Durham University

Durham E-Theses

An examination of the analytic/synthetic distinction with special reference to W.V.O. Quine

Bashier, Zakaria

How to cite:

Bashier, Zakaria (1969) *An examination of the analytic/synthetic distinction with special reference to W.V.O. Quine*, Durham theses, Durham University. Available at Durham E-Theses Online: http://etheses.dur.ac.uk/9880/

Use policy

The full-text may be used and/or reproduced, and given to third parties in any format or medium, without prior permission or charge, for personal research or study, educational, or not-for-profit purposes provided that:

- a full bibliographic reference is made to the original source
- a link is made to the metadata record in Durham E-Theses
- the full-text is not changed in any way

The full-text must not be sold in any format or medium without the formal permission of the copyright holders.

Please consult the full Durham E-Theses policy for further details.

Academic Support Office, The Palatine Centre, Durham University, Stockton Road, Durham, DH1 3LE
e-mail: e-theses.admin@durham.ac.uk Tel: +44 0191 334 6107
http://etheses.dur.ac.uk

Abstract of Thesis

An Examination of the Analytic/Synthetic Distinction with special reference to W.V.O. Quine.

The thesis takes a fresh look at the Analytic/Synthetic distinction and tries to assess the force of the attack launched against it by Quine, White, Waismann and others.

First a brief history of the distinction is given, which traces it to its origins in the writings of Leibniz and Kant. The use and scope of the distinction in contemporary analytic philosophy is explained and criticized, and the part played by Wittgenstein's Tractatus is examined.

Quine's views on the distinction are stated and discussed at some length. They are given a special attention; because they are seen to pose a profound challenge to the way in which the distinction is normally drawn and employed in modern philosophy.

The debate between Quine and his opponents over the distinction is stated and assessed, and the opinion put forward that Quine's main contentions are not refuted by their answer.

The related topic of the admissibility of intensional concepts is introduced. The disagreement of Quine with other philosophers concerning the nature of logical truth is considered. The opinions of Quine about the respective roles of experience and convention are contrasted with those of his opponents.

Quine's suggested 'canonical notation' as a replacement of intensional language is briefly stated and discussed.

The debatable character of some of Quine's contentions here does not crucially affect the essential part of his thesis about the graduation of analyticity.

The writer sympathizes with Quine. However, the issue is still very much an open one in spite of the fact that Quine's views are not favourably received by the majority of philosophers.

ZAKARIA BASHIER.

An Examination of the Analytic/Synthetic Distinction with Special Reference to W. V.O. Quine

by

ZAKARIA BASHIER (A. IMAM)

A Thesis presented for the Degree of M.Litt. in the University of Durham.

June 1969.

Dedicated to :

DR. PATRICK J. FITZPATRICK,

friend and Supervisor,
Lecturer in Philosophy,
University of Durham.

Acknowledgement

I am very grateful to my supervisor, Dr. P.J. Fitzpatrick, lecturer in Philosophy at the University of Durham for having read this thesis and for his detailed comments on it. His assistance in correcting linguistic mistakes was invaluable. I am also indebted to Professor C.K. Grant, Professor of Philosophy at the University of Durham, for having read a large part of this thesis, and kindly commented on it. Dr. D.G. Bretherton, late lecturer in Philosophy, University of Durham, did not live to witness the final stage of writing this thesis. Without her kind encouragement and assistance during the early period of preparation, this thesis could not have been written. I am also indebted to Mrs. A. Kilner for typing it.

However, the writer is solely responsible for any mistakes, philosophical or linguistic, that might still be there.

Durham City,
10th June, 1969.

ZAKARIA BASHIER

Contents

Contents (contin.)

An Examination of the Analytic/Synthetic Distinction

Chapter One
Historical Introduction

The analytic/synthetic distinction, of which so much has been written in recent philosophical literature since M. White, W.V. Quine, F. Waismann and others expressed their misgivings about it in the late forties and early fifties, has a long and established tradition behind it. The tradition may explain why attempts to discredit the distinction have been generally received in philosophical circles with disapproval and almost disappointment. Many philosophers simply ignored them and went on making use of the distinction quite undisturbed by the attacks on it.

The terms themselves 'analytic' and 'synthetic' are due to Kant (1724-1804), but an earlier form of the distinction is to be found in Leibniz (1646-1716). Leibniz did not use the terms 'analytic' and 'synthetic', and cannot be said to have drawn the distinction subsequently made by Kant. But he used the terms 'necessary' and 'contingent' to draw a different, but related distinction.

For Leibniz, the distinction between 'necessary' and 'contingent' divides all truths on the basis of how they are justified and vindicated. If when vindicating a truth we fall back on the principles of contradiction and identity, then our truth is necessary: for Leibniz, a necessary truth is one which is reducible to an identity and whose negation produces an express contradiction. On the other hand, if we fall back on the principle of sufficient reason, then the truth is contingent. According to Leibniz's principle of sufficient reason, a contingent truth possesses a good reason to be just as it is and not otherwise, but could nevertheless be otherwise. That is,

it could be negated without the risk of an explicit contradiction.

Leibniz writes in the Monadology[1] :

"31. Our reasonings are grounded upon two great principles, that of contradiction, in virtue of which we judge false that which is opposed or contradictory to the false;

32. And that of sufficient reason, in virtue of which we hold that there can be no fact real or existing, no statement true unless there be a sufficient reason, why it should be so and not otherwise, although these reasons usually cannot be known by us.

33. There are also two kinds of truths, those of reasoning, and those of fact. Truths of reasoning are necessary and their opposite is impossible: truths of fact are contingent and their opposite is possible. When a truth is necessary, its reason can be found by analysis resolving it into more simple ideas and truths, until we come to those which are primary.

35. In short, there are simple ideas of which no definition can be given; these are also axions and postulates, in a word, primary principles, which cannot be proved, and indeed have no need of proof; and these are identical propositions, whose opposite involves an express contradiction."

