuss this problem. It seems to me that the idea of a term being, in principle, unanalyzable, would be unacceptable to him. This will become more apparent in the later discussion of definitions.

There is another problem confronting Lewis here. He defined the linguistic meaning of a term as that property which is common to all other expressions which can be substituted, salva veritate, for the term in question in any statement in which that term occurs. In reply to this it may be argued that for every term there is some statement in which no other expression can be substituted salva veritate. Consider the following example:

Harry said 'James is leaving'.

If I substitute any other expression which is equivalent to 'James is leaving' - say, 'James is going away' or 'James is departing' - the truth value of
"Harry said 'James is leaving!'" is altered. If Harry did, in fact, say 'James is leaving' then he did not say 'James is going away'. Lewis foresaw this objection but thought he had an answer to it. This answer is part of Lewis's treatment of what he calls **figurative expressions**: these comprise a wide range of expressions "whose actual meanings are not simply derivative from correct definitive meanings."¹ I shall not discuss figurative expressions generally here because that would be digressing too far. However we can see what Lewis has to say about the apparent non-substitutivity of synonyms in some longer expressions.

In general Lewis says this problem arises when the expression concerned is used in a context where the particular symbol which symbolizes it has a special significance and is in some sense a constituent of the longer expression. For example, in the statement "'cat' is spelled with three letters" we cannot substitute 'feline animal' for 'cat'.

The reason is that although 'cat' (naming cats) is a constituent in "'cat'" (naming the term itself), this manner of naming the term is figurative; literally it

---

¹ See AKV., p.102f.
means 'the expression naming cats and symbolized by $\ll$cat$\gg$'. Replacing the figurative expression by this literal one, the difficulty appears:

"The expression naming cats and symbolized by cat is spelled with three letters" (is) not only true but remains true if a synonym, 'feline animal' is substituted for 'cat' (where it now occurs unquoted). 1

Lewis uses this same method in accounting for the apparent non-substitutivity of synonyms for 'James is leaving' in "Harry said 'James is leaving'". Strictly speaking, this should be analysed as "Harry said (or uttered) the expression signifying James to be leaving and symbolized by $\ll$James is leaving$\gg$.'

Lewis says, and quite rightly, that anybody who actually spoke in this way "would be tiresome and boring"; but if such a person substituted a synonym for 'James is leaving' in the place where it occurs unquoted, he would not misreport what had actually happened.

§18 ANALYTIC MEANING

Thus far I have dealt with expressions, elementary or complex, as whole expressions; or, in Lewis's terminology, I have considered only their holophrastic

---

1 A.K.V., p.103-104.
meaning. This is inadequate for distinguishing between some terms. It will be remembered that two expressions having the same intension, have also the same signification, comprehension and extension. It is therefore tempting to say that any two terms having the same intension are synonymous since they have the same meaning in all four modes. But this is not the case; there are numerous instances of terms having the same intension which would offend against our normally accepted ideas of synonymy. In particular the terms which do not conform here are those terms having either zero intension or universal intension.

Lewis considers by way of example the following expressions: 'either not a triangle or else a plane figure' and 'man or not man'. Both of these terms have zero intension according to him; i.e. they are such that there is no special requirement for their applicability; they apply to every consistently thinkable thing; but they would hardly be called synonymous expressions. If we call these expressions synonymous, there seems no further way of distinguishing

1 AKV., p.84.
between their meanings. It would be unacceptable, however, to say that 'either not a triangle or else a plane figure' means the same as 'man or not man'. They have the same holophrastic intension; but they differ significantly in respect of what Lewis calls their analytic meaning.

Lewis does not give a precise definition of analytic meaning. In the first place, he simply says that two terms will be equivalent or comparable with respect to their analytic meaning "only if they are such as would ordinarily be called synonymous." But synonymy is a notoriously difficult notion to define; and if this were the definition of sameness of analytic meaning, it would almost certainly founder. It seems unlikely, however, that Lewis intended this to be regarded as a definition. On the contrary it seems more likely that he would prefer to define synonymy in terms of analytic meaning. The closest approximation to a definition occurs in the following passage.

(The) distinction of synonymous or non-synonymous, amongst terms having universal intension, turns upon the analytic meaning of such terms; their meaning as complex

\[1\] AKV., p.71.
expressions whose intension is constituted by the intensional meanings of their constituents and the syntactic order of these.¹

Although this is not an explicit definition it may be regarded as a definitive comment. It indicates the nature of the contrast between analytic meaning and holophrastic meaning. The holophrastic meaning of a complex expression contains no indication of the intension of the individual elementary expressions which constitute it; nor does the holophrastic meaning of a complex expression contain any indication of the relation which these elementary constituents have to each other. Whatever else may be said of analytic meaning, it clearly must bear some indication of each of these. Lewis's treatment of analytic meaning is not exhaustive. The main reason for this is that it arises as a kind of by-product from a much more important enterprise which he is able to undertake without a more detailed account of analytic meaning. What is crucial to Lewis is that he should be able to distinguish between terms which have the same intension yet which do not have the same meaning in any ordinary

¹ AKV., p.84.
sense of meaning. For this purpose Lewis introduces, and defines precisely, the notion of analytic comparability. Terms which are analytically comparable in accordance with his definition will have the same analytic meaning.

Two expressions will be said to be **analytically comparable** if (1) at least one of the two is elementary and they have the same intension, which is neither zero nor universal; or (2) if, both being complex, they can be so marked off or analysed into symbolized constituents that (a) for every constituent distinguished in one there is a corresponding constituent of the other which has the same intension, (b) no constituent distinguished in either expression has zero intension or universal intension, and (c) the syntactic order of corresponding constituents is the same in both, or can be made the same without altering the intension of either whole expression.

According to this definition 'square' and 'rectangle with equal sides' will be analytically comparable, since one is an elementary expression and they have the same intension which is neither zero nor universal. Similarly, Lewis says that 'round

---

1 AKV., p.85.
excision' and 'circular hole' are analytically comparable; they are both complex expressions; the corresponding constituents 'round' and 'circular', 'excision' and 'hole' have the same intension; none of these constituents has either zero or universal intension; the syntactic order of the corresponding constituents is the same in each case. On the other hand, however, the two expressions 'equilateral triangle' and 'equiangular triangle' are not analytically comparable despite the fact that as whole expressions they have the same intension. These expressions fail to be analytically comparable because there is no constituent in the latter having the same intension as 'equilateral', and no constituent in the former having the same intension as 'equiangular'.

It may be argued that this definition of analytic comparability is still deficient. Suppose the term 'humanoid' is introduced to mean "either a man or not a man". 'Humanoid' seems to conform to Lewis's definition of an elementary expression. This being so, 'humanoid' will be analytically comparable with any expression having the same intension. Since 'humanoid'

1 The following argument was suggested to me by Dr Peter Sheehan.
means "either a man or not a man", it has zero intension; thus it will be analytically comparable with every term having zero intension, e.g., "either not a triangle or else a plane figure". This consequence is plainly unacceptable. The only textual evidence which is relevant to this problem is a passage in which Lewis comments on the small number of elementary expressions having zero intension.

Indeed it is a suggestive fact that language affords us very few elementary expressions having this character (zero intension). 'Being', 'entity', 'thing' and 'everything' about exhaust the list of one-word substantives having zero intension and universal comprehension; and among these 'thing' is doubtful, being often used in the sense of 'individual', which excludes abstract entities; and 'everything' is not an elementary expression.  

This passage is out of context here; nevertheless, it makes it clear that Lewis thought that the number of elementary expressions having zero intension is quite small. He makes no allowance for terms like 'humanoid' which was discussed above. I think he would object to it being classified as an elementary expression on some grounds like the following. 'Humanoid' is,
strictly speaking, a symbol which we choose to use as an abbreviation for another symbol «either a man or not a man». This symbol symbolizes a complex expression and hence any expression symbolized by «humanoid» will also be a complex expression. Although this is no more than a tentative suggestion, it indicates the kind of move which is open to Lewis. His definition of elementary expressions is too loose and hence there are problems for any subsequent discussions which depend on the use of elementary expressions. For instance, when he offers his definition of synonymy he relies upon an unambiguous notion of analytic comparability which, as the preceding discussion has shown, calls for a more precise definition of elementary expressions.

We shall be in conformity with good usage - or at least as near to it as it is possible to come in any fashion which is precise - if we say that two expressions are synonymous if and only if (1) they have the same intension and that intension is neither zero nor universal, or (2) their intension being zero or universal, they are analytically comparable.\footnote{AKV., p. 86.}
The advantage of this kind of definition is that it obviates the paradox which would arise if all expressions of zero intension were called synonymous or if all expressions of universal intension were called synonymous. Consider the terms 'round-square' and 'two-legged-quadruped'. Both of them have universal intension and zero comprehension; there are no consistently thinkable objects to which either term is applicable. Despite the fact that they have the same intension it would clearly be misleading to say that 'round square' and 'two-legged-quadruped' are synonymous. They differ in respect of their analytic meanings. It is significant, however, that in the case of terms whose intension is neither zero nor universal it is not necessary for synonymy that they should be analytically comparable; witness 'equilateral triangle' and 'equiangular triangle'. Thus analytic comparability is a sufficient condition, but not a necessary condition for synonymy, according to Lewis.

Lewis's notion of synonymy is obviously controversial. Some people would object to calling 'equilateral triangle' and 'equiangular triangle'
synonymous. They differ in respect of what Frege called their sense. There is something about the meanings of the words which distinguishes between them. This something is elusive but it is in respect of this something that Lewis says they are not analytically comparable. They are not analytically comparable "because there is no constituent of the former having the intension of 'equiangular' and no constituent of the latter having the intension of 'equilateral'. "¹

It is significant that Lewis is using 'intension' here as sense meaning. 'Equilateral' and 'equiangular' are logically equivalent in the sense that any figure which is properly described by one of these terms is also properly described by the other. They (materially) imply each other. But analytic comparability depends on these terms having the same sense meaning; i.e. the same sense apprehensible criterion in mind for their applicability. For one, this has to do with equal angles whereas for the other it has to do with lines of equal length.

¹ AKV., p.86.
It could be argued against Lewis that if 'equiangular' and 'equilateral' do not have the same intension, then neither do 'equilateral triangle' and 'equiangular triangle' have the same intension. This raises an important question to which Lewis has no satisfactory answer. How do we decide finally and unmistakeably whether or not two terms have the same intension? I shall return to this question later.

Meanwhile I do not intend to be drawn into a full discussion of synonymy. There is a good reason for this. Nowhere does Lewis say that two terms have the same intension because they are synonymous; nor does he say that any proposition is analytic because certain terms are synonymous. Lewis's discussion of synonymy is a by-product of his discussion of intension and analyticity. Because of this it is of subsidiary importance to his main arguments, and his main arguments stand or fall on grounds other than his account of synonymy. In Chapter V, however, I shall be considering Lewis's notion of synonymy again; this will be in relation to some criticisms by Arthur Pap.

§ 19 PROPOSITIONS: A KIND OF TERM

One traditional definition of a proposition is that it is the kind of expression which can be properly described as either true or false. Lewis regards this
kind of definition as "correct enough but inauspicious, because it easily leads to identification of the proposition with the statement or assertion of it; whereas the element of assertion in a statement is extraneous to the proposition asserted".\(^1\) Lewis abstracts a proposition from the assertion of it; a proposition is what is asserted rather than the assertion itself; it is the content of the assertion; a proposition is something assertable. As evidence of the distinction between a proposition and statements or assertions Lewis points out that the same thing which is assertable is also capable of being questioned, denied, or merely supposed, and indeed can be entertained in a wide range of distinct moods.\(^2\) It is not very satisfactory, however, to define propositions as complex expressions capable of being asserted, questioned, denied, and so on. The chief defect here is that it then depends on further definitions of what it is to assert, question or deny something. Also, from Lewis's point of view, this manner of defining

\(^1\) AKV., pp. 48-49.

\(^2\) Loc. cit.
propositions is not sufficiently related to his general theory of meaning. It does, however, suggest a way of defining propositions which is acceptable to Lewis.

If we wish to disengage this common content from any particular mood of its entertainment, we might do so - in a manner more precise than ordinary language commonly affords - if we should have symbolic devices indicating these various moods of entertainment; e.g. "p" for assertion of 'p', "Hp" for the postulation of it, ..., "?p" for putting it in question, "Mp" for entertainment of it as consistently thinkable or possible, and so on. And the common content, here represented by 'p', would be something expressible in the manner of indirect discourse, e.g. 'that Mary is making pies now', or by a participial phrase, 'Mary making pies (now)', which can be asserted, questioned, and entertained in all those different ways, and which signifies the state of affairs which they all concern.  

This last phrase is the important one. An assertion asserts that a certain state of affairs is exemplified in the world; a question asks whether or not that state of affairs is actually exemplified; a denial denies that it is exemplified and so on. Because of this Lewis defines a proposition in the following way:

A proposition is a term capable of signifying a state of affairs.  

---

1 AKV., p.49, (my emphasis).
2 AKV., p.48.
It must be remembered here that "term" is itself a technical term: a term is something which has meaning in all four modes of meaning. In view of this we may well ask why Lewis regards propositions as a kind of term. In the first place it should be noted that this way of treating propositions is not original in Lewis. Lewis was almost certainly aware of, and influenced by, the fact that Frege had treated propositions in this way. Frege distinguished between the sense and reference of terms; and he applied this distinction also to propositions thereby implying that they are a kind of term. Professor Passmore has pointed out that a similar doctrine may be found in Hume.\footnote{J.A. Passmore, \textit{Hume's Intentions} (New York: Basic Books, 1968), p. 21.} In his different terminology Hume says that it is a mistake to divide "acts of the understanding" into three separate kinds - conceptions, judgments and reasoning. The latter two, judgments and reasoning, are, according to Hume, only special kinds of conceptions. So Lewis is at least in good company when he treats propositions as terms.

It seems more likely, however, that Lewis had quite independent reasons for analysing propositions.
in this way. In a sense he had no other alternative. He had defined elementary expressions and complex expressions: and what else can a language consist of? Propositions have as their constituents, elementary expressions and anything that has elementary expressions as its constituents is a complex expression. Yet there seems another reason for saying that propositions are a kind of term. Having meaning in all four modes of meaning is not only a necessary condition for being a term; it is also a sufficient condition. Anything that can be assigned meaning in all four modes is a term and Lewis obviously believed that he could account for the four modes of meaning for propositions.

Lewis defines a proposition as a term capable of signifying a state of affairs. It could have been thought that the state of affairs referred to would be the denotation rather than the signification of a proposition: but this is not so. It will be remembered that the signification of a term is that property which must be exemplified in some object if the term in question is to apply to that object; the object referred to being the denotation (or part of it) of the term.
"Mary is making pies" asserts that the state of affairs, Mary making pies now, has a certain status; namely, that it is actual; that it is incorporated in the real world.¹

On this basis Lewis argues that the state of affairs is exemplified in the actual world; the state of affairs is therefore the signification of the proposition; the denotation or extension of the proposition is the actual world. There is nothing ad hoc about this matter. Given the modes of meaning which are already established, this conclusion is not inconsistent; indeed it follows inevitably.

In §15 we considered a special characteristic of the mode of extension.² Lewis's interpretation of the Law of the Excluded Middle was such that whatever is denoted by a particular term must likewise be denoted by one or other of any pair of mutually negative terms which could meaningfully be applied to that thing.

If, then, what 'Mary making pies now' denotes should be the limited state of affairs, Mary making pies now, this same state of affairs should likewise be denoted by 'It being hot' or by 'It being not hot'; and by 'Nero fiddling

¹ AKV., p.51.
² See above pp.173-176.
while Rome burned' or by "No fiddling by Nero in burning Rome'; and so on, for every pair of contradictory propositions. ¹

Lewis thought that this was a sufficient reason for regarding the state of affairs which a proposition asserts to be actual as the signification and not the denotation of the proposition. The limited state of affairs, Mary making pies now, in no way includes either of the alternatives, it being hot or it being not hot. According to Lewis both of these alternatives are "simply outside the state of affairs in question and irrelevant to it".² It thus remains to show what could be denoted by 'Mary making pies now' and likewise denoted by one or other of every pair of contradictory propositions. Lewis concludes that the only thing satisfying these conditions is the kind of entity we call a world.

Nothing short of the whole of reality could determine simultaneously, for every proposition, the truth or falsity of it. Thus the denotation or extension of a proposition, in case it is true, is the actual world. The statement asserting

¹ AKV., p. 52.
² Loc. cit.
the proposition attributes it to the actual world; affirms that this actual world incorporates it and is characterized by it. The limited state of affairs, like Mary making pies now, is merely the essential attribute which any world must possess in order that the proposition in question should hold of, apply to, or denote it.¹

Every true proposition thus has the same extension; namely the actual world. Likewise every false proposition has the same extension; namely the null class. This is so since a false proposition applies to nothing actual, and extension or denotation is in all cases confined to what is actual or existent.