In the above passage Leibniz tells us nothing about (a) the way we come to know these two kinds of truths, and whether we are to identify his distinction between necessary and contingent with the distinction between the apriori and the empirical. (b) the content or subject matter which the two types of truths purport to assert.

---

1. I give section numbers; I have used Latta's translation, p. 235.

But the distinction is clear with respect to our methods of vindication or confirmation of the two types of truth.

Leibniz, to the best of my knowledge, does not make the distinction between apriori and a posteriori or empirical knowledge, which Kant makes later. But he more often speaks about innate ideas and contrasts them with ideas derived from the senses. In the New Essays, Leibniz explains innate ideas in the following way(1) :

"...The senses, although necessary for all our own actual knowledge, are not sufficient to give to us the whole of it, since the senses never give anything except examples, that is to say particular or individual truths. Now all the examples which confirm a general truth, however numerous they be, do not suffice to establish necessity of this same truth;...Whence it would seem that truths, such as are found in pure mathematics and especially in arithmetic and geometry, must have principles the proof of which does not depend on examples, nor, consequently, on the testimony of the senses, although without the senses we would never take it into our heads to think of them..., and consequently then proof can only come from internal principles which are called innate..."

For Leibniz it is these innate principles which make it possible for human reason to grasp necessary truths; and which distinguish humans from the brutes who are capable of empirical knowledge only. Of these innate ideas, Leibniz further says(2):

"I have always favored, as I do still the innate idea of God,... and consequently other innate ideas which cannot come to us from the senses,..that there are ideas and principles which do not come to us from the senses, and which we find in us without forming them, although senses give us occasion to become conscious of them."

---

1. I use Leibniz Selections. Ed. by Philip P. Wiener page 369.
2. Leibniz's Selections, pages 397,398.

Again Leibniz says of the idea of God,[1]
"..... but this idea itself does not cease to be in the depths of our souls, without being placed there, as we shall see, and the eternal laws of God are in part engraved thereon in a way still more legible, and by a sort of instinct...."

From these quotations, and especially due to his concession that his innate ideas still need the senses to be known, Leibniz's account of these innate ideas move rather close to Kant's apriori knowledge. Thus innate ideas in Leibniz could be understood as knowledge which is not derived from senses. Yet, we cannot completely identify Leibniz's innate principles with Kant's apriori knowledge. There is at least this much difference: Kant says that the concepts which we employ in our apriori reasoning are drawn or taken from experience[2], while Leibniz speaks of his innate ideas as engraved in the depth of our souls by a sort of instinct, that is they are there all the time, although we might not be conscious of them. The senses only help us to become conscious of them.

Innate ideas are not to be confused with necessary truths, rather it is these innate ideas which make the knowledge of necessary truths possible. Leibniz would, no doubt, count the principle of contradiction as one of those innate ideas, which everybody knows, although confusedly, and employs though unconsciously.

---

1. Selections, page 399.
2. But of course for Kant, once those concepts are given, the human reason,"without being moved merely by the idle desire for extent and variety of knowledge. proceeds impetuously, driven on by an inward need to questions such as cannot be answered by any empirical employment of reasons, or by principles thence derived." Critique, B21.

However, he does make a further distinction between types of necessities: (a) absolute necessity; (b) hypothetical or consequential necessity. He makes this it in order to show that his necessary/contingent distinction is valid not only with respect to limited human knowledge but with respect to God's knowledge as well. He writes in Discourse on Metaphysics[1] :

".we have said that the concept of an individual substance includes once and for all everything which can ever happen to it and that in considering this concept one will be able to see everything which can be derived from it. But does it not seem that in this way the difference between contingent and necessary truths will be destroyed, that there will be no place for human liberty, and that an absolute fatality will rule as well over all our actions as over all the rest of the events of the world? To this I reply that a distinction must be made between that which is certain and that which is necessary. Everyone grants that future contingencies are assured since God foresees them, but we do not say just because of that that they are necessary. But it will be objected, that if any conclusions can be deduced infallibly, from some definition or concept, it is necessary; and now since we have maintained that everything which is to happen to anyone is already virtually included in his nature or concept, as all the properties are contained in the definition of a circle, therefore, the difficulty still remains. In order to meet the objection completely, I say that the connection or sequence is of two kinds:

---

1. Leibniz Selections (ed. by Philip P. Wiener) page 305.

the one, absolutely necessary, whose contrary implies contradiction, occurs in the eternal verities like the truths of geometry; the other is necessary only ex hypothesi, and so to speak by accident, and in itself it is contingent since the contrary is not implied...."

By making this further distinction between absolute necessity and necessity ex hypothesi, Leibniz manages to preserve his necessary/contingent distinction even with regard to God's knowledge. Thus God will not sustain negations of necessary truths, because those would be express contradictions; and God, being all-knowing and perfect, cannot sustain contradictions. He also makes it quite clear that his distinction is supposed to be between ways or grounds of confirming or vindicating types of truth: if on indicating a truth we fall back on the principle of contradiction, it is necessary; while if in doing so we fall back on the principle of sufficient reason, it is contingent. This distinction is not made in terms of what the truth is about, because Leibniz believes that the concept of the subject includes all that can be asserted of it, irrespective of whether we are dealing with a necessary or contingent truth. The only difference is that man cannot infer all the properties which are implied in a given concept, while God can. Nor is the distinction made in terms of the ways we come to know or discover truths, for it is meant to hold with respect to God's knowledge as well. This knowledge is innate and ungained, and so offers no ground for a distinction between various ways of coming to know different types of truth.

How far does the principle of contradiction really serve Leibniz as a criterion or touchstone for his concept of necessary truth, taking this in the absolute sense ? In my opinion Pap has shown[1] quite con-

1. Semantics and Necessary Truth

clusively that Leibniz's criterion of necessary truth can be shown to be either Circular or insufficiently general. He considers the following example from propositional logic:

(1) $p \supset (p \vee q)$.....