Before proceeding to discuss the other modes of meaning in reference to propositions it may help to clarify matters if we consider what kind of terms propositions are. In particular I am referring to the distinction between abstract and concrete terms. According to Lewis's classifications all terms are either abstract or concrete with the exception of those which are abstract in some instances and concrete in others. This latter kind he called attributives. Although Lewis does not explicitly state this, it is

¹ AKV.
clear that, insofar as propositions can be treated as a kind of term, they must be regarded as attributives. He remarks that participial phrases like 'Mary making pies now' can have either of two senses:

In one of these it is a predicable expression, like the adjective 'hot' or 'sweet'; in the other it is abstract and pronominal, like 'hotness' or 'sweetness'. It is the former of these in which it is equivalent to 'that Mary is making pies' and is to be identified with the proposition. It is in this sense that it is prediciable of a world. In the other - the abstract sense - it names the attribute predicated; that is, names the state of affairs attributed to the actual world by asserting "Mary is making pies".  

If this at first seems strange, it may help to recall the example of an attributive which was discussed in §16. When 'red' occurs as a concrete term it signifies a property which is prediciable of all the things denoted by 'red'. When it is used as an abstract term, (e.g. "Red is my favourite colour") it denotes or names what it signifies in its concrete instances, namely the property prediciable of all red things. Analogously Lewis says that the proposition

1
AKV., pp. 52-53.
which some true statement asserts signifies a state of affairs which is prediciable of the world; yet in its abstract sense the participial expression also names or denotes the state of affairs attributed to the actual world by asserting the proposition in question.

It is significant that the name of any state of affairs is an abstract term. The recognition of this may help to clarify the meaning of this rather vague expression 'state of affairs'. What is named by an abstract term is not a concrete entity. A state of affairs is not, in Lewis's terminology, a space-time slab of reality; if it were that it would include a multitude of other things not specified in the name of the state of affairs. The concrete entity or space-time slab of reality in which Mary is making pies would include ovens and baking dishes and so on. What an abstract term names, however, is confined to precisely what must be the case in order that the correlative concrete term should be applicable to something. In the case of an abstract participial expression, what it names includes nothing other than what is necessary in order that the correlative predicable term, which is the proposition, should be true of, or applicable to, reality. Consider one of Lewis's examples.
While Mary is making pies in the kitchen, either she burns her fingers or she does not. The space-time slab, or Whiteheadian event, which comprises Mary making pies now, either includes Mary burning her fingers or it definitely excludes this and is characterized throughout by Mary's fingers being unburned. But the state of affairs, Mary making pies now, which is asserted as actual by the statement "Mary is making pies", neither includes what is asserted by "Mary burns her fingers", nor what is asserted by "Mary does not burn her fingers". It includes only what Mary now making pies requires to be a fact.\footnote{AKV., pp.53-54.}

Again it may be helpful to consider the corresponding character of an elementary term. Any object which is red will either be in my room or will not be in my room. But the property 'redness' does not include either the property of being in my room or the property of not being in my room. The purpose of this analogy is to show that a state of affairs is a property rather than an object; it "is the signification of some formulated or formulatable proposition; not a 'chunk' of reality."\footnote{AKV., p.55.} What is meant here by a state of affairs may be seen more clearly if it is realized that many numerically different space-time slabs of
reality may be instances of one and the same state of affairs. The state of affairs signified by "Mary making pies now" may be realized or actualized by any number of different chunks of reality.

So much for the modes of extension and signification, now it is possible to consider the mode of intension. It will be remembered that Lewis formally defined the intension of a term as the conjunction of all the other terms which must apply to any object to which the term in question is applicable. It has been shown that the kind of entity to which a propositional term can apply is what we call a world. Now if there is some proposition 'q' which must be true in any world in which 'p' is true, we say that 'p' entails 'q'. Hence Lewis's definition of the intension of a proposition:

The intension of a proposition comprises whatever the proposition entails; and it includes nothing else. ¹

Alternatively, we might say that the intension of a proposition comprises whatever must be true of any possible world in order that this proposition should be true of or apply to it. ²

¹ Loc. cit.
² AKV., p. 56.
Now it is clearly not possible to recite all of the propositions which comprise the intension of a given proposition. Nevertheless, whatever is deducible from a given proposition is contained in that proposition's intension; and vice versa. To this extent, the intension of a proposition coincides with its deductive significance. Also it will be the case that two propositions have the same intension if and only if whatever is deducible from one of them is likewise deducible from the other. In consequence of this we can say that two propositions have the same intension if and only if they entail each other.

The only mode which has not been discussed is the mode of comprehension. Briefly we may say that the comprehension of a proposition is the classification of all worlds, actual or possible, in which this proposition would be true. An interesting consequence of this is that the comprehension of a proposition is the same whether that proposition be true or false. This is the case with all three intensional modes; only the denotation or extension is affected by the truth or falsity of a proposition.
In §16 I discussed Baylis's proposal to amend Lewis's doctrine of abstract terms. In particular, Baylis objected to the doctrine which says that abstract terms signify and denote one and the same thing. Sweetness does not have the character sweetness; rather it has the character of being-the-character-sweetness. It is important to see how Baylis's proposal affects Lewis's analysis of propositions. I have indicated that Lewis is committed to the view that propositions must be regarded as attributives. Sometimes they are used as abstract terms; other times they are used as concrete terms. Consider the following:

It is true that Sydney is the largest city in Australia.

Here the proposition "Sydney is the largest city in Australia" is used pronomially; it is used as an abstract term. As such, Baylis says it signifies the second order proposition "being-the-proposition-[Sydney-being-Australia's-largest-city]". In this

1 See above, p.179ff.
2 See above, pp.78-79.
abstract sense it denotes, according to Baylis, the first order proposition, "Sydney-being-Australia's-largest-city". ¹ Thus far, I think Lewis would accept Baylis's analysis, though perhaps with some qualifications. The qualifications are prompted not by the analysis of propositions as abstract terms, but by Baylis's analysis of propositions as concrete terms; for this latter analysis may suggest an interpretation of the former analysis which is not acceptable to Lewis.

When used predicatively, i.e., as a concrete term, Baylis says that "Sydney is the largest city in Australia" signifies the first order proposition "Sydney-being-Australia's-largest-city". To this extent Baylis's proposal conforms with Lewis's theory for the corresponding abstract term denotes what the concrete term signifies. The difference between Baylis and Lewis may arise over the interpretation of what it is to be a first order proposition. Lewis would say that propositions in their abstract sense denote, and in their concrete sense, signify, a state of affairs.

---

This way of expressing it seems preferable to me. One of the difficulties with Baylis's proposal is that he has propositions denoting and signifying other propositions. "Sydney is the largest city in Australia" is a first order proposition. Thus it is not very helpful to say that in its pronomial use it denotes, and in its predicative use it signifies, a first order proposition.

There is something of a verbal difference between Baylis and Lewis here. Baylis regards states of affairs as concrete entities, as chunks of realities. To this extent he is using the term in a manner quite distinct from Lewis's use of it. It would not be proper to use "state of affairs" in Baylis's sense as the denotation and signification of the abstract and concrete senses, respectively, of propositions. What is important, and what Lewis would probably find acceptable in Baylis's analysis, is his suggestion that the signification of a proposition being used in its abstract sense is some second order proposition.

A more important difference between Baylis and Lewis, however, is in their views about the denotation

---

of a proposition in its concrete sense. Lewis says that such a proposition denotes the actual world; Baylis says it denotes an individual concrete fact. Baylis's reason for insisting on this way of stating the matter is not easy to follow. He accepts Lewis's point that what is denoted by one true proposition must be denoted by one or other of every pair of contradictory propositions. Furthermore, he concedes that Lewis's solution to this problem is a perfectly legitimate solution.

Lewis himself avoids this difficulty by saying that a true propositional expression denotes the actual world, the whole of reality. This is true, but it does not seem to be the case that this is the only entity thus denoted. We may say correctly as was noted above, that Mary making pies characterizes the state of affairs which is the whole universe. But apparently we may with equal correctness say that Mary making pies characterizes the more limited state of affairs in her kitchen.

The first thing to note about this passage is Baylis's use of the term "state of affairs". He uses it as designating a concrete entity - perhaps the whole

1 Ibid., pp. 470-71.
2 Ibid., pp. 471-72.
universe, or perhaps some more limited chunk of reality. The second thing to note is that of course the whole universe includes many smaller segments which are denoted by any expression which denotes the whole universe. But although some smaller segment of reality may be included in the denotation of a propositional expression, it does not follow that it is proper to say that that segment is the denotation of the expression concerned. We may only be interested in that particular segment. Lewis indicates the range of a particular proposition's relevance by saying that it signifies the limited state of affairs which is (in case it is true) exemplified by the actual world.

I shall not pursue Baylis's account any further here. He makes other qualifications on his use of 'concrete facts' as the denotation of propositions; and these make his theory quite plausible. But it is not clear that his theory is able to deal with any problems which are insoluble to Lewis's theory. In view of this I see no reason for altering Lewis's doctrine which says that the denotation of a true proposition is the actual world.
§20. ANALYTIC TRUTH

It will be remembered that Lewis's interest in the theory of meaning was largely motivated by his belief that the traditional notion of analytic truth could be redeemed from the position of disrepute into which it had fallen.

Traditionally a statement which can be certified by reference exclusively to defined or definable meanings is called analytic; what is non-analytic being called synthetic.¹

It was obvious that if this definition was to be redeemed some unambiguous sense of meaning would have to be specified which was adequate for determining analyticity. First it seems reasonable to find some other sense of meaning with which we can contrast the meanings which determine analyticity. One thing seems certain; the traditional notion of analyticity was intended to contrast those propositions which could be certified exclusively by reference to meanings with those propositions which required some appeal to empirical evidence. On these grounds Lewis argued that the criteria for analyticity must turn upon intensional meanings.

¹ AKV*, p.35.
If it (analytic truth) is capable of being known by taking thought about it, then it must be independent of meaning in the sense of extension and turn upon meanings only in the sense of intension.$^1$

The rationale behind this is fairly obvious. It is not possible to know the extension of any term except through knowing facts about what exists and what does not exist. In the case of propositions it is not possible to know their extension except through knowing whether the state of affairs which they signify is actually exemplified in the world. And when we say that we can know the truth of some proposition exclusively by reference to the defined or definable meanings of the terms involved, this is clearly intended to be in contrast to those propositions whose truth is determined by the nature of the existent world. Thus we may say that whatever may be the differences between analytic propositions and non-analytic or synthetic propositions, that difference will be definable in terms of intensional meaning. At this point I think there is some failure on Lewis's part to argue his case satisfactorily. In the following passage he

$^1$AKV., p.67.
states what is an important thesis in his argument, but to my knowledge he does not present any argument in its favour.

An analytic proposition is one which would apply to or hold of every possible world; one, therefore, whose comprehension is universal, and correlatively, one which has zero intension.¹

I am not objecting to the truth of this thesis; indeed, it seems inconceivable that an analytic proposition could have anything other than zero intension. But since Lewis sets out to defend the traditional definition of analytic propositions, the onus is upon him to show that propositions which are analytic in that sense are ones which would apply to or hold of every possible world. His failure to provide such an argument is all the more surprising in view of the ready availability of such an argument.

Analytic propositions are certifiable solely by reference to the meanings of the terms involved. This definition is intended to contrast them with propositions which depend upon particular experiences of sense for their verification. But propositions which do not depend upon any sense experiences for

¹

AKV*, p. 57.
their verification must be such that the nature of the world makes no difference to their truth; if that were not so then some particular experience could conceivably falsify them. But propositions whose truth is in no way affected by the nature of the world must, a fortiori, be such that they apply to or hold of every possible world. Thus analytic propositions apply to or hold of every possible world. All that is meant by "applies to" or "holds of" in this context is that a proposition which applies to or holds of some world is considered in that world to be true.

If the denotation of a true proposition is the actual world, then the comprehension of a true proposition will be the classification of all possible or consistently thinkable worlds in which the given proposition applies or holds or is true. Since analytic propositions apply to or hold of every possible world it follows that the comprehension of an analytic proposition will comprise all possible or consistently thinkable worlds; or, more precisely, analytic propositions have universal comprehension.

---

1 See above, p.
All terms having universal comprehension have zero intension; thus analytic propositions will have zero intension.

This thesis is at the heart of Lewis's theory of analyticity and it is surprising that it is arrived at with so little argument. I may be doing Lewis an injustice, however, by stressing this. The notion of zero intension is one which receives a very detailed analysis by Lewis. He may be relying on the belief that this analysis displays so clearly the nature of propositions having zero intension that it will be self-evident that all and only analytic propositions will have zero intension.

In §18 I discussed Lewis's notion of analytic meaning. It will be remembered that terms having the same intension have the same meaning in all four modes of meaning; therefore all terms having zero intension have the same meaning in all the other modes. The notion of analytic meaning, or more particularly, analytic comparability, was intended to provide a basis for distinguishing between the meanings of different terms having zero intension. It is important to recognize the bearing this has on analytic propositions,
for without some such notion Lewis would be committed
to the disconcerting conclusion that all analytic
propositions mean the same. A theory which is
unable to distinguish between the meanings of
"All bachelors are unmarried" and "If A is heavier
than B, and B is heavier than C, then A is heavier
than C" would be importantly deficient. This is not
to say that there is no sense in which these two
propositions have the same meaning. They have the
same intension, namely, zero intension; consequently
they are the same in that neither of them requires
for their truth that the world should exemplify
some particular characteristic rather than some
other characteristic. To this extent Lewis concedes
that there is a sense in which all analytic propositions
say the same thing; but it must be remembered that
the sense in which they say the same thing is the
sense in which they say nothing.

Because of the obvious sense in which "All
bachelors are unmarried" differs from "If A is
heavier than B, and B is heavier than C, then A
is heavier than C" Lewis considers it very fruitful
to concentrate upon the sense of meaning in which
analytic propositions differ in meaning despite the fact that they have the same intension (and therefore the same meaning in the other three modes as well) is in respect of their analytic meaning.

The analytic meaning of an analytic statement, from which this holophrastic zero intension is resultant, is the assertion of some specific relationship of intensional meanings, or of a relationship of classes or other entities which is cognitively derivable from such a relationship of intensional meanings. And with respect to this analytic meaning, every analytic statement asserts something different from any other which is not an analytically comparable expression.¹

There is a qualification which needs to be noted here. It is not the case that every analytic statement asserts some specific relation between intensional meanings. To distinguish between those which do assert such a relation and those which do not, Lewis introduced the distinction between explicitly and implicitly analytic statements.²

¹ AKV., p.93.
² In case it should be thought that Lewis overlooks this distinction between propositions and statements it should be noted that most of what Lewis says about propositions can be translated into talk about statements; so long as it is realized that they are not identical. A true statement asserts a true proposition; an analytic statement asserts an analytic proposition; one statement entails another statement if the proposition asserted by the former entails the proposition asserted by the latter; and so on.
An explicitly analytic statement is an analytic statement (hence true) which asserts the logical necessity of something. (A statement is logically necessary if and only if the contradictory of it is self-inconsistent.) An implicitly analytic statement is one which asserts something which is logically necessary (and whose contradictory is self-inconsistent) but does not assert that it is logically necessary.

In view of these definitions, explicitly analytic statements are obviously modal though in many cases the manner of expression will not automatically display its modal character. An example of this kind which Lewis gives is "The connotation of 'cat' includes the connotation of 'animal'." Implicitly analytic statements are non-modal. Lewis remarked in a footnote that it was much simpler to mark this distinction by using symbols.

Let '◊p' represent the statement which holds when and only when 'p' is self-consistent; and '¬q' represent "It is false that q". Then any true statement of the form '¬◊¬p', or which is reducible to this form, is explicitly analytic. And if 'q' is not of the form '¬◊¬q' or reducible to it, but '¬◊¬q' is true, then 'q' is implicitly analytic.

1 AKV., p. 89.
2 Loc. cit.
Thus "All cats are necessarily animals" is explicitly analytic; whereas "All cats are animals" is implicitly analytic. We may discover the truth of the implicitly analytic statement by empirical investigation. However, we shall only discover the epistemologically important fact that "All cats are animals" is analytic if we discover the truth of the corresponding explicitly analytic statement. This example which Lewis uses is somewhat confusing. The reason for this is that it is difficult to conceive a situation where somebody has learnt the meanings of 'cat' and 'animal' without learning their analytic relation at the same time.

The distinction between explicitly and implicitly analytic statements allows Lewis to amend a general statement he made about analytic truths. In a general discussion he remarked that every analytic statement asserts some relation of the intensional meanings of its constituents; that is not quite true. Implicitly analytic statements are more likely to relate extensional meanings to each other, classes to classes, like "The class of cats is contained in the class of animals". But, according to Lewis,
Such a statement is only analytic because there is a corresponding relation of comprehensions, and of intensional meanings, "Nothing is nameable by 'cat' unless it is nameable by 'animal', without which "All cats are animals" would be merely an empirical generalization, verifiable from observation.¹

This distinction between explicitly analytic and implicitly analytic statements draws attention to the manner in which we come to know analytic truths. It is one thing to say that analytic truths are those having zero intension; it is another matter to be able to determine which propositions have zero intension. Lewis quite rightly points out that although we know that some proposition is analytically true by knowing what we mean by the terms we use, it does not follow that there are no problems in determining whether or not some proposition is analytic.

To understand what our own intentions involve and grasp all that we commit ourselves to in adopting them, may be as difficult as is, for example, the understanding of mathematics which is an instance of it. Determination of analytic truth is not automatic and inevitable but subject to difficulty and error.²

¹ AKV., p.93.
² AKV., p.94. (my underlining)
Because of the possibility of error it is essential that we should have at our disposal techniques for determining which propositions are analytic; techniques which are, as much as is possible, free from the risk of error. In this context Lewis regards as both true, and important, the claim that there are no analytic truths which cannot be certified by definitive statements with the help of logical principles. But this test of analyticity has been regularly misconstrued despite Lewis's attempts to guard against such a possibility. An explanation of this, however, must wait until §21. Meanwhile it is clear that Lewis thought there was a more direct means of determining the zero intension of analytic statements.

If we consider not just the holophrastic intension of an allegedly analytic proposition, but also consider its analytic meaning it is clear that such a statement asserts some relationship of the intensional meanings of the constituents in it. In general, Lewis argues that these constituent intensions

\[1\text{AKV.}, \text{p.95].}\]
will be neither zero nor universal because "nothing can be said by using exclusively expressions which always apply or which never apply". In effect, then, an explicitly analytic statement asserts some specific relationship between two (or perhaps more) sets of criteria of application for the constituent expressions. Or perhaps it would be clearer to say that an explicitly analytic statement asserts a specific relation between the sense meanings of the constituent terms because sense meaning is nothing other than intension regarded as the criterion in mind for a term's applicability.

In §17 we saw that Lewis found it best to regard sense meaning as a kind of schema; and this has immediate consequences for the determination of analyticity.

The question of whether or not all squares are rectangles is determined by a question of the kind "Does your schematism for determining the application of the term 'square' include your schematism for applying 'rectangle'?" And this kind of question is, according

1AKV., p. 152.
2See above, p. 198.
3AKV., p. 154.
to Lewis, determined in the same general fashion as the question "Does your plan of a trip to Chicago to see the Field Museum include the plan of visiting Niagara to see the Falls?" The analogy between these two questions is helpful in at least one important respect; but it is in another respect very misleading.

First let us consider the merits of this analogy.

A criterion, like a plan, is determined antecedently to apprehending anything which satisfies or fails to satisfy it, and whatever happens or fails to happen when we apply it does not alter or affect this criterion itself. And a relation of criteria, which an analytic statement may formulate, is a sense-apprehensible relationship, like the inclusion of one plan in another.¹

This passage indicates that the question of whether one schema includes another is in no way dependent on any empirical evidence for its verification. Suppose our plan to visit Chicago specifically included in the itinerary a trip to Niagara to see the Falls; we may even have paid our money for this trip. On the way, however, our bus is delayed and in order to keep to his schedule the bus driver decides to by-pass Niagara. Consequently we do not go to Niagara; but

¹ AKV., p.154.
this in no way alters the fact that our plan included a trip to Niagara. The relationship that holds between the criteria or sense meanings of the constituent terms is sense-apprehensible in the sense that we can determine whether or not any subsequent event or situation satisfies or fails to satisfy the conditions. But whether it satisfies the conditions or not, no matter of fact can alter the relation that is asserted to hold between the meanings concerned.

This seems to be both true and important for our understanding of analytic truth; but it still fails to indicate how we determine whether or not some specific relationship of meanings has zero intension. There is some similarity between the question "Does your plan of a trip to Chicago to see the Field Museum include a plan of visiting Niagara to see the Falls" and the question "Does your plan to visit Chicago to see the Field Museum include a plan to visit North America?" They have the same kind of syntactical structure; and the answer to both may be the same. The difference is that anybody who plans to visit Chicago without
visiting North America is simply mistaken. It
cannot be done, whereas it is possible to visit
Chicago without visiting the Niagara Falls.

For this reason I think Lewis's analogy
between a schema for determining whether all
squares are rectangles, and a schema for determining
whether our planned visit to Chicago includes a visit
to Niagara, is misleading. One is a necessary
connection whereas the other is not.

How do we know, then, that the relation between
our schema for the applicability of the term 'square',
and our schema for the applicability of 'rectangle'
is such that the former includes the latter?
Ultimately we must depend on our capacity to
know what we mean by the words we use. In the
case of one criterion including another, such as
the criterion for 'square' including the criterion
for 'rectangle', we can try to imagine what the
former criterion would be like if we subtracted
from it those elements which were the criteria for
the latter; that is, try to imagine what the criterion
for 'square' would be like if we divested it of those
elements which constitute the criteria for being a rectangle. But not all analytic statements have such a simple form. According to Lewis's theory, propositions such as "If A is heavier than B, and B is heavier than C, then A is heavier than C" will be analytic.

Lewis holds also that all the truths of logic are analytic. Suppose we consider some long and complex formula in a propositional calculus. Even with only two or three logical constants it becomes an extremely difficult matter to formulate a test schema in the mind to see whether the meanings and their relations would have zero intension. Lewis conceded this, not just in the case of abstract logical truths but in many other complex expressions; indeed, we may make many errors in our assessment of the holophrastic intension of complex expressions. Because of this, it is inevitable that we shall rely upon more reliable ways of testing analyticity. But Lewis holds that regardless of the means that we may use in determining whether or not a term is analytic, what makes an analytic statement analytic is its zero
intension. This will become clearer in the discussion of definitions and the principles of logic in the next section.

Meanwhile there are two characteristics of propositions having zero intension which need to be noted. The intension of a proposition comprises whatever that proposition entails and it includes nothing else.\(^1\) It would be a mistake, however, to conclude that propositions having zero intension have no entailments. A term has zero intension not because there are no other terms which must apply to any object to which the term in question applies. Rather, a term has zero intension if and only if its connotation is such that it imposes no limit on the application of it but allows it to apply to anything and everything thinkable. Similarly, then, a proposition has zero intension if all the propositions which it entails, taken together, are such that they impose no restrictions on the kind of world in which the proposition in question holds or applies.

\(^1\) See above, \(p.227\).
An analytic proposition does not fail to have implications - though all entailments of it are likewise analytic or logically necessary propositions which would hold of any possible world. That an analytic proposition has zero intension is correlative with the fact that in being true of reality it does not distinguish this actual world from any other which is consistently thinkable; that it does not impose any restriction or limitation on the actual which could conceivably be absent.¹

Since analytic propositions are those which would be true of any possible world, it follows that its entailments must also be analytic. But there is another characteristic of propositions having zero intension which, prima facie, is more puzzling. Every proposition having zero intension is included among the entailments of every proposition. This is simply an assertion of Lewis's commitment to the paradoxes of strict implication. For Lewis a proposition entails every other proposition which must be true of any world in which it is itself true. But every analytic proposition is true of every possible

¹ AKV*, p.57.
and is therefore, a fortiori, true of any world in which any particular proposition is true. Analytic propositions are therefore entailed by analytic and non-analytic propositions alike. But here we must remember what was mentioned at the end of Chapter II. ¹ It is of no great epistemological value to know that an analytic proposition is entailed by any proposition. If 'p' is some analytic proposition, and 'q' is any proposition whatever, the fact that I know that q is true in no way allows me to determine that p is true; unless I already know that p is analytically true. But, then, I do not need to support my knowledge of p's truth by any appeal to the fact that q entails p. I already know it is true in virtue of its own analyticity.

§21 DEFINITIONS AND THE PRINCIPLES OF LOGIC

Lewis accepted the fact that "every analytic statement is such as can be assured, finally, on grounds which include nothing beyond our accepted definitions and the principles of logic."² This

¹ See above, p. 76.
² AKV., p. 96.
is a doctrine which needs to be examined closely for it is an easy matter to misinterpret Lewis here. There is one fundamental principle underlying all that Lewis has to say about definitions. A definition cannot express or convey meaning in the mode of extension or denotation. The reasoning behind this is not easy to follow but it rests upon Lewis's assessment of the way in which the expression 'definition' is used.

A definition is in some sense a means for explicating the meaning of some expression. What is being defined, the definiendum, is usually though not necessarily, an elementary expression. The definiens specifies the intensional meaning of the definiendum; this must be so, according to Lewis, because there is no plausible alternative. Why would Lewis adopt this view. The principle reason has to do with his expectations of a definition; justifiably, or not, he obviously expects a definition to specify the conditions for the applicability of the term in question.

1 AKV., p.98.
Ostensive definitions are an obvious counter to this. If somebody does not know what colour red is, can we not teach them by saying it is the colour of that post-box over there, or of that fire-engine or the telephone on the stand? Is this procedure one of defining 'red'? If it is regarded as a definition, Lewis would say that this is only because the objects in question which are denoted by 'red' provide us with a basis for formulating a criterion in mind or a sense meaning for the term. This formulation may be unconscious and perhaps unarticulated, but if I am to be able to apply the term 'red' correctly to objects other than the post-box or the fire-engine or the telephone, then I must have some criterion. Without this ability to apply the term to other objects, I cannot really say that I have had a definition; and the criterion which gives me this ability is part of the term's intension.

In this context it is worth recalling the nature of the relationship between intension and extension.  

1 This was discussed in §15, pp.171ff.
No intensional meaning can ever be wholly determined by any extensional meaning. If the extension of a term is fixed, this has a limiting effect on the intension of that term; but it determines absolutely what that term's intension will be. The reason for this is that for every class of actual objects it is possible for two or more terms having different intensions to denote that same class. It is on these grounds that Lewis regards the mode of intension as the relevant mode for definitions. Amongst the statements commonly regarded as definitions Lewis distinguishes the following three types:

(1) A **symbolic convention** is a statement of the general form "(A)" is an abbreviation for "(BC)"; or we may say that a symbolic convention relates one symbol to another.

(2) A **dictionary definition** or **interpretation** is a statement of the form "(A)" symbolizes the same meaning as is expressed by 'BC'." In such definitions a symbol is related to a specific meaning, presumably to one which is antecedently understood.

(3) An **explicative statement** is of the form "'A' has the same meaning as 'BC'." In other words definitions of this kind state that what the definiendum means is the same - in any and all the four modes of meaning - is the same as what is meant by the definiens.¹

¹ This is a paraphrase, not a precise quotation, of AKV., p.100.
The best way to understand what Lewis means by these distinctions is to consider some examples. The most obvious examples of symbolic conventions will be in the formulae of uninterpreted axiomatic systems. For instance consider Lewis's definition for consistency in *A Survey of Symbolic Logic*.

\[ 1.01 \quad p \circ q = \neg\neg(p \circ q) \quad \text{Def.} \]

Now if we are regarding his system as an uninterpreted system (and for many purposes it is possible to regard it this way) then this definition tells us no more than that wherever we find the symbol \( \neg\neg(p \circ q) \) we may substitute in its place the symbol \( p \circ q \). As such it is a symbolic convention; but it is not a definition of consistency for we still do not know what any of the symbols mean. But the context in which this definition occurs is not an uninterpreted system, and we do know what some of the symbols mean. Lewis has defined his symbols in the following way.\(^2\)

---


\[-p = \text{p is false.}\]
\[\sim p = \text{p is impossible.}\]
\[(pq) = \text{p and q are both true.}\]

Each of these definitions is of the kind Lewis calls a dictionary definition or an interpretation. The definiendum is a symbol bearing no meaning; but it is given a meaning by the definiens; and the success of these definitions depends on the meaning of the definiens being antecedently understood. Thus we may return to his definition 1.01 and regard it now as a dictionary definition or interpretation. In this sense it tells us that we attach to the symbol \(\sim p \circ q\) the meaning expressed by "It is not the case that it is impossible that both p and q are true." Yet still it is not a definition of consistency; indeed, there is no mention of 'consistency' in this definition. If, however, we further define \(\sim p \circ q\) (by a dictionary definition) so that we attach to this symbol the meaning expressed by "p is consistent with q", then we have the basis for an explicative statement defining consistency. Such an explicative statement
would be "'p is consistent with q' means the same as 'It is not the case that it is impossible that both p and q are true'." It must be remembered however that in order to fulfil the conditions for being an explicative statement it is essential that "both the definiendum and the definiens must have a meaning which is fixed and understood". If we did not know what 'p is consistent with q' meant, then what was thought to be an explicative statement would in fact be a dictionary definition; without some fixed meaning, 'p is consistent with q' is just a symbol, not an expression.

Explicative statements are thus ones in which both the definiendum and the definiens have intensions which are antecedently known; what the explicative statement asserts is that these intensional meanings are equivalent. This could suggest the rather paradoxical conclusion that definitions in the form of explicative statements are uninformative in the sense that they are superfluous assertions of identity. The apparent paradoxicality of this conclusion assumes an even greater importance when it is realized that,

1 AKV., p.107.
of the three types of definitions, Lewis regarded explicative statements as, epistemologically, the most important. In defense of the status he gives to explicative statements, Lewis argues that it is not the case that declarations of equivalence of meaning are always superfluous assertions of identity. He believed that precise explicative statements (definitions) could often "represent an achievement in the analysis of meaning".¹ For instance, I may know the meaning of "p implies q", and I may know the meaning of "It is not the case that p is consistent with not-q"; but I may not have realized that their meanings were equivalent.

Since I have mentioned here that Lewis gave some special status to explicative statements over and above symbolic conventions and dictionary definitions, some account of this must be given. In introducing Lewis's distinctions I used his definition of consistency to illustrate what he meant. It was shown by that example that one

¹ *AKV.*, p.107.
definition may be regarded now as a symbolic convention, now as a dictionary definition, and again as an explicative statement. Yet in each sense it seemed quite proper to regard it as a genuine definition.

Why, then, should Lewis single out explicative statements for some special status among definitions?

The answer to this question is not simple. First it must be remembered why Lewis was interested in definitions: primarily he wanted to throw some light upon the claim that there are no analytic statements which cannot be certified from definitive statements with the help of logical principles; also he wanted to discuss definitions as a paradigmatic type of analytic statement. For the latter purpose it is obvious that he is only interested in definitions which are analytic statements; but this is also the case for his primary purpose. The test for analyticity fails if the definitive statement from which we derive the proposition in question is not itself an analytic statement. It must be remembered here that this test for analyticity is not a definition of analyticity. It is intended as an aid for determining unambiguously whether some proposition is analytic or not. Once we
know that some proposition is analytic (i.e., has zero intension) we can conclude that other propositions are analytic if they are entailed by this proposition.

This is the rationale behind Lewis's preoccupation with explicative statements. Of the three types of definitive statements, or the three ways of regarding a definitive statement, only explicative statements are analytic propositions. The reason for this is not so much that symbolic conventions and dictionary definitions fail to meet the tests for analyticity; rather, they fail to meet Lewis's requirements for being a proposition. It is not that they are propositions which are non-analytic; they are not propositions. Although they are in statement form, they fail to be propositions because the definiendum is not an expression; it is only a symbol, whereas all the constituents of a proposition must be expressions.

There are some propositions which appear to have symbols, as distinct from expressions, as integral constituents. For example, consider "'Cat' has three letters." Here it seems that
the subject term is really the symbol «cat»; yet the whole expression seems to be a true proposition. In such a case Lewis would say that the sentence is really elliptical. The expression which names the animals is different from the expression which names the term 'cat'. The proposition in question is about this latter expression. As such it has an expression, not a symbol, for its subject; and it is a genuine proposition.

Against Lewis's preference for explicative statements it may be argued that whenever some symbol, say «A», is used as an abbreviation for some other symbol, say «BC>>, then there can be no meaning assigned to «BC» which is not also signified by «A». In other words, for every symbolic convention there is the possibility of a corresponding explicative statement. This is true and, as will be seen in §23, it is important; but it does not follow that from any given symbolic convention we can deduce which particular explicative statement holds. Explicative statements, like all analytic statements, assert a relation between particular intensional meanings; whereas, "Whatever 'A' means is the same
as whatever 'BC' means" does not assert any relation
between particular intensional meanings and is
therefore not an explicative statement.

In virtue of what has been said here, there
is one important thing which can be said about those
definitions which are, in Lewis's view, genuinely
analytic. Explicative statements are simply a
sub-class of analytic statements. They include all
and only those analytic statements which assert some
equivalence of meaning. What makes them true, and
analytic, is the same as all other analytic truths,
namely, their zero intension. To this extent
definitions are like all other analytic statements
and have no kind of epistemological or temporal
priority. If from a number of analytic truths
we should derive some other analytic truth expressing
an equivalence of meaning it has an equal right to being
called an explicative statement along with any other
explicative statements which may have been among the
analytic truths from which we derived it.

Lewis was quite happy to admit that we could
devise rules for testing the analyticity of a
proposition. That a proposition is derivable from
definitions with the aid of the principles of logic is such a rule; and it was acceptable to Lewis. But he was adamant that such rules were not, in principle, necessary.

But the supposition that one must always have a rule for validation, is merely a pedantic affection for intellectual excess baggage and logomachy. In fact, such rules for determining the analytic character of statements ... are no more than heuristic devices and are never strictly necessary if we understand the statement with which we have to deal.¹

Lewis is not only objecting to the belief that we could never determine which statements are analytic without the use of logical rules. In fact he would probably concede that in practice there are times when our intellect needs rules of some kind as an aid to this end. His reason for saying that in principle there is no need for such rules is that if rules were included among the genuinely necessary conditions for analyticity it could be thought with some justification that these rules contributed in some substantial way to the analyticity of a statement. But, for Lewis, no matter how many ways there are for determining

¹ AKV., p.112.
analyticity, there is only one thing that makes a proposition analytic, namely, its zero intension. Because of this Lewis goes so far as to say that there is a sense in which formal logic, as we know it, is superfluous.