Proposition (1) is necessary for Leibniz, since for him geometry, arithmetic and logic consist of such truths. So, according to his criterion for necessary truth, we should be able to show that an explicit contradiction is deducible from its negation. And this deduction must be effected without the help of any other necessary proposition, since it is the very characterization of necessary truths that we are seeking. Consider how we should in fact deduce such a contradiction from the negation of (1).

2	$\sim (p \supset (p \vee q))$	Negation of (1)
3	$\sim (\sim p \vee (p \vee q))$	From 2, by converting $\supset$ into $\vee$ and
4	$(p \cdot \sim (p \vee q))$	From 3 by De Morgan Laws and law of double negation elimination
5	$(P \cdot \sim p \cdot \sim q)$	From De Morgan laws and law of double negation elimination

(5) is an express contradiction; so (1), of which the negation led to (5), is a necessary truth. Yet we must notice that in order to arrive at the contradiction (5) we used the following equivalences :

(i) $\sim \sim P \equiv P$; Law of double negation

(ii) $(p \vee q) \equiv \sim (\sim P \cdot \sim q)$: De Morgan Laws

(iii) $(p \supset q) \equiv (\sim p \vee q)$: Law of converting into $\vee$

Pap says that if (1) is to be shown to be necessary in Leibniz's sense without circularity, then these equivalences must also be shown to be necessary in the same sense: that is, shown to be either definitional identities ('or' is defined in terms of 'not' and 'and'). But even

so we are assuming and making use of the law of double negation, a law which is not reducible to a definitional identity. Thus Leibniz's criterion for necessary truth can be saved from circularity only if we are allowed to use some premises which are not necessary in his sense. But now his criterion is too wide: an explicit contradiction can be deduced even from the denial of a contingent proposition if we are allowed to conjoin it with suitable contingent premises. So $(p \supset p \vee q)$, which is surely a good candidate for necessity, can only be shown to be so by this criterion at the risk of rendering the criteria itself too wide to be of any use. Whatever the defects of Leibniz's characterization of necessary truths may be, he has the credit or blame for being the first to draw the distinction in such terms, and subsequent philosophers have been influenced by him when drawing similar distinctions. Moreover Leibniz's distinction seems precise and clear if we compare it with analogous distinctions such as Locke's distinction between certain and probable knowledge, Hume's distinction between relations of ideas and matters of fact and even Kant's distinction between analytic and synthetic judgements, I point out two ways in which this precision and clarity can be discerned.

(1) The distinction is one between types of truths in terms of the ways in which we confirm or vindicate them; and it is meant to divide <u>all</u> truths into two naturally exclusive classes of necessary and contingent with respect to their modes of confirmation.

(2) The law of contradiction which Leibniz offers as a criterion for his characterization of necessary truth at least lacks the obscurity of the 'containment' criterion which Kant offers for the characterization of analytic judgements.

Kant draws his distinction between the analytic and the synthetic when he considers the possibility of a priori knowledge. He maintains that although all our knowledge begins with experience; yet there are for him certain kinds of knowledge which are a priori in the sense that they "leave the field of all possible experiences and have the appearance of extending the scope of our judgements beyond all limits of experience, and this by means of concepts to which no corresponding object can ever be given in experience. It is precisely by means of the latter modes of knowledge, in a realm beyond the world of the senses, where experience can yield neither guidance nor correction, that our reason carries on those enquiries which owing to their importance we consider to be far more excellent, and in their purpose far more lofty, than all that the understanding can learn in the field of appearance. Indeed we prefer to run every risk of error rather than desist from such urgent enquiries, on the ground of their dubious character, or from disdain and indifference. These unavoidable problems set by pure reason itself are God, freedom and immortality...."(1)

Having thus put the question of how this apriori knowledge is possible, Kant asserts that it is possible in the following way :-

1. First we form our concept from experience.
2. Once we have gained those concepts from experience the reason can proceed by conceptual analysis to discover apriori truths from those concepts.

Kant warns against the Platonist attempt to venture beyond the limits of experience into the empty space of pure understanding. Thus the Kantian apriori/empirical distinction is drawn within the limits and framework of

---

1. Numbers A3, B7

experience. Kant writes[1] : "The light dove cleaving the air in her free flight, and feeling its resistence, might imagine that its flight would be still easier in empty space. It was thus that Plato left the world of the senses, as setting too narrow limits to the understanding, and ventured out beyond it on the wings of the ideas, in the empty space of the pure understanding. He did not observe that with all his efforts he made no advance, meeting no resistence that might, as it were, serve as a support upon which he could take a stand, to which he could apply his powers, and so set his understanding in motion. It is, indeed, the common fate of human reason to complete its speculative structures[2] as speedily as may be, and only afterwards to enquire whether the foundations are reliable .... But what keeps us, during the actual building, free from all apprehension and suspicion, and flatters us with a seeming thoroughness, is this other circumstance, namely, that a great, perhaps the greatest, part of the business of our reason consists in analysis of the concepts which we already have of objects. This analysis supplies us with a considerable body of knowledge, which, while nothing but explanation or elucidation of what has already been thought in our concepts, though in a confused manner, is yet prized as being, at least as regards its form, new insight. But so far as the matter of content is concerned, there has been no extension of our previously possessed concepts, but only an analysis of them..."

In this and other passages, Kant keeps apart the two distinctions a priori/ a posteriori and analytic/ synthetic. The former is between ways we come to make

---

1. Numbers A5,B9,A6
2. By gaining their constituent concepts from experience.

judgements, while the latter is between the content of judgements. An immediate problem is how to reconcile the warning Kant gives here against the Platonist attempt to transcend all boundaries of experience, with the distinction drawn by him in a preceding passage between 'pure' or absolute a priori' which is absolutely independent of all experience, and 'a priori knowledge which is only independent of this or that particular experience. Kant makes this distinction in the following passage[1]:

"In what follows, therefore, we shall understand by a priori knowledge, not knowledge independent of this or that experience, but knowledge absolutely independent of all experience. Opposed to it is empirical knowledge, which is knowledge possible only a posteriori, that is, through experience. A priori modes of knowledge are entitled pure when there is no admixture of anything empirical. Thus, for instance the proposition, 'every alteration has its cause', while an a priori proposition is not a pure proposition, because alteration is a concept which can be derived only from experience." For Kant the type of knowledge exemplified by the alteration example, while apriori, is not pure, because its concepts can be derived only from experience. But so surely are <u>all</u> our concepts; they are all drawn from experience. Conceptual analysis, as Kant states in the quoted passage above though it supplies us with a considerable body of knowledge, is 'nothing but explanation or elucidation of what has already been thought in our concepts, though in a confused manner.