If we always infallibly grasped all that is contained in our own meanings, we should always observe every entailed conclusion in understanding our premises, and never have a need for logic. In that sense all logical rules are merely heuristic devices for ameliorating our universal human stupidity. ¹

I do not propose here to discuss the problem of logical truth in general. That is a notoriously difficult problem which would require more discussion than time or space allows here. Nevertheless it is important to see how Lewis views the principles of logic and to see what place he gives them in his theory. Like definitions, he regards the principles of logic simply as a sub-class of analytic statements. They are analytic because it is fundamental to the notion of logical truth that the principles of logic are true of all possible worlds. ² But propositions

¹ AKY, p.112.
² Some philosophers, such as Quine, do not agree with this.
which are true of all possible worlds have universal comprehension and hence have zero intension; and are therefore analytic. Of course, anybody, like Quine, who rejects the distinction between analytic and synthetic or non-analytic propositions, will a fortiori reject Lewis's account of the principles of logic. But such a rejection must be seen as the rejection of the analytic-synthetic distinction altogether and will therefore be discussed later.

It could be argued, however, that regardless of the analytic-synthetic distinction, the principles of logic may be identified by their formal character alone. According to Lewis, such an argument misconstrues the nature of formal statements. What, then, are formal statements? Lewis says in one place that any statement having a variable constituent or constituents is appropriately called a formal statement. ¹ There is some danger however in confusing formal statements with statement functions, since both require some variable constituent or constituents. The simplest way to mark this distinction is to observe what Lewis says about them.

¹ AKV., p.113.
The expression, "Nothing is both A and not A" may be intended as a statement; but if so it is elliptical and means, "For every term 'A', nothing is nameable both by 'A' and by 'not-A'," it would, strictly, make no statement, but would be a statement function. Omission of such understood prefixes in formal statements is almost the rule rather than the exception; and for this reason they are sometimes called asserted propositional functions. But without some prefix of this sort, they are not statements, and are not assertable; and with it they are not functions. ¹

This distinction may be more precisely marked by means of a further distinction between bound variables and free variables. A variable, say 'x', which occurs in the function part of some expression is a bound variable if and only if it is quantified over by either '(x)' or '(x)'. Thus in the expression '(x)(y) f (xy)', both 'x' and 'y' are bound variables. A variable which is not bound is a free variable. Thus in the expression '(x) f (xy)', 'x' is a bound variable, but 'y' is a free variable. Thus Lewis defines a formal statement as a "statement having one or more constituents which are bound variables, but having no constituent which is a free variable." ²

¹ AKV*, pp.113-14.
² AKV*, p.114.
In view of this definition it may be thought that the theorems of a propositional calculus do not fulfill the requirements for formal statements, since the variables are not quantified over. Consider the following expression

\[(q \supset r) \supset (p \cdot q \supset p \cdot r)\]

If the 'p', 'q' and 'r' are regarded as variables then, strictly speaking, this expression is not a formal statement. This may be rectified, however, by noticing that such an expression is always elliptical for \((p)(q)(r)[(q \supset r) \supset (p \cdot q \supset p \cdot r)]\). If, like Quine, one objects to quantifying over propositional variables because of one's views about ontology, then it is best not to regard 'p', 'q' and 'r' as variables; they may be called propositional place-holders.

Nevertheless, I think this makes no difference to the point that is at issue. Lewis defined formal statements in terms of free and bound variables, not anticipating Quinean objections to quantifying over certain kinds of variables. Had he anticipated those objections I think he would simply have amended his
definition accordingly. Unless I misunderstand Quine, his restrictions upon quantification are based on his views about ontology rather than on views about formal statements. The class of statements which Lewis called formal statements stands apart from other statements regardless of one's views about quantifiers. What is true, however, is that one's views about quantifiers will affect the way in which we define formal statements. It must be remembered, however, that not all formal statements are principles of logic.

All statements belonging to logic are formal, but not all statements which are formal belong to logic. Logic includes only formal statements which are analytic; and what assures them as analytically true is not what makes them general and formal but precisely that element of their meaning which is non-formal and specific. Thus the only final test of the validity of logical rules, is the test of them as analytically true statements. Lewis cites examples from physics to illustrate his point that not all formal statements are analytic. Against this it could be argued that it is in principle

---

1 On the other hand Lewis may have decided that the ontological commitment involved was not unacceptable.

2 AKV., p.113.
possible to define a class of formal statements which is coextensive with the laws of logic. While this may be so, I am sure Lewis would reply in the following manner: such a class may include all and only the laws of logic but what makes them laws of logic is not their character as formal statements but their character as analytic truths.

One argument against Lewis here is that he is unable to demarcate precisely the boundary between the laws of logic and other analytic statements. This is not a problem to which Lewis attaches any great importance. The reason for this attitude is that the principles of logic are not epistemologically different from any other analytic statements. This is all the more apparent when it is realized that there are no non-formal analytic statements. Every analytic statement is formal, or is equivalent to one which is formal.¹ Because of this we find Lewis adopting a rather pragmatic or conventional distinction between the principles of logic and other analytic statements.

This is the always recognized desideratum, our concern for which accounts for the inclusion of any

⁠¹ AKV., p.126.
statement in logic: to arrive at a sufficient critique of the consistency and validity of discourse and of thought; at a canon of inference. But if, on this principle, we look for any absolute distinction between analytic statements belonging to logic and those not so classified, we shall find that there is none: there is only a difference in the degree or the frequency of usefulness for purposes of attesting consistency and validity.

In concluding this chapter I shall return again briefly to the true though misleading statement that analytic truths are those which can be certified by definitions together with logic. I think Lewis is right in pointing out that this characterization of analytic truth "fails to indicate any answer to the epistemological questions: What is the nature of analytic truth? and How do we know such truth?" His reasons for thinking that this test fails to indicate what is meant by saying that some proposition is analytic, are complex. It has to do with the nature of his theory as a whole rather than any individual defect which could be specified. Lewis's purpose, it will be remembered, was to defend and explicate

1 Loc. cit.
the traditional doctrine that what makes a statement analytic is that its truth rests ultimately on the meanings of its constituent terms. While it may be true that a statement is analytic if and only if its truth is certifiable from definitive statements together with the principles of logic, this fact in no way helps to explicate the sense of meaning in virtue of which analytic statements are necessarily true. And in his notion of zero intension Lewis believed that he had given an intelligible explanation of a doctrine which was previously vague and imprecise.
# CHAPTER V

## A CRITICAL REVIEW

| §22  | Introductory Remarks                     | 274 |
| §23  | Lewis and Conventionalism                | 275 |
| §24  | Some Objections by K.S. Donnellan        | 291 |
| §25  | Quine, Lewis and the Analytic-Synthetic Distinction | 306 |
| §26  | Pap, Lewis and Synonymy                  | 334 |
| §27  | The Analytic and the A Priori            | 351 |
§22 INTRODUCTORY REMARKS

In this chapter I shall focus attention upon some of Lewis's criticisms of his contemporaries and, more importantly, upon his contemporaries' criticisms of him. As with the rest of this thesis this will be confined to the topics of the analytic and the a priori. One of Lewis's few confrontations with a contemporary philosophical movement is revealed in An Analysis of Knowledge and Valuation in his criticism of conventionalism. Even in this context, however, Lewis frustrates his reader by persistently failing to identify the target of his criticism. In §23 I discuss Lewis's relation to conventionalism — his sympathies as well as his objections.

The critics of Lewis are numerous though the published literature is not as extensive as one would imagine. The first of the critics whom I discuss is K.S. Donnellan whose criticism appears in his doctoral dissertation C.I. Lewis and the Foundations of Necessary Truth. §24 is devoted to discussing some of Donnellan's arguments. W.V.O. Quine must be counted as the major critic of Lewis. This is not
so much because of publications which are specifically directed at Lewis; rather it is because Quine's own writings were generally regarded as an antithesis of Lewis's position. In §25 I discuss their views about the analytic-synthetic distinction; in this section I argue that there is more common ground between Quine and Lewis than is usually recognized.

Another important critic of Lewis was Arthur Pap. His criticism was more narrowly confined for he was considerably influenced by Lewis. Nevertheless, in *Semantics and Necessary Truth* Pap argues at length against Lewis's views on synonymy. In §26 I argue that most of Pap's criticism is misdirected. In the final section, §27, I review Lewis's thesis from a general standpoint. It is a complex theory and hence difficult to refute. In general it is a theory which deserves considerably more attention than it has been given in the past - at least by British philosophers.

§23 LEWIS AND CONVENTIONALISM

It is a widely held view amongst philosophers that one respect in which analytic propositions, *a priori* truths and necessary truths differ from synthetic propositions, empirical and contingent truths, is
that the former are not 'about the world' whereas
the latter are. The sense in which some propositions
are about the world whereas others are not, is never
clearly defined. That there is such a distinction,
however, is usually justified, with some initial
plausibility, by an appeal to the kind of verification
procedures which are needed for different propositions.
Those propositions which are verified by empirical
evidence are thought to be 'about the world' in some
sense in which those propositions which do not need
empirical verification are not about the world.

Conventionalist theories of the a priori are
among those which support the distinction which has
just been outlined; in particular, the name
'conventionalism' may be given to those theories
which hold that analytic propositions derive their
truth ultimately from linguistic conventions. Since
there is a variety of different theories which fulfil
this basic condition, 'conventionalism' is not a label
which applies uniquely to one particular theory.
Nevertheless it is possible to examine conventionalism
as a whole because of the common characteristics which
belong to its varied members.
Lewis thought there were a number of factors which made the conventionalist thesis plausible. Among these was the fact, which Lewis conceded, that every analytic statement can be assured, finally, on grounds which include nothing beyond our accepted definitions and the principles of logic. If we accept, as Lewis did, that the principles of logic are themselves analytic, then they must also be capable of being proved from the defined meanings of the logical constants and the syntactic relations of these which are expressed in any particular principle.

It may thus suggest itself that the ultimate ground of all analytic truth is to be found in definitive statements, together with the rules of transformation and derivation of linguistic expressions, such rules being themselves resultant from equivalences of definition and the conventions of syntactic usage. And to this it may be added that definitions also are merely conventions of the use of language; determined by decisions made at will concerning the equivalence of expressions. Thus it may appear that analytic truth in general, expresses nothing beyond what is determined or determinable by conventions of linguistic usage.¹

This is not a statement of a theory which could be attributed to any single philosopher; or, if it

¹ AKV., p. 96.
could be, Lewis did not intend it that way. Nevertheless, it is a statement of a doctrine which, in one form or another, is fundamental to the conventionalist thesis. As such, it represents a philosophical viewpoint to which Lewis was categorically opposed. If a theory is based on any assumptions of this general kind "then analytic truth becomes viewed, commensurately, as relative to the content and structure of a system of language, erected according to rules of usage and of manipulation having, in the last analysis, no further basis than decisions made as we choose or according to our purposes." ¹

Despite the fact that in *An Analysis of Knowledge and Valuation* Lewis is strongly anti-conventionalist, there are many passages in his earlier writings which suggest that he had considerable sympathy for the conventionalist theories. The problems which puzzled Lewis in his early attempts to reconcile the logic of *Principia Mathematica* with the ordinary notion of implication, and their recurrence later when he came

¹ *Loc. cit.*
to examine the many valued systems of Lukasiewicz and Tarski, led him to the belief that the relative merit of these systems could not be assessed on purely logical grounds. In talking about the advantages and disadvantages of the various calculi Lewis found that these were not strictly logical criteria; usually they were external criteria such as "sufficiency for the guidance and testing of our usual deductions, systematic simplicity and convenience, according with our psychological limitations and our mental habits, and so on."¹ These are pragmatic criteria, and if such are the considerations by which we determine the relative merits of alternative systems of logic, then it seems that the notion of logical truth must also take on some kind of pragmatic flavour. Indeed Lewis explicitly says in *Mind and the World Order* that the ultimate criteria for the laws of logic are pragmatic.²

In the context of this kind of pragmatism Lewis thought that there were no laws of logic in the sense

---

² *MWO*, p.247.
of being universal characteristics of the world or
of the way in which human reason works.

What are ordinarily called "laws of
logic" are nothing but explicative or
analytic statements of the meaning of
certain concepts, such as truth and
falsity, negation, "either-or",
implication, consistency etc., which
are taken as basic.

A "system of logic" is nothing more
than a convenient collection of such
concepts, together with the principles
to which they give rise by analysis of
their meaning.

This passage suggests that the merit of a system
of logic is largely measured by the particular concepts
which it employs and the meanings which are given to
these concepts. Symbolic logic was a new development
and Lewis found it necessary to issue warnings about
how deceiving its formal character could be.

To paraphrase Hobbes: Symbols are
our counters; they are the money of
fools. But on the other hand, the
behaviour of symbolic systems is nothing
more or less than the behaviour of the
human mind, using its most characteristic
instrument; there is nothing in them
which we have not put in ourselves, but
they teach us inexorably what our
commitments mean.²

---

¹ "Alternative Systems of Logic", p.483 (my emphasis).
² "Logic and Pragmatism", published in G.P. Adams and
W.P. Montague, (eds.) Contemporary American Philosophy,
Logical truths, seen in this light, are not sacrosanct; they reflect the nature of the concepts which we have chosen to employ in categorizing the given with which we are confronted. To this extent the truths of logic, and indeed, all analytic truths, have a fundamentally legislative character; they are of our own making and not simply things which we discover. This legislative character of the a priori seems to be closely related to the traditional conventionalist theories. Lewis' doctrine that there must be possible alternatives to the a priori also has its conventionalist counterpart. It is characteristic of conventionalist theories that, since analytic statements and a priori truths derive their necessity from linguistic conventions, an alteration of the conventions will always result in an alteration of the class of analytic statements.

The comparisons between the conventionalist thesis and Lewis's early theory of the a priori are obvious. What needs to be done to make Lewis's conventionalism explicit is to identify what he calls the legislative character of the a priori with what the conventionalists call the adoption
of linguistic conventions. There is *prima facie* evidence for making this identification. Lewis illustrates what he means by the legislative character of *a priori* truths by pointing to the axioms or postulates of a system. In the postulates we legislate that these relations shall hold; and the system is none other than the working out of combinations of these relations in terms of what is legislated in the postulates. Had the postulates been different, then the derivative principles would have differed accordingly, as is well illustrated by the familiar Euclidean and non-Euclidean geometries. The conventionalist also points to the axioms or postulates to illustrate what he means by the adoption of conventions. The postulates are the conventions adopted for that particular system. Lewis and the conventionalists thus use the same illustration to indicate what they mean respectively by the legislative character of the *a priori* and the adoption of linguistic conventions. It therefore seems legitimate to regard Lewis's early theory as a conventionalist theory.
Such a conclusion would, however, misrepresent Lewis. The reasons for this were discussed in Chapter III. Briefly, what is lacking in the above account is the non-arbitrary element in Lewis's theory; and it is this non-arbitrary element which differentiates between Lewis's theory and the conventionalist theories. Perhaps there is one word which Lewis uses which is more misleading than any other. I am referring to his use of the word 'pragmatic'. When he says that the ultimate criteria for the laws of logic are pragmatic, it could be thought that these ultimate criteria are therefore, in some sense, arbitrary. In fact I think he means precisely the opposite.

'Pragmatic' is one of those words which suffers the fate of having both a technical and a non-technical use. In ordinary language if we say "You must be pragmatic about these things" there is the suggestion that what is being called for is a kind of flexibility; and this flexibility derives its possibility from some arbitrary element in the issue concerned. Suppose that I am trying to persuade some politicians to amend the legislation dealing with abortion. They are firm in their belief that it would be a morally retrogressive
step to ease the present restrictions. If I say to them "You must be pragmatic about this", the suggestion is that they should be more flexible in their views; and with this there is some suggestion that their moral principles are not as decisive as they think them to be and that there is an arbitrary element involved in drawing the line between what should be permitted and what should be prohibited. But when Lewis says that the ultimate criteria for the laws of logic are pragmatic, he is primarily focussing attention on what we might call a non-arbitrary element. The arbitrary element is in the establishing of the postulates and the rules of inference; these are the conventions for this language. But then comes the pragmatic question of whether or not the constants used and the relations which are established between them, satisfactorily capture the relations which, in fact, hold between the propositions of our ordinary language. And this is not an arbitrary matter at all.

This was the point of the limitations which were discussed in §13 with respect to the freedom enjoyed by the mind in establishing the categories.
Although the categories are created by the mind and may therefore be altered by the mind, there is a non-arbitrary and unalterable character of the given which must be reflected in the categories if they are to be adequate to their task, which is to provide the basis for formulating our knowledge of what is given and for conveying this knowledge to others. The legislative character of the *a priori* is real; but it is nevertheless restricted by the pragmatic demands of conforming the categories to the structure which is inherent in the given. On these grounds I think it would be a mistake to say that Lewis's early theory was a conventionalist theory. It has certain affinities with conventionalism as does his theory in *An Analysis of Knowledge and Valuation*, but it differs from the conventionalist theories in the crucial respect which has just been discussed.

The affinity between Lewis's theory (in both its early and later forms) and the conventionalist theories should not be underestimated. Lewis is committed to the view that we cannot determine the analyticity of any proposition without reference to the conventions governing the use of words and their syntactic order.
in making statements. What he is opposed to is the doctrine that the ultimate ground of analytic truth derives from these conventions.