We shall see later how Quine defends the thesis that the distinction analytic/synthetic is gradual, not absolute. It is interesting to notice here resemblances[2]

---

1. Number B3.
2. There are also some verbal recurrences of Kantian terminology in Quine, e.g. our knowledge referred to as fabrications.

between the turns of argument in Quine and Kant. Here are two of them.

1) Quine speaks[1] of experiences as being the boundary condition of all possible knowledge indiscriminatingly. This is similar to the Kantian notion that experience sets the limits of all fruitful thought; and that beyond experience there is nothing but the emptiness of pure understanding in which human thought does not possess - to speak in terms of Kant's simile - the capability of motion due to the lack of frictional support.

2) Quine's most interesting theme is that there are degrees or grades of analyticity and a priority. We have seen that Kant distinguishes between at least two types of a priori knowledge: that is pure or absolute a priori knowledge, and impure and dependent a priori knowledge, according to their relationship with experience.

Kant draws the distinction between the analytic and the synthetic as a prelude to considering whether synthetic judgements a priori are possible. For Kant of course such judgements are possible. He writes in the Critique :[2]

"In all judgements in which the relation of a subject to a predicate is thought, this relation is possible in two ways. Either the predicate B belongs to the subject A as something which is (covertly) contained in this concept A, or B lies outside the concept A, although it does indeed stand in connection with it. In the one case I entitle the judgement ANALYTIC; in the other SYNTHETIC.

The former, as adding nothing through the predicate to the concept of the subject, but merely breaking it into those constituent concepts that have all along been

---

1. Two Dogmas"
2. Critique, numbers A7, B11

thought in it, although confusedly, can also be entitled explicative. The latter, on the other hand, adds to the concept of the subject a predicate which has not been in anywise thought in it, and which no analysis could possibly extract from it, and they may, therefore, be entitled ampliative.

If I say for instance, "All bodies are extended", this is an analytic judgement. For I do not require to go beyond the concept which I connect with body, in order to find extension as bound up with it. To meet with this predicate, I need merely to analyse this concept, that is to become conscious to myself of the manifold which I always think in that concept. The judgement is, therefore, analytic. But when I say "All bodies are heavy", the predicate is something quite different from anything that I think in the mere concept of body in general, and the addition of such a predicate therefore yields a synthetic judgement"

We can add another quotation(1)

..."That a body is extended is a proposition that holds apriori and is not empirical. For, before appealing to experience, I have already in the concept of body all conditions required for my judgements. I haveonly to extract from it, in accordance with the principle of contradiction, the required predicate, and in so doing can at the same time become conscious of the necessity of the judgement, and that is what experience could never have taught me...."

Let us consider the implications of these passages. 1) The division of judgements into analytic and synthetic seems to be meant to exhaust all judgements, and the latter are conceived as consisting of subject and predicate. Whether judgements of subject/predicate form

---

1. Critique, number B 12

are in fact the only type of judgements for Kant, is not clear from the passage quoted. But it is clear that for Kant existence is not a predicate, and so existential statements or judgements are not of subject/predicate form. We could do better to interpret the analytic/synthetic distinction as not covering all judgements, but only a subclass of them - a subclass always of the subject/predicate form.

2) Kant seems to hesitate between two criteria for analyticity, namely containment and contradiction. No doubt he took the second from Leibniz, whose work had influenced his own philosophical up-bringing. But there is an important difference : Leibniz used the principle of contradiction as the ultimate basis of his 'necessary truths'; Kant, on the other hand, confuses this criterion with the other criterion of containment and talks in terms of both criteria when his attention is in fact engaged by the analysis of the subject of judgement and in the endeavour to decide whether the predicate could or could not be extracted from the subject by such analysis. That is to say, Kant uses both criteria when concerned with the <u>subject-matter</u> of judgement, whereas Leibniz originally devised his criterion of contradiction with respect to the <u>basis of vindication</u> of necessary truth

3) In contrast with Leiniz, Kant's whole discussion of the distinction is couched in psychological language. We find in constant use such psychological phrases as 'being thought', 'concept of A', 'judgements', 'become conscious to myself', '... of the manifold which I always think in that concept'.

4) Kant's criterion of 'containment' is obscure. The word 'contain' is used metaphorically here and is hard to understand in any precise sense. In the examples he gives, Kant does not say just how and why he considers the concept of extension as contained in the concept

body whereas weight is not so contained, and the criterion which he gives for deciding whether, given a concept A, concepts B_1, B_2, B_3, ... are contained in A or not is psychological. Moreover, if the criterion of containment is meant to provide a decision-procedure for sorting out analytic judgements from synthetic ones, then it is possible to give examples where this criterion does not help at all, e.g.

(i) Antimony is a metal

(ii) A whale is a fish,

if the concept metal is considered to be contained in the concept of antimony; and the concept fish in that of whale, then both are indeed analytic, and otherwise are synthetic. But it is not easy to see how we are to decide the point.

5) Kant's distinction cannot apply to judgements which assert existence, because existence is not a predicate, and the distinction is designed to apply to judgements of subject/predicate forms. The distinction cannot apply to a relational statement, e.g. 2 + 2 = 4, because these statements do not consist of subjects and predicates. However, 2 + 2 = 4 would be an example of a synthetic a priori judgement for Kant, because according to him the concept 4 is not included in the concept of the sum of 2 + 2. But it is difficult to see how this would fit into his analysis in terms of subject and predicate. These points are sufficient, I think, to show that Kant's characterization of analyticity is not wholly satisfactory. He neither succeeds in defining the notion precisely, nor manages to give it an unambiguous application.