The question whether "All cats are animals" or "Some rats triangles bite" is analytically true, cannot be determined without reference to conventionally determined use of words and of syntactic order in making statements. If the expression 'rats' (more accurately, the symbol «rats») was used as in fact 'cat' is used, and 'some', 'triangle', 'bite', as in fact 'all', 'animal' and 'are' are used, and if the conventions of syntactic order were those of statements in German, then "Some rats triangles bite" would be analytically true ... It is this status of analytic truth attaching to what is thus expressed, no matter how it is expressed, which is the epistemological question. And conventions of definition and syntax afford no answer whatever to that question. 1

The distinction between how something is expressed and what it is that is expressed, partly clarifies Lewis's aim to provide an account of the ultimate grounds of analytic truth. Perhaps this could be clarified further by an example of a completely different kind. Consider the rite of baptism. Though there may be variations in the ritual between different denominations, each

1 AKV, pp. 150-51.
denomination has a certain number of requirements which must be fulfilled if some person is to be baptized. We may speak of these requirements as the necessary and sufficient conditions for the administration of holy baptism. Suppose that these requirements were as follows:

1. The officiating person must be ordained according to the rites of ordination of the church concerned.
2. The officiating person must offer some particular prayers as decreed by the Church.
3. If the person being baptized is a child, the parents must make certain vows.
4. If the person being baptized is not a child, he or she must be seeking baptism in an attitude of repentance.
5. Water, which has been blessed in a particular manner, must be sprinkled on the person concerned.

The rules of this denomination are such that if any one of these conditions is not fulfilled, the person concerned has not been baptized. They are the necessary and sufficient conditions for baptism. But the statement of these necessary and sufficient conditions is not an adequate explanation of what baptism really is. If a person approached a priest
and asked him to explain what baptism is, it would be unlikely that the priest would recite these necessary and sufficient conditions. These are the necessary and sufficient conditions for the administration of, or performance of, the sacrament of baptism. But an account of the performance is defective as an account of what baptism is.

I think that Lewis's attitude to conventionalism is that it is defective as an account of analytic truth in much the same way as the necessary and sufficient conditions for the administration of holy baptism is defective as an account of baptism.

The manner in which any truth is to be told by means of language, depends on conventional linguistic usage. But the truth or falsity of what is expressed, is independent of any particular linguistic conventions affecting the expression of it. If the conventions were otherwise, the manner of telling would be different, but what is to be told, and the truth or falsity of it, would remain the same. That is something which no linguistic convention can touch.¹

Thus far I have stated what it is that Lewis objects to in conventionalism. The brunt of Lewis's attack on conventionalism rests on his claim that

¹ AKV., p.148 (my emphases).
"until symbols have fixed and specific meanings, a relation of them conveys no relation of meanings,"\(^1\) together with the claim that "there is no statement of any truth, analytic or otherwise, until a relation of meanings, in some mode of meaning is asserted."\(^2\)

In Chapter IV we observed a number of distinctions which are relevant to this discussion: the distinction between symbols and expressions; the distinction between linguistic meaning and sense meaning; and the distinction between symbolic conventions, dictionary definitions and explicative statements.

All of these distinctions are related to the special place which Lewis gives to intension as the criterion which we have in mind for a term's applicability. And it is this sense of meaning which Lewis believes to be lacking from the conventionalist theories. When Lewis says that there is an element in an analytic proposition which is independent of linguistic conventions he is referring to the relations that hold between the intensional meanings of the terms involved. Certainly the sense meaning of analytic propositions is vacuous, since they have zero intension; and this is one factor which Lewis thinks can be misleading.

---

1 \(^{1}\) AKV., p. 156.
2 \(^{2}\) AKV., p. 148.
What lends plausibility to this conventionalist interpretation, which finds no significance in analytic truth beyond the significance of linguistic conventions of definition and syntactic usage, is the fact that, in a sense which has been discussed, all analytic statements say the same thing and say nothing.¹

Analytic propositions have zero intension and therefore do not require any special state of affairs to be exemplified in the world; and in this sense it could be thought that they are not "about the world". But it is a mistake, according to Lewis, to proceed from this premise to the conclusion that the ultimate ground of analytic truth is to be found in the conventions of linguistic usage.

Such an approach affords no clue to the a priori character of analytic truth as independent of empirical fact. It explains this independence, but it accomplishes this explanation by divesting analytic truth of any character of truth; or at least by abstracting from any character of analytic statements by virtue of which they could either be true or false.²

The "character of truth" which Lewis is referring to is the relation of intensional or sense meanings.

¹ AKV., p. 149.
² AKV., p. 147.
Each analytic statement may have zero intension for its holophrastic meaning; but each one has a distinct analytic meaning. That is, each analytic proposition asserts a particular relation between particular meanings; and it is by virtue of this character that a statement may be analytically true. Conventionalist theories can do no more than account for the linguistic meaning of terms; but according to Lewis this is not sufficient for determining the truth of any proposition.

§24  SOME OBJECTIONS BY K.S. DONNELLAN

In an unpublished doctoral dissertation presented to Cornell University, Keith Donnellan advanced a number of arguments against Lewis's criticisms of conventionalism. In fact Donnellan had his own independent reasons for rejecting conventionalism. But his arguments against Lewis are interesting and deserve our attention. In this section I shall consider two arguments which are based on Lewis's comments about definitions which were discussed in §21. Lewis accepted that derivability from definitions with the aid of the principles of logic was a sufficient test for analyticity. One qualification which he placed
upon this test was that it was only sufficient if the definitions involved were themselves analytic. The reason for this was that although analytic propositions are entailed by (and hence deducible from) any proposition whatever, we can only determine that a proposition is an analytic proposition if it is entailed by or deducible from some other analytic proposition.

On these grounds Lewis thought that explicative statements were the only acceptable definitions, at least for testing analyticity. A consequence of this was that Lewis ruled out the two kinds of definitions which are at the heart of the conventionalist theory — namely, symbolic conventions and dictionary definitions. Definitions of these types are either stipulative or reportive; as such they serve to identify the linguistic conventions, by means of which the conventionalists explain analyticity. Therefore, if it can be shown that either symbolic conventions or dictionary definitions are adequate to the task of establishing the analyticity of certain propositions, then this achievement would represent a substantial counter-argument to one of Lewis's central theses.
Donnellan presents an argument which he claims is such a counter-argument to Lewis's thesis.\footnote{K.S. Donnellan, C.I. Lewis and the Foundations of Necessary Truth, Ph.D thesis, Cornell University, 1961, p.17.}

First, Donnellan argues that Lewis's insistence that explicative statements are the only definitions adequate for testing the analyticity of a statement is based on the supposition that we deduce analytic statements from them. This is an assumption which the conventionalist theories (Donnellan calls them "the syntactical view") need not grant, according to Donnellan. Lewis's view assumes that the definitions serve as premises, and must therefore be necessary truths if we are to assert the necessary truth of whatever can be derived from such premises. Donnellan argues that a definition need not serve as a premise, but may be used as a rule of substitution justifying the transition from one line of an argument to another. He illustrates what he means with an argument of the following kind.

Donnellan asks us to suppose that 'A' is defined as 'BC'.\footnote{Loc.cit.} Then he says that we can demonstrate the necessity of "All 'A' is 'B'" by a one line deduction.
We can take as a premise the necessary truth "All 'BC' are 'B'"; and by substituting 'A' for its defined equivalent we can derive as a conclusion "All 'A' is 'B'." Since the premise is a necessary truth, the conclusion will also be a necessary truth; but the definition which has been used does not appear as a premise.

The definition in question might very well be a stipulated definition, and thus, for Lewis, of type (1) or (2). It need not be an explicative statement. For if I have stipulated that 'A' shall mean 'BC' then (the conclusion) is a justified deduction from (the premise). A stipulated definition allows us to obtain new lines in a deduction by substitution. To think that it does not would be to fail to understand the nature of such definitions. Since an appeal to a stipulated definition will do the job, there is no need to appeal to anything else.¹

There is an element of persuasiveness in this argument; most of this persuasiveness is derived from the doctrine that a "stipulative definition allows us to obtain new lines in a deduction by substitution". This doctrine is, I believe, fundamentally correct and therefore I think Donnellan is justified in saying that anybody who contradicts

this doctrine fails to understand the nature of such definitions. Nevertheless, I think that Donnellan has misused the doctrine; and he does this in such a way that he creates the impression that Lewis contradicts the doctrine. The doctrine which Donnellan states is one with which Lewis would agree; the doctrine which Donnellan uses is subtly different and it is one with which Lewis would disagree. The difference between the stated doctrine and the doctrine which Donnellan employs is this: there is nothing in the stated doctrine which says that any conclusion derived from a premise by substitution on the basis of a stipulative definition will have the same epistemological status as the premise; but the doctrine which Donnellan employs assumes that this is the case.

The point at issue here concerns the status and nature of rules of inference. In particular, something needs to be said about the justification for rules of inference. What is allowed to count as a rule of inference? From what source can we obtain a licence for any particular rules of inference? In an uninterpreted formal system it may be said that
we can legislate as we see fit about the rules of inference. But we are not dealing with an uninterpreted system. Generally, in a formal system of logic the rules of inference must be supported by some analogous theorem or necessary truth. In the case of substitutions, some kind of logical equivalence would be required. And this is the whole point of Lewis's demand for explicative statements. If we have an explicative statement to the effect that the expression 'A' means the same as the expression 'BC', then we have a logical equivalence of the kind that will support a rule of substitution allowing us to derive "All 'A' are 'B'" from "All 'BC' are 'B'"; and in such circumstances we would be justified in asserting that "All 'A' are 'B' is a necessary truth.

But Donnellan argues that we are justified in using a rule of substitution supported not by an explicative statement but by either a dictionary definition or a symbolic convention. On this matter I think he is quite wrong. If it is the case, as I think Donnellan concedes, that conclusions in an argument inherit the epistemological character of premises, then I think the onus is upon him to show
why they do not inherit the epistemological character of the rules of inference. In particular, if we are only justified in saying that we know some conclusion is a necessarily true proposition if the premises from which it is derived are necessarily true, then it seems that we can argue, mutatis mutandis, that we are only justified in saying that we know some conclusion to be necessarily true if we also know that the rules of inference used in deriving it are supported by necessarily true propositions.

The defect in Donnellan's argument may be exposed in another way. Suppose we have some dictionary definition which says that the symbol «A» has the same meaning as the expression 'BC'. We know that "All 'BC' is B" is necessarily true. Donnellan says that the dictionary definition entitles us to substitute the A for the BC. But it must be remembered that the only A which we have is the symbol «A». If we substitute this for 'BC' in "All 'BC' is B" we do not get "All 'A' is 'B'"; rather, we get "All «A» is 'B'." This is not an explicative statement and it is not an analytic truth. In fact, it is not a grammatically well formed statement.
For this reason I think that Donnellan failed to achieve his stated goal, which was to present an argument in which a definition other than an explicative statement was used, yet which, contrary to Lewis's thesis, allowed us to determine that the conclusion was itself a necessary truth.

This particular argument which Donnellan brought against Lewis was not his major objection; and its failure would not convince Donnellan that Lewis's arguments against conventionalism were valid. He had another far-reaching objection, closely related to the previous argument, though independently argued. In brief, Donnellan thought that Lewis's distinction between explicative statements on the one hand and symbolic conventions and dictionary definitions on the other hand, was specious. First we need to see how this claim is placed in the context of Donnellan's discussion of Lewis generally.

It will be remembered that Lewis acknowledges that conventions play an essential role which must be recognized if we are to account adequately for the analytic truth of any proposition. Conventions establish the manner in which an analytic (or, for that matter, non-analytic) proposition will be expressed.
But, according to Lewis, once the conventions are established with respect to which symbol will designate which meaning, there is no room for any further conventions to establish the nature of the relations that will hold between the meanings thus designated.

At this point Donnellan makes two comments. First, he agrees with Lewis that after the conventions are established concerning which symbols will be used to designate which meanings, there is no need for any further conventions to establish the logical relations that hold between the meanings thus designated; and in this regard, Donnellan believes that it is not a matter of any consequence, because conventionalist theories do not need these secondary conventions to which Lewis is objecting. Second, Donnellan argues that not only is there no need for these secondary conventions but "nor is there any room for a separate relation of meaning supposedly reported by an explicative statement." ¹

The first of these issues is not easy to settle because Donnellan argues in terms of what the conventionalist theories as a whole are committed to.

Also Donnellan made his appraisal of the situation some fifteen years after Lewis published *An Analysis of Knowledge and Valuation*. In that period conventionalism was undoubtedly refined in many ways. I do not propose here to count heads in order to see who was right on this matter, for it is not of any great importance. But lest it be thought that Lewis was entirely mistaken, I think that A.J. Ayer propounded a theory of the kind Lewis was attacking. Consider the following passage:

Just as it is a mistake to identify *a priori* propositions with empirical propositions about language, so I now think that it is a mistake to say that they are themselves linguistic rules. For apart from the fact that they can properly be said to be true, which linguistic rules cannot, they distinguished also by being necessary, whereas linguistic rules are arbitrary. At the same time, if they are necessary it is only because the relevant linguistic rules are presupposed. Thus it is a contingent, empirical fact that the word 'earlier' is used in English to mean earlier, and it is an arbitrary, though convenient, rule of language that words that stand for temporal relations are to be used transitively; but given this rule, the proposition that, if A is earlier than B and B is earlier than C, A is earlier than C becomes a necessary truth. ¹

Ayer says quite explicitly here that after determining that the word 'earlier' is used to stand for the relation of temporal precedence, it is still an "arbitrary, though convenient, rule of language that words that stand for temporal relations are to be used transitively". This suggests that we could have decided to use temporal relation words reflexively or symmetrically. This would not only be inconvenient; it would be nonsensical.

It may be that Ayer is not representative of the conventionalist theories. Be that as it may, there is another element in Donnellan's objection to Lewis's criticism which is, I think, more interesting. In the following passage Donnellan states his view of the conventionalist position.

It (conventionalism) is not committed to holding that after adopting a definition, "the symbol «A» shall mean what the symbol «BC» means", further conventions are needed to establish that the meaning of 'A' is the same as the meaning of 'BC'. Nor would it (conventionalism) say that a further convention establishes that "All A are BC" expresses a necessary truth. The single convention suffices.

---

What interests me in this passage has nothing to do with what may or may not be attributed to any conventionalist theory. I think that in this passage Donnellan imputes to Lewis a doctrine which is subtly, though significantly, different from the one which Lewis actually held. Donnellan states here a doctrine which he implies would be unacceptable to Lewis. He suggests, indirectly, that Lewis would reject the doctrine that the single convention "the symbol <<A>> shall mean what the symbol <<BC>> means" is sufficient to establish that the meaning of 'A' is the same as the meaning of 'BC'. The line of demarcation between what Lewis accepts and what he rejects in this domain is easily misunderstood; and I think that Donnellan has misunderstood it.

Nevertheless, Lewis says categorically that if the symbol <<A>> is used as an abbreviation for the symbol <<BC>> then "any meaning represented by 'BC' becomes representable by 'A', and 'A' cannot, without error, be used to represent any meaning not also representable by 'BC'."¹ According to Lewis, the symbolic convention is sufficient to establish

¹AKV., p. 99.
that 'A' and 'BC' have the same meaning. What Lewis objects to is the doctrine that the symbolic convention is sufficient to entitle us to say that, in any adequate sense of the word 'meaning', we know what either 'A' or 'BC' means. It is one thing to say that 'A' and 'BC' have the same meaning; but, Lewis argues, it is a different matter to say that we know what that meaning is. It is this sense of meaning which is lacking in symbolic conventions; and it is this same sense of meaning which Lewis contends is needed if there are to be any explicative statements. This bears directly upon the second, and major, part of Donnellan's argument that the distinction between explicative statements and the two stipulative types of definition is specious. Like the argument which has just been discussed, this latter argument involves a subtle misinterpretation of Lewis's theory.

Donnellan says that just as there is no need for secondary conventions to establish the logical relations between symbols which are already conventionally determined, "nor is there any room for a separate relation of meanings supposedly reported by an explicative statement"¹ Donnellan is presumably

saying that if the symbol «A» has been stipulated as an abbreviation for «BC» then it is not possible for 'A' to have any meaning which differs from the meaning of 'BC'; hence it is not necessary to identify a separate relation of meanings supposedly reported by an explicative statement. Donnellan thought that Lewis had been misled by the plausibility of his distinction between symbols and expressions.

There is, to be sure, a radical difference between referring to an expression in some language and to a mark or sound which may or may not have a meaning. But I fail to see the contrast between the meaning of a symbol and the meaning of an expression. I do not see how to distinguish them.¹

This passage is quite confusing. Donnellan fails to see the contrast between the meaning of a symbol and the meaning of an expression. But who says that there is such a contrast? Certainly not Lewis! According to Lewis there is no such thing as "the meaning of a symbol" which could be in contrast with anything else. There is the notion of a meaning which may be assigned to a symbol, but

¹ Ibid., p. 21.
Lewis does not hold that that meaning is in any kind of contrast with the meaning of an expression. Indeed, the meaning of an expression is identical with that meaning which, when it is assigned to some symbol, transforms the symbol into an expression.

Contrary to Donnellan's argument I think that explicative statements are distinguishable from both symbolic conventions and dictionary definitions. They bear a definite relation to each other. An understanding of the conventions of a language is necessary, though not sufficient, for recognizing a proposition as an explicative statement. Lewis acknowledges that explicative statements depend on linguistic conventions in this manner; but he asks in return that it be acknowledged that what an explicative statement asserts is quite different from what a symbolic convention or dictionary definition asserts.

That the verbal expression "All squares are rectangles" conveys a logically necessary fact, could not be determined in entire independence of what the constituent expressions 'square' and 'rectangle' convey, but the fact of the relation expressed by "All squares are rectangles"
has no dependence upon our conventions of expression or even on the existence of language. No manner of devising a system of language could affect it, and no decision of ours could make it otherwise than it is.  

§25 QUINE, LEWIS AND THE ANALYTIC-SYNTHETIC DISTINCTION

There is a sense in which it may be said that Professor Quine now holds a mortgage over any new discussions of the so-called analytic-synthetic distinction. I do not mean that Quine is right. But whether Quine is right or wrong, it has become almost impossible to embark on a discussion of this distinction without referring to Quine's thesis. Quine has given the distinction a new look and regardless of one's philosophical inclinations or prejudices, it is now necessary to take account of this new look, even for the most traditional exponent of the distinction. My need to take account of Quine's thesis is two fold: first, Quine is opposed to the traditional analytic-synthetic distinction, whereas Lewis believes that the traditional distinction "is justified and can be made adequate"; second, Quine  

1 AKV., p.153 (Lewis's emphases).  
2 AKV., p.37.
has a general objection to all philosophical theories which require the postulation of what he has called "intensional objects", and Lewis's theory undoubtedly belongs in this category.

It is not possible for me to undertake here a complete study of Quine's theory of language, meaning and necessity. That task would be no less substantial than my study of Lewis. Nevertheless it is important to consider these two major respects in which Quine's theory seems to be in conflict with Lewis's theory.

Central to Quine's thesis is the proposal that the work to which the analytic-synthetic distinction is usually put is more properly done by recognizing what Jonathan Bennett has subsequently called the relative dispensability or indispensability of the statements concerned. This is the same element of Quine's theory with which Putnam found himself in agreement and which prompted him to say that a philosopher may safely ignore the analytic-synthetic distinction and "not be wrong in connection with any philosophical issues not having to do specifically

with the distinction."¹ In other words, Quine's thesis maintains that, as a philosophical tool, the traditional analytic-synthetic distinction is useless. This impotence derives from the fact that, in his view, there are no analytic propositions, at least as traditionally conceived.

It must be recognized, however, that Quine is not denying that there is a distinction to be made between propositions of the kind "All bachelors are unmarried" and "There is a book on this table." Nor has he simply found a new way of formulating the same distinction without any of the old vocabulary. And this brings me to the second part of Quine's thesis which is relevant to our purposes here. When the distinction is construed in terms of the relative dispensability of propositions it becomes clear that the difference between the highly indispensable and the readily dispensable is a difference of degree not of kind. Thus Quine's thesis maintains that the truth which is ascribable

to "All bachelors are unmarried" is not a different kind of truth from that which is ascribable to "There is a book on this table". It is not that one is an immutable truth whose analytic character protects it from even being considered as a candidate for revision; whereas the other is one whose empirical character is such that it is easy to conceive the facts being different, so that what is now true could have been false. It will become clearer as the discussion of Quine proceeds that, for him, a proposition is true if it is an element of a theory or system of beliefs which is accepted as a whole. Because of this all propositions which are true share in the same kind of truth.

In a terminology more typical of Quine's own way of stating his thesis, these two central issues may be stated as follows: no sentence is immune from the possibility of revision; the distinction traditionally characterized as the analytic-synthetic distinction is a difference in degree not in kind.

To understand the full import of the conflict between Quine and Lewis, one must examine the philosophical foundations on which Quine's thesis rests. The radical nature of Quine's thesis is
not confined to a set of conclusions which he has drawn from premises which he shares with his more orthodox counterparts; it is the premises from which he begins that are radical. Thus the justification or refutation of Quine's thesis is to be found in these premises. They are not simple empirical premises whose criteria of confirmation are precise and clear. Rather, they reflect Quine's whole philosophical outlook - his view of the world and the objects which constitute it; his understanding of the nature of language and the role language plays in our knowledge of the world and its objects.

A convenient place to start this examination of Quine's premises is his rejection of the notion that a statement is somehow analyzable into a linguistic component and a factual component. Quine concedes that such a distinction is not altogether implausible.

The statement "Brutus killed Caesar" would be false if the world had been different in certain ways, but it would also be false if the word "killed" happened to have the sense of "begat".¹

Just as these two factors may alter the truth of the statement concerned, so it could be argued that the truth of a statement comprises two analogously distinct components - a factual component and a linguistic component. Quine does not deny the intelligibility of talking this way; but he is concerned to deny that these two components are independent of each other. If such a complete distinction as that were allowed "it next seems reasonable to assume that in some statements the factual component should be null; and these are the analytic statements." 1

This is a conclusion which Quine finds unacceptable; but it is difficult to follow the strategy of his argument at this point. If a complete distinction is allowed between some factual component and some linguistic component of a statement's truth, Quine grants us that it would open the way to establishing the analytic-synthetic distinction. But Quine immediately says that "the boundary between analytic and synthetic statements simply

1 Loc.cit.
has not been drawn"; ¹ and he gives the impression that we are supposed to conclude on this basis that there simply could not be the distinction imagined between these internal components of a statement's truth. In other words his argument is a simple modus tollens.

Despite the internal validity of this argument, it nevertheless remains a petitio principii. The overall strategy of this part of Quine's article is quite clear: he introduces, examines and subsequently rejects various attempts to establish the analytic-synthetic distinction. In this context it is not good enough for Quine to state that there is no proper distinction between analytic and synthetic propositions; and then to use this in a modus tollens argument to establish the falsity of any premises which happen to support the analytic-synthetic distinction. Of course, if Quine has an independent proof vitiating the distinction between analytic and synthetic proposition, then any premises supporting the analytic-synthetic distinction must be rejected. But if Quine had such an independent proof

¹ Ibid., p.37.
vitiating the distinction between analytic and synthetic propositions, why would he bother discussing these other arguments purporting to establish the distinction?

One answer to this may be that he shows the inadequacies of these other arguments in order to support his own position. But if that is his purpose he must show either the falsity of the premises or the invalidity of the argument; and he is not entitled to use his own conclusion in a modus tollens argument, as he has done. The theory he is criticizing is of the form

\[ p \quad \frac{\neg p \rightarrow q}{\neg q} \]

and it is up to Quine to establish \( \neg p \). That is, he must establish that it is not proper to isolate two independent components in the truth of a statement - a linguistic component and a factual component. Quine undoubtedly believes that this notion is completely erroneous. Much later in the article he says "it is nonsense, and the root of much nonsense to speak
of a linguistic component and a factual component in the truth of any individual statement. But other than the petitio principii mentioned above, Quine offers no argument in support of his position; at least not in "Two Dogmas of Empiricism".

It is possible to consider the consequences of either accepting or rejecting the distinction between the components of a statement's truth by examining the way in which recalcitrant experiences are accommodated. A recalcitrant experience is one which proves to be inconsistent with some basic set of beliefs which we hold to be true. A standard form of recalcitrant experience occurs when some prediction which we make on the basis of some accepted propositions is proved false by subsequent experience. To see how these recalcitrant experiences may be accommodated, consider the following situation. A ship's captain believes that the earth is flat; he also believes that the paths travelled by ships sailing a straight course represent straight lines to which the theorems of Euclidean geometry are applicable.

---

1 Ibid., p. 42.
He sets sail from a stationery marker buoy M1 and sails in a perfectly straight course for some specific distance, say n miles, and drops another marker buoy M2. He determines that his course is straight by keeping two distant objects visually in line with each other. He then sails from M2 in a straight course at an angle of $60^\circ$ to the line M1 - M2, and after exactly n miles he drops another buoy M3. The captain then predicts that if he sails in a straight course from M3 approximately in the direction of M1 but at an exact angle of $60^\circ$ to the line M2 - M3, he will arrive at M1 after travelling exactly n miles. He sets out on such a course but finds that after n miles he is not at M1. Instead he finds that just before the n mile mark his course intersected the line M1 - M2 at a point not very far from M1. Such an experience would be for the captain what Quine has called a recalcitrant experience.  

First let us consider the kind of factual revisions which could be made. Some of these revisions may be of factual assumptions explicitly stated; others may be of factual assumptions which are only

---

1 See "Two Dogmas of Experience", p.43.
implicitly held. At the simplest level the captain may have made a navigational error. One of the angles may have been slightly less than $60^\circ$; one leg of the course may not have been exactly $n$ miles. Since the captain has assumed that his course represents a Euclidean equilateral triangle, a revision of either of these simple facts about the course could explain why he did not arrive back at M1—and the recalcitrant experience would be thus accommodated.

It was stated that the captain, determined that his course was straight by visual means—namely, by keeping two distant objects in line with each other. By using this test the captain implicitly assumes that light travels in a straight line. If light did not travel in a straight line he would no longer have a guarantee that his courses from M1 to M2, or M2 to M3, or M3 to his final position represent Euclidean straight lines. And if they are not straight lines then he would not have any reason for predicting that his final position would be at M1. Thus by making a factual revision of the implicit assumption that light travels in straight lines, the recalcitrant experience may be accommodated.
There is a very wide range of factual revisions which could accommodate this particular recalcitrant experience. The captain implicitly assumes that the earth's surface is stable and that there are fixed points on it whose position relative to each other is constant. Perhaps this is not the case; certainly a factual revision of this kind would accommodate the recalcitrant experience. That a particular angle is $60^\circ$ rather than $59^\circ$, that a particular distance is $n$ miles, that light travels in a straight line, and that the earth's surface is stable—all of these are assumptions of a kind which would ordinarily be called matters of fact.

It is possible, however, to accommodate this recalcitrant experience by making revisions which, prima facie, are not factual revisions. In making his prediction the captain assumed that the relations that hold between concepts such as "straight line", "plane", "angle", "parallel" and so on, are such as are governed by the axioms of Euclid's geometry. One way of revising this conceptual framework is by replacing Euclid's fifth axiom with a new assumption that through a given point
not on a given straight line no coplanar straight line can be drawn which is parallel to the given straight line. One of the consequences of this particular conceptual revision is that the geometric theorem which was used in making that final prediction is no longer a theorem at our disposal. Within the revised conceptual schema it is no longer the case that equilateral triangles have three internal angles each of 60°. And hence, what was a recalcitrant experience prior to this conceptual revision, is not recalcitrant after the revision. A revision of this kind would not ordinarily be called a factual revision and it seems to be a revision of what Quine called the linguistic component.

Although it may not be appropriate to the example we have been discussing, Quine also suggests that we may in certain circumstances choose to revise some fundamental logical law.

________________________________________

Revision even of the logical law of the excluded middle has been proposed as a means of simplifying quantum mechanics; and what difference is there in principle between such a shift and the shift whereby Kepler superceded Ptolemy, or Einstein Newton, or Darwin Aristotle? ¹

Professor C.F. Presley has suggested that this is a doctrine which Quine may have abandoned in more recent years; that now "he has apparently come to hold that there is nothing that would count as changing our logical laws".¹ Presley based this on a passage in *Word and Object* which could be interpreted in this way; but subsequent correspondence between Quine and Professor J.A. Passmore makes it clear that Quine still holds "that logic is revisable on a par with other sciences". Since the discussion of this matter of interpretation is something of a digression I shall defer it to Appendix A. For my present purposes it seems that a revision of something like an axiom of geometry or a law of logic would count as a revision of the linguistic component of a statement's truth, rather than a revision of the factual component.

If the distinction between a linguistic component and a factual component in a statement's truth is a genuine distinction — by which I mean a

One way of considering the differences between what we have called factual and conceptual revisions is to examine the consequences of each type of revision. One effect of the factual revisions outlined above is that they alter the truth value of various statements either assumed or used in describing the particular state of affairs, and hence in arriving at the original prediction, and in determining that the subsequent experience was a recalcitrant experience. For example, in the simple case of making a revision to allow for a navigational error, it may be that whereas we previously assigned the truth value 'True' to the statement "The angle between the lines M1 - M2 and M2 - M3 is 60°", we will now assign it the truth-value "False". Another way of stating this consequence is by saying that the
sequence of events which constitute the state of affairs concerned is now truly described by a set of sentences which is different from, and inconsistent with those which truly described it prior to the revision.

In contrast to this, it might be thought that conceptual revisions allow us to accommodate a recalcitrant experience without any need for altering the statements which truly describe the situation in question. The proposed alteration to one of the Euclidean axioms does not alter any of the statements used in describing the situation in question. Instead, it has the effect of altering the rules which were used in making the original prediction in virtue of which the subsequent experience was said to be recalcitrant. In this particular case the revision of our geometrical axioms would result in the captain no longer having at his disposal the theorems which he assumed when he predicted that his terminal point would coincide with his starting point.

Now the problem is reduced to deciding whether the consequences of these different revisions differ in kind or only in degree. Although Quine does not
set the problem out in precisely this way, I think he is committed to the view that they are basically of the same kind. What is common to both these revisions is that they accommodate the recalcitrant experience in question: they both leave us with the situation of having a language system which is adequate to the task of describing states of affairs and making predictions, whereas, prior to the revisions, it had been inadequate to this task.

To put the matter slightly differently, we may say that Quine regards the whole linguistic enterprise of describing and predicting as a single enterprise. When a recalcitrant experience occurs some part of the language system must be revised. We cannot alter the state of affairs; but we can alter our description of the state of affairs; or we can alter the rules we use in making predictions or drawing conclusions. To the extent that we can distinguish between these revisions in the way that we have just done, it must be acknowledged that there is some difference between them. But as revisions they must be revisions of something; and for Quine they are revisions of the same thing, namely revisions of the linguistic enterprise of which they are both integral members.
The so-called factual revision allowed the recalcitrant experience to be accommodated by changing the truth value of other factual or empirical statements. Consequently the effects of this kind of revision are not as far reaching as are the effects of a conceptual revision. Here the consequences are confined to our understanding of a number of facts and all our beliefs about matters directly related to those facts. When a language system is viewed as a whole, these consequences are very much at the periphery of the system, to use Quine's phrase. This metaphor is intended primarily to emphasize the contrast between factual revisions and conceptual revisions. If we choose to revise some of the truths which are traditionally called necessary, we will find that the consequences of this sort of revision are not confined to any particular set of facts or our beliefs about those facts. A change in some logical law has consequences throughout the whole language system. These are the kind of statements which Quine regards as central to the system.

But whether a sentence be central to a system or at its periphery, it is essential to Quine's view that every sentence be seen as part of a system. For Quine, there are no criteria of confirmation for sentences taken in isolation. To affirm a sentence as true is to say that the whole language system of which it is a part is an adequate linguistic model for the total state of affairs of which some particular part is designated by the sentence in question. This is what I understand to be the point of Quine's remark that it is nonsense to analyze the truth of a statement into a factual component and a linguistic component. For Quine this kind of analysis is indicative of a complete misunderstanding of the nature of the linguistic enterprise.

This does not commit Quine to the view that all sentences are equally vulnerable when it becomes necessary to revise the system. Ordinarily it will be preferable to revise the system with a minimum of disturbance to the system as a whole. For this reason revision occurs more frequently at the periphery of the system - amongst the so-called factual statements. At the other end of the scale the propositions of mathematics and logic will be amongst the last to
come up for revision because of the far-reaching consequences of any such alterations. Nevertheless, statements which are central to the system have been changed before and, in principle, will always be open to the possibility of change in the future. In the preface to *Methods of Logic* Quine argues that it is sometimes in the interests of simplicity that some radical revision should be undertaken rather than some peripheral revisions. To this extent Quine regards statements both at the periphery and at the centre of a system to be revisable. What differentiates between them is their relative degree of dispensibility.

At the beginning of this section I stated two major issues on which Quine and Lewis were diametrically opposed. In this section I am concerned with their conflict over the analytic-synthetic distinction. Apart from the general difference that one espouses the distinction which the other rejects, there is some difficulty in identifying the particular issues which cause them to diverge as they do. Or, more precisely, it seems that Lewis shares with Quine some theses which Quine seems to hold as crucial to, and even as hallmarks of, his position.
First let us consider where Lewis stands in relation to what Quine has to say about the supposition that the truth of a statement is somehow analyzable into a linguistic component and a factual component. Quine regards it as obvious "that truth in general depends on both language and extralinguistic fact"; but what he objects to is the contention that in some statements, namely, the analytic statements, "the factual component should be null". ¹

Lewis could be regarded as one who held that analytic statements are those in which the factual component is null. For him analytic propositions are those having zero intension, which means that there is no particular state of affairs which must be exemplified in the world in order that an analytic proposition be true. To put this another way, no matter of fact can affect the truth of an analytic proposition. All this suggests that for Lewis, analytic propositions are those in which the factual component is null.