There is still a great deal of controversy and disagreement among philosophers about the definition and applicability of the concept of analyticity. Views on this notion range from the one extreme where it claimed that the notion cannot even in principle be precisely

defined, to the other extreme which claims that the distinction is perfectly clear and undoubtedly valid; and there is a whole spectrum of opinions between. White, Quine, Waisman, Tarski, Goodman and others represent the first extreme; and Grice, Strawson, Ayer, Carnap and others represent the second. It is the second type of opinion that is, by and large, dominant within the Anglo-Saxon tradition of philosophy in Britain, the United States and elsewhere. As I said, the analytic/synthetic distinction has a long tradition behind it; and the views of the second group are more or less a continuation of that tradition. The views of Quine and his 'fellow revolutionaries', as they have been termed(1), constitute a break with that tradition and a reaction against the over-working of the distinction in some modern analytic philosophy and in some writings concerned with philosophy of science. The views of Quine who leads the most vigorous and sustained attack on the distinction, can be seen as a reaction to those of the neo positivists - especially Carnap - who insist on drawing a sharp and absolute distinction between sentences or statements with respect to their analyticity or syntheticity.

The reader might have noticed that in the previous pages and up to now, I have not been explicit with respect to a very important point: and that is what is it exactly that the correlated terms 'analytic' and 'synthetic' mark a distinction between ? We have seen : (a) that Leibniz used his correlated terms 'necessary' and'contingent' to mark, not so much a distinction between kinds of truths as between ways or modes of justifying or vindicating types of truths; (b) Kant distinguishes between kinds of judgements with respect to their subject-matter (c) Ayer and

1. White used the phrase to refer to the group of philosophers, including Quine, who shares his views on the analytic/synthetic distinction. See his paper, The Analytic and the Synthetic : an Untenable Dualism.

others speak about statements as analytic or synthetic with respect to their ways of confirmation.

But (d) for Strawson the distinction should be construed as applying to statements and not to sentences and (e) for Quine the distinction is one between sentences.

Perhaps much of the confusion about the question of the analytic/synthetic distinction is due to the fact that the point about what the distinction is supposed to be between, has not, to the best of my knowledge, been brought up clearly and explicitly: is it a distinction between (a) truths (i) ways of coming to know them (ii) ways of vindicating them (iii) what they are about (b) statements[1] (i) ways of confirming them (ii) their subject-matter (ii) ways of coming to know what they are about.

(c) sentences (i) ways of confirming them (ii) their subject-matter (iii) ways of coming to know what they are about.

(d) propositions (i) ways of confirming them (ii) their subject-matter (iii) ways of coming to know what they are about.

(e) judgements (i) ways of confirming them (ii) their subject-matter (iii) ways of coming to know what they are about.

Before I give my opinion on the point it would perhaps be relevant to say a word of explanation concerning the meanings of the terms 'sentence','statement' and proposition, how they are related to one another and to the concept of truth. The definition of the concept of truth itself is by no means an easy task. But let us say in vague terms that the truth of a sentence, a statement, a proposition or a judgement is some that has nothing to do with

1. In Strawson's sense which comprises a sentence and its sense and its context of utterence. See his Introduction to Logical Theory. Chapter One.

whatever extralinguistic and objective things that those terms denote or nonnote.

Strawson[1] considers the distinction between sentences and statements in the following way : First of all he distinguishes between (a) sentence (b) its utterence (c) the context of its utterence or the use to which the sentence is put. For instance, consider Strawson's examples,

(a) (i) 'I am under six feet tall'
(ii) 'I am over six feet tall'
(b) (i) 'The conductor is married'
(ii) 'The conductor is a bachelor'

Strawson regards these two pairs of examples as constituting instances of 'sentences'; in a sense of the term which, it seems to me, excludes (a) the whole or net meaning or sense of the sequence of words which constitute it. (b) the utterence of them (c) the context in which they are put. Thus in this sense, the sentence is reduced to no more than a mere sequence or series of words. How it is possible to identify sentences in this sense, Strawson does not consider. He says that if these two pairs of sentences were written on a blackboard, then it would not be appropriate to say that they are inconsistant, or even that they are true or false. Terms of logical appraisal are not to be applied to sentences in his sense of the word. They are applicable to statements only. What does Strawson mean by a statement ? He means by it (a) a sentence in a narrow syntactical sense (b) with a certain meaning (c) uttered in a certain context (d) by a certain person. He writes[2]

..".(a) when we use these words of logical appraisal, what is it exactly that we are appraising? and (b) how

---

1. Introduction to Logical Theory, page 3.
2. Introduction to Logical Theory, page 3.

how does logical appraisal become possible? That is, we shall ask: What is it exactly that we declare to be inconsistent? and: what makes inconsistency possible? I have spoken of statements as being inconsistent with each other; and there is a temptation to think that in this context we mean by a statement the same thing as a sentence. But suppose I write on the blackboard the following two sentences : (i) 'I am under six feet tall' and 'I am over six feet tall'; (ii) 'The conductor is a bachelor' and 'The conductor is married'. In writing the sentences on the blackboard, I have, of course, not contradicted myself; for I may have written them there with a purely illustrative intention in giving an English lesson. Someone might say : Nevertheless, the sentences in each pair are inconsistent with each other. But what would this mean? Would it mean that if they were ever uttered with the intention of making a statement, an inconsistency would result? But suppose the first two sentences were uttered by different people, or by the same person at an interval of years; and that the second time sentences were uttered in different omnibuses, or in the same omnibus, but on different days. Then there would be no indonsistency..."

True, if Strawson or anybody else just wrote these two pairs of sentences without uttering, pondering or otherwise maintaining them, then he would not be held to have contradicted himself. But it is equally true that there is a sense in which these two pairs of sentences might nevertheless, be said to be inconsistent with each other, namely if we so define a sentence as a group of words which convey a full or complete meaning[1] to the reader if only written and to the hearer if only uttered.