Certainly the sense meaning of propositions having zero intension is vacuous; but Lewis says it is subtly incorrect to suppose that propositions having zero intension have no sense meaning. A proposition having no sense meaning would be one for which there is no criterion by means of which we could determine whether it is true or false. But according to Lewis it is not that we have no criterion for analytic propositions; rather, their criterion is such that we can determine that they are true for all conceivable worlds. In this context it would seem incorrect to say that analytic propositions have no factual component. Lewis would say that their factual component is indicated by their analytic meaning, which is, in turn, indicated by a consideration of the sense meaning of the constituent terms and the syntactic relations that hold between them.

Another doctrine which is central to Quine's theory is that the distinction between propositions which are usually classified as analytic and synthetic is a difference in degree and not in kind. One may expect that Lewis, as a defender of the traditional doctrine, would disagree with Quine on this matter. Again, however, a closer examination
suggests that this is not a matter about which one can afford to be too dogmatic.

I am thinking in particular of Lewis’s insistence in *Mind and the World Order* that there can be no knowledge at all unless there is some *a priori* knowledge. This was discussed in Chapter III. Underlying this principle is Lewis’s whole doctrine of the categories. Empirical knowledge is dependent on the categories; but for Lewis, knowing the categories and their relations means knowing a whole series of analytic truths. The categories are created by the mind and thus have a legislative character. The effect of this is that, for Lewis, every *a posteriori* truth and non-analytic statement presupposes, in some sense of that word, other *a priori* truths and analytic propositions.¹

It thus seems not unreasonable to attribute to Lewis the view that in every *a posteriori* truth there is an element of *a priori* truth; and in every synthetic proposition there is some element of the analytic. If this is a reasonable interpretation of Lewis’s position then it also seems reasonable to say

¹ See above §13.
that he ought not object to the view that the distinction between analytic and synthetic is a difference in degree, not in kind. It may be thought that this interpretation of Lewis only removes him further from Quine's position, despite that they may now agree on this particular issue. Here I have construed Lewis in such a way that for him there is an element of the a\textit{priori} and the analytic in the a\textit{posteriori} and synthetic. Consider the proposition "John is taller than Jim". This is a synthetic proposition whose truth is knowable a\textit{posteriori}; it is an empirical proposition. Before we can say that it is true, however, it is necessary to know what the proposition means. And this is why Lewis says that there is an element of the a\textit{priori} in every a\textit{posteriori} proposition. For Lewis, knowing what a word means involves a\textit{priori} knowledge.

For Quine, however, the position is somewhat reversed. He holds that there are no purely analytic propositions and no wholly a\textit{priori} truths. Because of his holistic view of language even the truths of logic and of mathematics are in\textit{principle} subject to the possibility of alteration or abandonment.
To this extent they share in a characteristic which is a hallmark of the *a posteriori* and the empirical.

But Lewis also has some passages which suggest this very same doctrine. Again I am thinking of *Mind and the World Order* and the extent to which the mind's freedom to legislate about the categories is limited by the need to conform the categories to the pattern of disjunctions and distinctions which are inherent in the given. This was discussed in §13. This doctrine, I think, reinforces my interpretation of Lewis as holding implicitly with Quine the view that the analytic-synthetic distinction is one of degree rather than of kind. There are dangers in focussing so much attention on the similarities between Quine and Lewis; we may lose sight of the important doctrines that divide them. Quine and Lewis view the whole philosophical enterprise from such different standpoints that it is difficult to make point for point comparisons. Here I have attempted to show that there is more common ground between them than is usually recognized. As the preceding discussion shows, however, even this common ground is arrived at by fundamentally different routes.
The passages which I have cited to support this interpretation all come from *Mind and the World Order*. Lest it be thought that Lewis's theory in *An Analysis of Knowledge and Valuation* differed substantially from his earlier theory I shall quote the following passage at length.

Definitions must express criteria of application, and analytic statements must limit the allowable modes of classifying and designating. We must define our terms conformably to our applications of them; and we must apply them conformably to our definitions. We can, so to say, start from either end of this relationship, but eventually the connection must be made ... If our definitive conventions and postulated linguistic relations are not bound by antecedent fact, at least they are resolutions binding on our further practice. Or, on the other hand, we can start from sense-recognizable characters, taken as essential for the application of terms and as constituting our criteria of classification. And then we shall find the allowable modes of definition and truly analytic relationships determined by the fact of the inclusion of one test of application by another; the entailment of one essential character by another, or the incompatibility of one sense-apprehensible character with another.¹

¹ *AKV.*, p. 146.
In this passage Lewis is not explicitly discussing the nature of the analytic-synthetic distinction; rather he is arguing against the conventionalist thesis. Nevertheless, I think that this argument reveals the same characteristic which we have been discussing. Definitions and analytic statements must be in conformity with what is given; and our empirical statements must also observe the definitions of their constituent terms. What Lewis is saying is that there must be some link - a bridge - between the analytic and the non-analytic statements in our language. Without such a link our definitions can have no bearing on the rest of our language. Indeed, it is at the very heart of Lewis's anti-conventionalist thesis that they commit the error of divesting all analytic truth of that element in virtue of which it makes sense to say they are true; they divest analytic propositions of their sense meaning entirely.

Closely related to Quine's contention that the analytic-synthetic distinction is one of degree and not of kind, is his thesis that there are no propositions which are immune from the possibility
of revision. Again, in *Mind and the World Order*, Lewis insisted that the necessity which belongs to the *a priori* must not be such that it excludes the possibility of alternatives. This is essential to what he calls the legislative character of the *a priori*; and this same doctrine appears in *An Analysis of Knowledge and Valuation*. Consider the following passage:

> Classifications and their criteria are determined pragmatically, not metaphysically, and even when such criteria have been fixed, there can be nothing which is not classifiable in more than one way. Also what is, for one such classification, essential, may not be essential for another. And there can be nothing in the nature of an object which determines the fundamentum divisionis by reference to which it shall be classified.¹

The categories are thus matters of legislation even in the later Lewis. This legislation is not without its restrictions; nor is it totally determined. If I am right in my interpretation of Lewis, it suggests that Quine and Lewis were, in some important respects, in agreement about the analytic-synthetic distinction. But this seems to be completely incompatible with other things which they say: Quine rejects the traditional accounts of the distinction; Lewis defends

¹ *AKV.*, p. 105.
the traditional accounts. In particular, Lewis thought that the definition of analytic propositions as those whose truth may be determined solely by reference to the meanings of the terms involved, could be made adequate.

In making this definition adequate, however, Lewis provided a whole theory of meaning; and in doing this I think he altered the significance of the definition. At least, if the traditional definition was intended to contrast analytic propositions with non-analytic propositions in such a way that no element of the one crept into the other, then I think Lewis altered its significance. When Lewis says that an analytic proposition is true in virtue of the meanings of its constituent terms, he is referring primarily to the sense meaning of those terms; and to this extent he builds a bridge between the "meanings of terms" and what others would call "empirical evidence".

§26 PAP, LEWIS AND SYNONYMY

In Semantics and Necessary Truth Arthur Pap advances a number of arguments against Lewis. These arguments share one conspicuously common feature; Pap's strategy is to show that some of the most
interesting and crucial doctrines in Lewis's theory are circular, and in such a way that they are trivial. First I shall consider what Pap has to say about Lewis's notion of synonymy.

There is always a danger in saying of someone like Pap that he has misunderstood or misinterpreted a thesis which he is criticizing. Nevertheless I am going to do just that; or even more seriously, I think that Pap states a doctrine as underlying Lewis's account of synonymy when that doctrine is one which Lewis categorically rejects.

Let us turn to the attempts made by Lewis and Carnap to provide adequate analyses of the concept of synonymy with the help of the concept of logical equivalence. Both Lewis and Carnap use the notion of intension as their basic instrument of analysis. There are, to be sure, differences in their use of this term. Thus Lewis defines the intension of a predicate explicitly as the class of predicates entailed by applications of the given predicate ... Carnap thus leaves the question open whether intensions are to be regarded as classes of logically equivalent expressions or as nonlinguistic designata; while Lewis treats intensions definitely as classes of Verbal expressions and uses a special term ("signification") for nonlinguistic designata. But in this context such differences are negligible and the similarity of their approaches is more important. "Intension" is defined (whether explicitly or in context) in
terms of logical equivalence, and thus indirectly "synonymy" is defined in terms of logical equivalence. I propose to show, now, that this procedure is fatally circular.¹

I shall not take up the issue of whether it is fair to say that the differences between Carnap's and Lewis's definitions of "intension" are negligible. My interest here is solely in the definition which Pap puts forward on Lewis's behalf. This statement of the definition seriously misrepresents Lewis; and I shall argue that Pap's subsequent criticism of Lewis's definition of synonymy would lose its effectiveness if he had presented Lewis's account of intension more accurately.

My particular objection is to Pap's claim that "Lewis defines the intension of a predicate explicitly as the class of predicates entailed by applications of the given predicate." Certainly, there is a marked similarity between this and the original definition which Lewis gives. Lewis's definition is as follows:

Formally considered, the intension of a term is to be identified with the conjunction of all other terms each of which must be applicable to anything to which the given term would be applicable.¹

If Lewis said no more than this we could not object to Pap's rendering of it. The only difference is that Lewis speaks of a conjunction of terms, whereas Pap speaks of a class of terms. But, as was discussed in §15, this is a crucial difference. Lewis made it quite clear that he did not intend the word "conjunction" to be construed as a class.

The point of specifying the intension of a term as the conjunction of all the other terms it connotes, is to make it clear that a connotation is not properly thought of as an aggregate or class of terms.²

I have already discussed Lewis's reasons for distinguishing between a conjunction and a class in this context.³ In the long run this distinction may not be viable; and I might be wrong in supposing that Lewis makes his case here. But it is, nevertheless, a distinction which Lewis proposes

¹ [AKV., p.39.]
² [AKV., p.44.]
³ See above, p.159f.
and which he regards as important. If Pap wishes to overthrow this distinction, that course is open to him; but not without argument. As it now stands Pap has simply ignored it, which is not good enough.

Before considering the effect of this discrepancy on Pap's subsequent argument let us reconsider briefly what Lewis meant by the intension of a term. Intension may be regarded in either of two ways - as linguistic meaning or as sense meaning. For Lewis, intension as sense meaning is, epistemologically, the more important. Intension, as sense meaning, is the criterion in mind by means of which we determine whether or not a term is applicable to a particular object.

Language is not language until it possesses fixed meaning, determining what expressions signify and require as essential for their application. The criteria of such applications are sense meanings; test-routines and requisite apprehensible results of these. Such criteria are, and by their function must be, capable of envisagement in advance of particular applications. And the relations between sense meanings, ascertainable by comparison of them as such criteria, and independently of particular empirical occasions, is the source of our analytic knowledge. Such knowledge, like the meanings it concerns, is essentially independent
of linguistic formulation, though the modes of linguistic expression are a frequent and more or less reliable clue to the relationships of meanings so expressed.¹

Sense meaning, taken as the criterion in mind for some term’s applicability, is not a class of verbal expressions. Nor is it, however, a property or properties residing in any object to which the term in question is applicable; that is what Lewis calls the signification of a term. "As criterion in mind, sense meaning is intensional meaning rather than signification: it is that in mind which refers to signification."² Bearing in mind this interpretation of "intension" let us now return to what Pap says about Lewis.

Let me begin with Lewis’s concept of "equivalence in analytic meaning". Sameness of intension is a necessary but insufficient condition for two expressions to be equivalent in analytic meaning. If they are both complex, then their corresponding constituents must have the same intension (an example used by Lewis is the pair of complex expressions "circular hole" and "round excision"). This conception helps Lewis, indeed, to clarify the sense in which terms of universal intension (like "round square") as

¹ AKV., p.167.
² AKV., p.133n.
well as terms of zero intension (like "square or not-square") fail to have the same meaning: they are usually built up with the help of descriptive terms in such a way that corresponding constituents are far from being logically equivalent. But what if one of the two logically equivalent expressions is elementary, as in "square = equilateral rectangle"?

Lewis's answer is that, if so, logical equivalence is also a sufficient condition for synonymy.

In this passage Pap uses four terms which call for particularly close examination: "equivalence in analytic meaning", "sameness of intension", "logical equivalence" and "synonymy". Two propositions are equivalent in analytic meaning if they are analytically comparable; and this latter notion was discussed at length in §18. Pap is correct in saying that, for Lewis, sameness of intension is a necessary but insufficient condition for analytic comparability. Two complex expressions will only be analytically comparable if their corresponding constituents also have the same intension. Up to this point I have no quarrel with the way Pap uses these terms. But, in discussing how the notion of

analytic comparability between two complex terms helps to explain how two such terms having zero intension (say, 'blue or not-blue' and 'either not a square or else a plane figure') may yet differ in meaning, Pap says that these terms are "built up with the help of descriptive terms in such a way that the corresponding constituents are far from being logically equivalent." In this context Pap is using "being logically equivalent" as interchangeable with "having the same intension".

It is significant, I think, that nowhere in Lewis's account of synonymy and analytic comparability do the terms "logically equivalent" or "logical equivalence" occur. In the final two sentences of the passage quoted, if we replace "logically equivalent" with "having the same intension", and if we replace "synonymy" with "analytic comparability" we get the following:

But what if one of the two expressions having the same intension is elementary, as in "square = equilateral rectangle"? Lewis's answer is that, if so, sameness of intension is also a sufficient condition for analytic comparability.
This question, and the answer, is in keeping with Lewis's way of discussing the problem. But Pap's statement of it further confirms my belief that Pap regards "logical equivalence" and "sameness of intension" as interchangeable; it also suggests that he regards "synonymy" and "analytic comparability" as interchangeable. I say this because Lewis does not differentiate, at least not directly, between complex and elementary terms with respect to their synonymy.

Two expressions are synonymous if and only if (1) they have the same intension and that intension is neither zero nor universal or (2) their intension being zero or universal, they are analytically comparable.¹

It simply is not the case that sameness of intension (or, what Pap calls "logical equivalence") is a sufficient condition for synonymy if one of the terms in question is elementary. If there are two terms, one of which is elementary, and they have the same intension, namely, zero intension or universal intension, then they would not meet the requirements for synonymy in Lewis's definition. Sameness of intension is only a sufficient condition

¹ AKV., p. 86.
for the synonymy of two terms whose intension is neither zero nor universal. In consequence of this my contention is that Pap is mistaken on one or other of the following grounds: either, he supposes that there is no difference between Lewis's notions of analytic comparability and synonymy or, he recognizes that there is a distinction but proceeds to state a doctrine about synonymy which is incompatible with what Lewis actually says.

It is not so easy to demonstrate that Pap is using "logical equivalence" incorrectly. Pap's discussion is exclusively related to An Analysis of Knowledge and Valuation; but, to my knowledge, Lewis does not discuss logical equivalence there at all. Hence it is not possible to cite any text which shows directly the error of Pap's usage. Nevertheless, I think there are good grounds for believing that Lewis would not be happy about identifying "logical equivalence" with "sameness of intension".

Logical equivalence is more commonly regarded as a relation between propositions than as a relation between terms generally. For Lewis, "the intension of a proposition comprises whatever the proposition
entails: and it includes nothing else." Here it must be said that Lewis is slightly inconsistent. Whereas he goes to considerable lengths to ensure that the intension of a term is not construed as a class of other terms, he fails to make this clear in the case of propositions. The definition just quoted suggests that the intension of a proposition is a class of propositions, namely, its entailments. But the original definition of the intension of a term was similarly misleading if one did not read Lewis's elaboration of that definition. He did not elaborate on the definition of the intension of a proposition in such a way as to make it explicit that sense meaning is the epistemologically important sense of intension. Nevertheless, I think that this is implicit in what he says.

First, I think this is so because propositions are a kind of term for Lewis, and the directives about not regarding intension as a class of terms apply to terms generally. All that Lewis says about the modes of meaning generally is applicable, mutatis mutandis,

1 AKV., p.55.
to propositions since they are a kind of term and therefore have meaning in all four modes. Second, he says that "all the deducible consequences of a proposition, taken together, exhibit the intension of it discursively."¹ This statement differentiates between the entailments of a proposition and that proposition's intension; the entailments exhibit the intension. It would be strange to say that a class of propositions exhibits itself. What the entailments exhibit is, I take it, the sense meaning of the proposition in question. As for any term, the sense meaning of a proposition is a schema; in the case of propositions it is a test routine by means of which we can determine whether or not the proposition in question is true.

Now, in this kind of context, there seem to be two likely ways in which Lewis would define logical equivalence. He could say that two propositions are logically equivalent if and only if they entail each other; or he could say that two propositions are logically equivalent if and only if they are such that every proposition entailed by one is entailed

¹ AKV., p. 56.
by the other also. The differences between these two need not concern us here. The important thing is that logical equivalence is in each case defined in terms of entailments and thus in terms of a class of propositions. On these grounds I think that it is confusing, to say the least, to identify logical equivalence with sameness of intension. Lewis contributes to this confusion by some lack of clarity in what he says about the intension of propositions. But Pap is in no position to pass the blame on to Lewis here. He failed to observe what Lewis made unambiguously clear about the intension of terms generally and this failure made it unlikely that he would interpret the intension of propositions correctly.

This long preamble about what Lewis said and what he did not say is not purely an exegetical exercise. My purpose is to show how Pap's criticism of Lewis is dependent upon his faulty exegesis. Let us consider Pap's criticism.