1. What I mean by full or complete meaning here is that for instance if we say that "That man.." and stop, we invite the further question 'What about him'; but if we complete; "That man is a philosopher" then the sentence conveys a full meaning.

If I enter a classroom and find these two pairs of sentences written on its blackboard, it is most probable that I will think to myself that these two examples are written as a demonstration of inconsistency. Strawson continues in the same page :

"... Earlier, I paraphrased 'seeing that two statements are inconsistent' as 'seeing that they cannot both be true together'. And it is clear that that of which we can say that it is true or false is also that of which we can say that it is consistent or inconsistent with another of its kind. What these examples show is that we cannot identify that which is true or false (the statement) with the sentence used in making it; for the same sentence may be used to make quite different statements, some of them true and some of them false. And this does not arise from any ambiguity in the sentence. The sentence may have a single meaning which is precisely what, as in these cases, allows it to be used to make quite different statements. So it will not do to identify the statement either with the sentence or with the meaning of the sentence. A particular statement is identified, not only by reference to the words used, but also by reference to the circumstances in which they are used, and, sometimes, to the identity of the person using them..."

In the passages quoted above, Strawson doesnot find it feasible to consider words of logical appraisal like 'consistent', 'true', 'inconsistent' and so on as predicable of sentences, because apparently he does not consider the meaning which a sentence may happen to express to contribute towards counting it as a sentence in the first place. In my opinion, a sentence should be defined as a group of words (which at least includes a subject and a verb) which convey a complete meaning. It is only by such definitions that we can differentiate a sentence from a mere group of words, a phrase or a clause. But on the

other hand if we define a sentence as a group of words consisting of at least a subject and a verb and convey a complete meaning to a reader who may use his eyes to read them or use some other tangible methods such as those which are employed by the blind or to a hearer if they are uttered, then it is quite tenable to describe Strawson's two pairs of sentences as inconsistent, and that each pair consists of a truth and a falsehood, that is if one sentence of a pair is true, the other is false. Thus in this way it is possible to attach words of logical appraisal to sentence and predicate truth or falsity of them. If it is possible to predicate truth and falsity of sentences, then it goes without saying that they are predicated of statements in Strawson's sense, that is a statement is a sentence uttered by a person in a particular context which includes the place and time of utterence. Thus if a sentence is a group of words endowed with significance then a statement is a sentence uttered by a person in a certain place at a particular time.

If truth is predicable of sentences and statements, what about propositions and judgements ? Is it predicable of these as well ? Before we can answer this question, we need to investigate the further questions : What are propositions ? What are judgements ? These are notoriously complicated questions; but perhaps we do not need to go into them for our present enquiry. We can avoid discussing the nature of propositions, by saying they are whatever stands for that quality which two sentences either of the samelanguage or of two different languages which display 'likeness of meaning', or 'sameness of meaning' or 'identity of meaning'. These last three expressions are all, without exception, very difficult notions; so they can hardly be said to characterize 'proposition'; but it is hoped that they will give some idea of what we are talking about when we use the word.

In this perspective, propositions[1] then have something to do with the meaning of sentence; so whatever may be the definition of a proposition, the notion of meaning is basic to it, it is a complete meaning that constitutes a definite thought or a definite judgement, and thus it is possible to predicate truth of them.

As for judgements and beliefs, it is quite a common practice to predicate truth of them. After all it is very difficult to encounter truths as objects in outside reality. For Russell[2], a world of pure matter does not contain truths or falsehoods. Truth is essentially a relation between a mind (subject) and a complex of objects severally thus 'Desdemona loves Othello' is true, because there is a fact which corresponds to it, namely that Desdemona loves Othello. A similar account can be given for the relationship between believing and truth. Whatever be thought of Russell's Correspondence Theory of truth for which the example was devised, we can say that truth is predicated of beliefs and judgements.

Now, if it is correct that truth is in fact predicable of sentences, statements, propositions, judgements and beliefs, then it is far better if we consider the analytic/synthetic distinction as one which initially and primarily holds between types of truths; and holds of sentences, statements, propositions judgements and beliefs only in a secondary or derivative sense. It doesnot really matter whether we speak of the analytic/synthetic distinction as one between sentences, statements, propositions or judgements.

I said earlier that a truth as such is a truth as

---

1. What a proposition is, is quite difficult to answer, and we could fare better if we managed to find a means of avoiding this.
2. The Problems of Philosophy, Chapter XII.

such and cannot be sorted into classes. But it can be sorted into classes with respect to one of the three points, namely :

(i) ways of coming to know or discover,
(ii) ways of vindicating them,
(iii) what they are about or their subject-matter.

We have seen that for Leibniz, the distinction between the necessary and the contingent is contrued to be one between ways of vindicating types of truths; if on vindicating a truth we fall back on the principle of contradiction, the truth is necessary, but if we fall back on the principle of sufficient reason, then it is contingent. But we have seen also that for Kant the distinction between the analytic and the synthetic is one between what judgements are about or what is their subject-matter.

However, in more recent philosophical literature,e.g. in Carnap and Ayer and even Quine, the three terms 'necessary', 'analytic' and 'a priori' are seen as more or less co-extensive, and sometimes identical. These recent philosophers construe the distinctions between the necessary and the contingent, the a priori and the empirical, and the analytic and the synthetic, as holding primarily between ways of confirming kinds of truths and secondarily or derivatively between ways of confirming statements. I myself do not see the three distinctions as co-extensive or identical, and of the three distinctions I prefer the a priori/empirical one as has been drawn by Kant. In my opinion, Quine's thesis is not so much that there are degrees or graduations of analyticity, as it is that there are degrees of a priority or independence from experience, in the sense that experience, even in principle, cannot refute it.

After this inevitably very brief and over-simplified consideration of the distinction between the analytic and synthetic in Kant, I must now consider how the distinction

is construed in recent analytic philosophy. I shall consider, very briefly, how the distinction is made by Schlick, Pap, Russell, Ayer and Wittgenstein. Carnap's views, which are very similar to those of Schlick and Ayer, though different in terminology, will be considered in the fourth chapter. In connection with this distinction, as is no doubt the case with many other issues in the so-called linguistic philosophy, Wittgenstein stands out as a father figure. He does not use the Kantian terminology of "analytic" and "synthetic", but invents the important concept of tautology and uses it to give his own version of the Kantian distinction. In Wittgenstein, tautologous propositions are contrasted with propositions about 'what is the case'. It will be seen later that Quine and his colleagues are more or less reacting to the way in which these recent philosophers, especially the neopositivist group of Ayer and Carnap, draw the Kantian distinction.

In recent analytic and linguistic philosophy, two versions[1] of the Kantian analytic/synthetic distinction have gained wide acceptance. They are due to Schlick and Pap.

Schlick draws his version of the distinction from Kant. He interprets Kant's phrase, 'the predicate is contained in the subject' as saying that the predicate is part of the definition of the subject in an analytic judgement. Schlick writes[2] "A judgement is analytic if the ground for its truth lies solely in the definitions of the terms which occur in it. Consequently, one may

---

1. Waismann discusses the views of Schlick, Pap and others in his series of papers entitled 'Analytic/Synthetic in Analysis in the early fifties. Waismann expresses his dissent from them all.
2. I take the quotation from Waismann: 'Analytic/Synthetic I' Analysis, 1950. Waismann is translating from Schlick's Allgemaine Erkenntuislchre.

say with Kant that analytic judgements rest upon the law of contradiction, they derive from definitions by means of this law". Obviously, what Schlick wants to say is that a judgement is analytic if it follows from definitions by means of logical inference only.

However, Schlick is more explicit on this view of analyticity on the following passage:(1)

"..In the case of analytic statements it is well known that the question of their validity constitutes no problem. They hold a priori; one cannot and should not try to look to experience for proof of their correctness for they say nothing whatever about objects of experience. For this reason only"formal truth" pertains to them, i.e., they are not "true" because they correctly express some fact. What makes them true is just their being correctly constructed, i.e.their standing in agreement with out arbitrary established definitions".

What Schlick means by 'our arbitrary established definitions in the above passage is some kind of conventional linguistic rules which, he suggests govern our word usage. Nothing more is needed for the apprehension of analytic statements than the understanding of their meanings.If one does not readily see the analyticity of an analytic statement, this should be attributed to one's lack of grasping the real meaning of that sentence. Schlick writes :(2)

"...One may not suppose that I could comprehend a statement as such and still be in doubt concerning its analytic character. For if it is analytic I have understood it only when I have understood it as analytic. To understand means nothing else, that is, than to be clear about the rules governing the use of the words in question; but it is precisely these rules of usage that make statements analytic. If I do not know whether a complex of

---

1. 'The Foundation of Knowledge' by Schlick in Logical Positivism ed. by Ayer, page 223.

2. 'The Foundation of Knowledge' page 224.

words constitutes an analytic statement or not, this simply means that at that moment I lack the rules of usage...."

The question of the nature of analytic truth is discussed in the fourth chapter. There Quine attacks the linguistic and conventionalistic conception of analyticity as advocated by Schlick, Carnap and Ayer; so I am not going to discuss Schlick's views on the subject here.

Pap, on the other hand, gives this account[1]:

"... It is widely held that if a statement is indubitably true or "necessary", its truth can be established by semantic analysis; but such a statement is said to convey only information about the use of language and not about empirical existence. The "necessary" statements referred to are, of course, the familiar analytic statements, such as the statement "all spinsters are unmarried". .....Analytic statements, then, have no existential imports and may be roughly characterized as statements whose truth follows from the very meaning of their terms". Pap's account bears a great similarity to that of Frege; and it could very well be that Pap has been influenced by Frege in this respect.

In The Foundation of Arithmetic[2], Frege says that the enquiries which have been called for by the need vigour in mathematics and logic, have been partly prompted by the search for answers to questions raised about the nature of arithmetical truths; are they a priori or a posteriori ? analytic or synthetic ? Frege goes on to make the important distinction between the content of a judgement and its justification. He writes :

---

1. 'Indubitable Existential Statements' Mind 1946.
2. J.L. Austin's Translation.

"These distinctions between apriori and a posteriori, analytic and synthetic concern, as I see it, not the content of the judgement, but the justification for making the judgement. Where there is no such justification, the possibility of drawing the distinctions vanishes. When we say of a proposition that it is a priori; this is not a judgement about the content of the proposition. Rather it is a judgement about the ultimate ground upon which rests the justification for holding it to be true. The problem becomes in fact that of finding the proof of the proposition, and of following it up back to the primitive truths. If in carrying out this process, we come only on general logical laws and on definitions, then the truth is an analytic one, bearing in mind that we must take account also of all propositions upon which the admissibility of any of the definitions depends. If, however, it is impossible to give the proof without making use of truths which are not of a general logical nature; but belong to the sphere of some special science then the proposition is a synthetic one."(1)

By drawing the distinction in terms of how we justify judgements rather than in terms of what their subject matter is, Frege moves closer to the Leibnizian distinction between necessary and contingent truths, and away from Kant, even though his terminology is still Kantian. Moreover, what he says is hardly comparible with the Kantian distinction, as he denies the possiblity of drawing the distinctions in terms of the content of the judgements.

Russell's way of drawing the analytic/synthetic distinction is rather similar to Kant's. Russell says(2) that if we say (i) 'A bald poet is a poet', (ii) 'A bald man is a man', (iii)'A plane figure is a figure', we make purely analytic judgements: "the subject spoken about is

1. The Foundation, page 3e.
2. The Problems, page 82.

having at least two properties of which one is singled out to be asserted of it. Such propositions as the above are trivial, and would never be eneunciated in real life except by an orator preparing the way for a piece of sophistry. They are called 'analytic' because the predicate is obtained by merely analysing the subject".