But what if one of the two logically equivalent expressions is elementary, as in "square = equilateral rectangle"? Lewis's answer is that, if so, logical
equivalence is also a sufficient condition for synonymy. Now the above is an explicative statement, and consistently with the conditions laid down for equivalence of analytic meaning, Lewis regards explicative statements as a species of analytic statements. It would seem to follow that in order to determine whether the explicative statement "a square is an equilateral rectangle" is true, we have to determine whether it expresses a logical equivalence, an analytic truth; for to say that it is a correct explication is to say that "square" is synonymous with "equilateral rectangle". Now, however, the vicious circle looms large. To show that "a square is an equilateral rectangle" is analytic, it must presumably be derived by substitution of descriptive terms from the principle of identity "(x)(P)(Px = PX)". Now, which definition is to lead to the substitution instance "a square is a square" if not the very definition "square = equilateral rectangle" which is to be proved as adequately equating identical meanings? To propose demonstration of logical equivalence as a test of synonymy is, therefore, to put the cart before the horse. 1

The burden of Pap's argument rests upon his claim that the analyticity of the explicative statement "A square is an equilateral rectangle"
must be derived by substitution of descriptive terms from the principle of identity. It is this principle which generates the vicious circle to which Pap is objecting; and without this principle (or some very closely related principle) Pap's criticism would not be justified.

Pap is correct in saying that "A square is a rectangle" is an explicative statement; and he is correct in saying that explicative statements are, for Lewis, a species of analytic statements. Now, derivability from definitions with the aid of principles of logic is a sufficient condition for the analyticity of a statement according to Lewis; and if the statement is of the form of an explicative statement then derivability from definitions with the aid of principles of logic would likewise be a sufficient condition for its analyticity. But, as was discussed in §21, this is not an acceptable definition of analyticity for Lewis; it is not acceptable because it is circular.¹ For Lewis, one of the necessary conditions for being a principle of logic is that the principle must express an analytic truth.

¹ See above pp. 271-72.
Now we must see exactly what it is that Pap is charging Lewis with. This task is made difficult by the exegetical inaccuracies which I have already indicated. The final sentence in the last passage quoted from Pap presumably represents one of the charges against Lewis.

To propose demonstration of logical equivalence as the test of synonymy, is, therefore, to put the cart before the horse.\(^1\)

If by "the test of synonymy" Pap means a definition, then there is an element of truth in what he says. But it no longer bears against Lewis. The closest that Lewis comes to defining synonymy this way is in his definition of synonymy for terms having neither zero nor universal intension; such terms are synonymous if and only if they have the same intension. Lewis would agree that such terms are also synonymous if and only if they are logically equivalent, but he would not accept this latter statement as a definition. Lewis would, I am sure, agree that such a definition would be circular; but when it is in terms of sameness of intension rather

than logical equivalence there is no circularity. At least, if there is circularity this would have to be demonstrated. If by intension, we mean sense meaning, then there is no need to know antecedently that two terms are synonymous in order to know that they have the same intension. According to Lewis this can be done by an experiment in the imagination by means of which we compare the criteria of applicability for the terms concerned. Whether Lewis's notion of intension as sense meaning is in the long run acceptable, or whether it can be made acceptable is an entirely different question. As was mentioned before, it is open to Pap, or any other critic to show that it is defective in some way. But he does not attempt that kind of criticism.

The defect in Pap's criticism is not only to be found in his last sentence. If we look again at the thesis which seems to me to be at the heart of Pap's argument we see that it fails in the same way. Pap says that to show that "a square is an equilateral rectangle" is analytic, it must presumably be derived
by substitution of descriptive forms from the principle of identity "(x)(P)(Px = Px)." As far as Lewis is concerned the only thing wrong with this is the use of the modal term "must". While the substitution of descriptive terms into the principle of identity will always result in analytic propositions, it is not the case that the analyticity of explicative statements must be derived this way. Again, according to Lewis, they may be derived by determining that the terms in question have the same sense meaning.

§27 THE ANALYTIC AND THE A PRIORI

Lewis regarded the thesis that all analytic propositions are true a priori as obvious and uncontroversial. He also asserted, however, that the converse is likewise true; that whatever is knowable a priori is analytic.¹ This is neither obvious nor uncontroversial. Let us consider his initial definitions.

Traditionally a statement which can be certified by reference exclusively to defined or definable meanings is called analytic; what is non-analytic being called synthetic. And traditionally

¹ AKV., p.35.
that knowledge whose correctness can be assured without reference to any particular experience of sense is called \textit{a priori}; that which requires to be determined by sense experience being called \textit{a posteriori}.\footnote{Loc. cit.}

Lewis found no reason to elaborate on the traditional definition of the \textit{a priori}; but he set as his task to elaborate on the traditional definition of \textit{analytic}. The main purpose of this elaboration was to be much more precise about the way in which meanings determine the analyticity of a proposition. The final result of this elaboration was that, for Lewis, a proposition is analytic if and only if it has zero intension. Thus Lewis's thesis that whatever is knowable \textit{a priori} is analytic, amounts to this: that knowledge whose correctness can be assured without reference to any particular experience of sense is such that it can be certified by reference exclusively to defined or definable meanings - by which Lewis meant that any proposition expressing what is thus known has zero intension.
I have taken some care in stating this thesis because it has been strongly criticized by Pap. Pap argues that Lewis's thesis is "either a tautology or else false, and that the appearance of significance arises merely from a covert equivocation." ¹ First let us consider the conditions which, according to Pap, give rise to a tautology. "Specifically", he says, "we have a tautology whenever the terms analytic and a priori are used synonymously".²

If "analytic" and "a priori" are defined in such a way that they are synonymous, then there would be no purpose in arguing further that all a priori truths are analytic. And Pap alleges that these terms are used synonymously. But there is a strange twist in Pap's argument at this point. He introduces a definition of the a priori as formulated by Ambrose and Lazerowitz:

A proposition is said to be true a priori if its truth can be ascertained by examination of the proposition alone or if it is deducible from propositions whose truth is so ascertained, and by examination of nothing else.³

² Loc.cit.
³ Ibid., p.95.
There is no attempt to show that this definition is equivalent to Lewis's definition. Indeed, in a footnote on the same page Pap elaborates on the differences between the two definitions. The differences are sufficient for him to prefer one rather than the other. Nevertheless, Pap's claim that the terms *a priori* and *analytic* are used synonymously, rests solely upon an argument which, if valid, shows only that Lewis's definition of analytic truth is synonymous with Ambrose and Lazerowitz's definition of *a priori* knowledge.  

Lewis's definition of the *a priori* does not, even on Pap's account, coincide with Ambrose and Lazerowitz's; thus Pap does not establish that Lewis's thesis is tautological. This particular criticism by Pap is thoroughly confusing and completely unfounded.

As a second alternative Pap claimed that when Lewis's thesis was not tautological, it was false. According to Pap this is so whenever Lewis uses the term "analytic" in the strict sense of being "certifiable by logic plus adequate definitions". Pap's argument is of the following kind: Lewis claims

---

that all _a priori_ truths are analytic; the proposition "Nothing is simultaneously blue and red all over" is an _a priori_ truth; but it is not analytic in the sense of being certifiable by logic plus adequate definitions. In other words Pap has provided a counter example.

To my knowledge Lewis did not discuss this particular example. Consequently my comments here are, of necessity, conjectures about the way Lewis would have responded. First let us consider whether the proposition "Nothing can be simultaneously red and green all over" is analytic on the basis of Lewis's theory. For this to be so its truth must be determinable solely by reference to the meanings of the terms. Meaning is here referred to in the mode of intension: the proposition will be analytic if it has zero intension.

How do we determine whether or not a proposition has zero intension? Briefly we do the following: we analyse the individual terms involved; we consider separately the criteria of applicability for each term; then we consider how the syntax of the particular sentence relates these criteria; finally we consider the sentence as a whole to see whether there could be any circumstances under which the
proposition would be false. If there are no such conditions, the proposition has zero intension and is analytic. Now the issue depends on what are the criteria of applicability for the terms "red" and "green".

It could be argued that these terms are simple terms - unanalyzable and indefinable. If this is so it could be further argued that there are no grounds available for declaring the terms to be mutually exclusive. In general I think this line of argument would be unacceptable to Lewis.

Let us recall what Lewis has to say about the given. Basically, what is given in any sense experience is a set of qualia, each individual quale being qualitatively distinct. There would be two such distinct qualia corresponding to the terms "red" and "green". If there were not two such distinct qualia, "red" and "green" would be synonymous and the proposition in question would be self-contradictory. Of course it does not follow from the fact that there are two distinct qualia that these cannot simultaneously be presented in the same experience. It is possible for a surface to be simultaneously red and rough all over.
In our interpretation of the given we classify certain qualia as being of the one kind. Colour is an example of this. In determining these classifications we establish certain principles which govern the individual members. Suppose that somebody says it is possible for an object to be simultaneously red and green all over. Lewis would almost certainly argue that such a person had misunderstood the concept of colour; he had not properly grasped the nature of the classification of these qualia. According to Lewis's theory it is always possible, in principle, to amend these classifications. But he also limits his freedom in this regard by the need to conform with the patterns that are discernable within the given itself. On these grounds there seems no doubt that Lewis would regard the proposition as analytic.

Why, then, does Pap suppose it is not analytic? Pap says it is not analytic if we take "analytic" in the strict sense of being "certifiable by logic plus adequate definitions". Lewis would consider Pap to be mistaken here. It may be that this is a case where we have some easier or more direct means of determining the truth of this statement. In this regard it may be like a theorem in geometry whose truth we are sure of
on inductive grounds though we have not yet developed a proof for it. Epistemologically or psychologically we may not depend on logic and definitions for our assurance of this proposition's truth. But Lewis will not accept Pap's assumption that there are some terms which are, in principle, indefinable. Such expressions would not count as terms for Lewis.

Pap's position is once again unsatisfactory. He relies on the assumption that "red" and "green" are indefinable. This is itself a claim which requires some justification which Pap does not attempt to offer. So long as this justification is lacking I see no reason for accepting Pap's criticism. Nevertheless, Lewis's own position leaves a great deal to be desired here. He claims that all a priori truths are analytic; but despite the detailed elaboration of his theory of analyticity, he does not have a specific argument to support his claim. There is a real possibility that Lewis's claim is not justified; but Pap has not shown this.
In his article on Quine in The Encyclopedia of Philosophy (ed. P. Edwards) Professor C.F. Presley suggests that Quine has now "apparently come to hold that there is nothing that would count as changing our logical laws" (p. 55). Presley based this conclusion on a passage in Word and Object Chap. II §13, where Quine says:

Consider the familiar remark that even the most audacious system builder is bound by the law of contradiction. How is he really bound? If he were to accept contradiction, he would so readjust his logical laws as to insure distinctions of some sort; for the classical laws yield all sentences as consequences of any contradiction. But then we would proceed to reconstrue his heroically novel logic as a non-contradictory logic, perhaps even as familiar logic, in perverse notation. (p. 59)

Prima facie, Presley had placed a reasonable interpretation on this passage. If it was a correct interpretation it would represent a radical departure on Quine's part from his views in Two Dogmas of Empiricism. Professor Passmore wrote to Quine on my behalf; the following extract is the substance of Quine's letter in reply.
We are familiar with formal systems unequal in strength, such that the one can be neither translated nor even reinterpreted into the other. The same inequality is imaginable between two natural languages, though in practice the tolerance of vagueness of translation prevents such inequalities from obtruding. At any rate, if we are to allow for such inequalities of strength, we do not want quite to say that every acceptable translation of another language reproduces all our logical laws. But we can still hold, compatibly even with such inequalities of strength, that no acceptable translation of another language contravenes any of our logical laws. This is a fair statement of my position. The references are pp.59f of Word and Object, as you say, and also several pages in "Carnap and logical truth" (pp.101f, 106, and 113 in The Ways of Paradox and Other Essays).

Still I hold that logic is revisable on a par with other sciences; see last references above. My doctrine is not that our logic is immutable. It is just that there is no significant distinction between (a) changing the logic and keeping the language and (b) keeping the logic and changing the language. This being the case, we always can, when engaged in translation, so choose our analytical hypotheses as not to contravene our logical laws. This being the case, we are well advised so to choose them; for any practical maxim that helps to narrow the indeterminacy of translation is a boon, and this maxim is especially helpful and natural. Its violation has the gratuitous effect, incidentally, of representing the natives as exotic beyond necessity. Such, and no more, is the force of the epithet "acceptable" in the 17th line of the preceding paragraph.
The letter itself poses problems of interpretation; I will not press this any further here. Quine makes it clear, however, that he still regards logic as being, in principle, revisable - even if there are good grounds for making such revision inadvisable.
BIBLIOGRAPHY A

(THE WORKS OF C.I. LEWIS)


<table>
<thead>
<tr>
<th>Year</th>
<th>Title</th>
<th>Source</th>
</tr>
</thead>
</table>
1923
"A Pragmatic Conception of the A Priori"
The Journal of Philosophy,
Vol.XX, pp.169-177.

1926
"The Pragmatic Element in Knowledge"
[Howison Lecture - 1926, reprinted by University of California Press and by University of Cambridge Press, 1926.]

1929
Mind and the World Order: Outline of a Theory of Knowledge
New York: Charles Scribner's Sons.

1930
"Pragmatism and Current Thought"
The Journal of Philosophy,
Vol.XXVII, pp.238-246.

1932
Symbolic Logic (with C.H. Langford)

"Alternative Systems of Logic"
The Monist,

1933
"Reply to Mr Ushenko"
The Monist,
Vol.XLIII, pp.292-293.
[This is a reply to "Note on Alternative Systems of Logic" by A. Ushenko, The Monist, Vol.XLIII, pp.290-291.]
1933
"Reply to Mr Ushenko's Addendum"
The Monist,
[This is a reply to "An Addendum to the Note", by A. Ushenko,
The Monist, Vol.XLIII, p.294.]

"Note Concerning Many-Valued Logical Systems"
The Journal of Philosophy,
Vol.XXX, p.364.

1934
"Experience and Meaning"
The Philosophical Review,
Vol.XLIII, pp.125-146.
[Reprinted in H. Feigl and W. Sellars, Readings in Philosophical Analysis,
New York: Appleton-Century-Crofts, 1949.]

"Paul Weiss on Alternative Logics"
The Philosophical Review,
Vol.XLIII, pp.70-74.

1936
"Emch's Calculus and Strict Implication"
The Journal of Symbolic Logic,
Vol.I, pp.77-86.

1939
"Meaning and Action"
The Journal of Philosophy,
[This is part of a Symposium of Reviews of John Dewey's Logic: The Theory of Inquiry.]
1941  "Some Logical Considerations Concerning the Mental"

1943  "The Modes of Meaning"

1946  An Analysis of Knowledge and Valuation

1948  "The Meaning of Liberty"

"Professor Chisholm and Empiricism"

1949  "Some Suggestions Concerning Metaphysics of Logic"
      Read before the Association for Symbolic Logic, Clark University, Worcester, Massachusetts.
1951  "Notes on the Logic of Intension"

1952  "The Given Element in Knowledge"

1953  "The Rational Imperatives"

1955  The Ground and Nature of Right
   New York: Columbia University Press.

1956  Our Social Inheritance
   Bloomington, Indiana: Indiana University Press.

Unpublished  "The Conceptual and the Material in Logic and Philosophy"
   Read to the Harvard Philosophy Club in 1948.

"Persuasive Definition and Scientific Theory"

[These two papers were made available from the Lewis Collection at Stanford University by Professor J.D. Goheen.]
BIBLIOGRAPHY

(WORKS REFERRED TO IN THE TEXT)
Ayer, A.J.  
*Language, Truth and Logic*  

Baylis, C.A.  
"Facts, Propositions, Exemplification and Truth"  

Bennett, Jonathon  
"Analytic-Synthetic"  

Black, M.  
*Language and Philosophy*,  

Donnellan, K.S.  
*C. I. Lewis and the Foundations of Necessary Truth*  

Edwards, Paul, (ed.)  
*The Encyclopedia of Philosophy*  

Feigl, H. and Maxwell, G. (eds.)  
*Minnesota Studies in the Philosophy of Science, Vol. III*  

Eves, H. and Newsom, C.V.  
*An Introduction to the Foundations and Fundamental Concepts of Mathematics*  
<table>
<thead>
<tr>
<th>Author</th>
<th>Title and Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kneale, W.</td>
<td>&quot;Are Necessary Truths True by Convention&quot;</td>
</tr>
<tr>
<td>Presley, C.F.</td>
<td>&quot;W.V.O. Quine&quot;</td>
</tr>
</tbody>
</table>
Putnam, H.       "The Analytic and the Synthetic"
                 Minnesota Studies in the
                 Philosophy of Science Vol.III,
                 1962.
                 [See H. Feigl and G. Maxwell.]

Quine, W.V.O.   "Two Dogmas of Empiricism"
                 From A Logical Point of View,
                 (New York: Harper and Row,
                 1963).

Thayer, H.S.    Meaning and Action: A Critical
                 History of Pragmatism
                 (New York: The Bobbs-Merrill

Tomas, V.       "Can we know the content of
                 C.I. Lewis's Mind?"
                 Philosophy and Phenomenological

Whitehead A.N.  and
Russell, B.      Principia Mathematica
                 (Cambridge: University

Woozley, A.D.   "Universals"
                 The Encyclopedia of Philosophy