As a matter of fact, Russell gives the above account of analyticity as a mere restatement of Kant's account of the notion. His terminology is Kantian-he speaks of 'judgements', the 'analysis of their content', and of the criterion of containment, and also-in another paragraph-he refers to the principle of contradiction as a criterion of analyticity. He thus reproduces all the essential features of the Kantian account, yet I do not think that his interpretation is completely congruent with Kant's words or intentions. To begin with, I do not think Kant would agree that analytic judgements are trivial, or at least in the way Russell's examples suggest. Kant did indeed say of analytic judgements that their predicates add nothing through the predicate to the concept of the subject. Yet, as his example of 'all bodies are extended' seems to suggest, he regards these analytic judgements as playing an important explicative function. Although in this example it is true that the concept of extension is contained in the concept of body, yet we need to carry out a process of analysis in order to become conscious to ourselves of the fact. Secondly, whereas Russell gives examples in which the subject consists essentially of two concepts A and B, one of which is asserted or predicated of the compound subject, Kant invariably speaks of the subject as consisting of one concept, say C, of which another concept, say D, is asserted or predicated. In order to classify a judgement as analytic by Kant, D must be contained in C. In other words while for Russell 'All AB are A' is the pattern, for Kant it is 'All X is Y '.

Again, when Russell says that, e.g.

$AB > A$ (1)

is trivial, he surely does not wish to suggest that all truths of pure mathematics and logic are trivial; because all such truths seem to exhibit a similar type of triviality. Consider the commutative law $A + B = B + A$, or the associative law $(A + B) + C = A + (B + C)$; or consider some primitive axioms and theorems of pure geometry, like the formal definitions of 'point', 'straight line', 'plane', or 'a point between two points'. Do we not find ourselves confronted in such contexts with the same kind of platitude and triviality ?

Russell might have wanted to say, following Kant, that the information we gather from the predicate of analytic judgements is unimportant or redundant. But how can he then account for the fact that pure mathematics and logic are interesting, informative, and in countless instances even surprising and delightful? Yet it is out of such primitive notions such as 'containment', which go on to make example (1) that the whole edifice of pure mathematics and logic is composed. When Russell says analytic judgements are not met with in "real life except by an orator preparing the way for a piece of sophistry", he could either mean that mathematical relations are not part of real life or that, although real, they do not deserve any serious consideration; and whichever of these two possibilities he maintains is untenable, and surely alien to Russell's own beliefs.

Rather more important for Russell is the a priori/empirical distinction.He makes it quite clear that he regards this as a distinction between different ways of justifying judgements.If in confirming a judgement we do not have recourse to experience,the judgement is apriori;but if we do have such recourse, then the judgement is empirical.

Like Kant, Russell maintains that there is no apriori knowledge which transcends all limits of experience: He writes[1]:

"On the other hand, even that part of our knowledge which is logically independent of experience (in the sense that experience cannot prove it) is yet elicited and caused by experience. It is on occasion of particular experience that we become aware of the general laws which their connexions, exemplify. It would certainly be absurd to suppose that there are innate principles in the sense that babies are born with a knowledge of everything which men know and which cannot be deduced from what is experienced..... The phrase 'a priori' is less objectionable, and is more usual in modern writers. Thus, while admitting that all knowledge is elicited and caused by experience, we shall nevertheless hold that some knowledge is a priori, in the sense that the experience which makes us think of it does not suffice to prove it, but merely so directs our attention that we see its truth without requiring any proof from experience".

Then Russell distinguishes clearly between the analytic/synthetic and a priori/empirical distinctions in the above passages; and he distinguishes between these distinctions and the further distinction between necessary propositions. By contrast, Schlick, Carnap and Ayer identify the three distinctions. For them all apriori and necessary knowledge is analytic; and for all non-analytic knowledge they normally use the term empirical. According to their principle of confirmation[2], a statement is meaningful if and only if it is either analytic or empirically confirmable. The latter criterion means that some observation statements are entailed by the statement either in its own right or in

---

1. The Problems, page 74.
2. I prefer to use the word 'confirm' rather than the word 'verify' because the latter is a stranger word implying conclusive confirmation.

conjunction with other observation statements. Ayer amends his principle of verification in the introduction of the second edition of his Language, Truth and Logic to read in the following manner, in order to meet various objections against his previous formulation of the principle; He writes[1] :-

".....I propose to say that a statement is directly verifiable if it is either itself an observation-statement, or is such that in conjunction with one or more observation-statements it entails at least one observation-statement which is not deducible from these other premises alone, and I propose to say that a statement is indirectly verifiable if it satisfies the following conditions: first, that in conjunction with certain other premises it entails one or more directly verifiable statements which are not deducible from these otherpremises alone, and secondly, that these other premises do not include any statement that is not either analytic, or directly verifiable, or capable of being independently established as indirectly verifiable. And I can now reformulate the principle of verification as requiring of a literally meaningful statement, which is not analytic, that it should be either directly or indirectly verifiable, in the foregoing sense."

In another passage, Ayer makes the identification of these three distinctions even more explicit: he writes,

"In saying that the certainty of apriori propositions depends upon the fact that they are tautologies, I use the word 'tautology' in such a way that a proposition can be said to be a tautology if it is analytic; and I hold that a proposition is analytic if it is true solely in virtue of the meaning of its constituent symbols, and cannot therefore be either confirmed or refuted by any fact of experience."

---

1. Language, page 13.

In the next page, Ayer identifies 'apriori' and 'analytic' with 'necessary'. He writes :

"Just as it is a mistake to identify apriori 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 are distinguished also by being necessary, whereas linguistic rules are arbitrary."

But a more important feature of the neopositivist's concept of analyticity, especially that associated with Carnap and Ayer is their reduction of it to linguistic convention. Ayer writes(1):

"... The principles of logic and mathematics are true universally simply because we never allow them to be anything else... And the reason for this is that we cannot abandon them without contradicting ourselves, without sinning against the rules which govern the use of language..."

This linguistic conventionalism doctrine of analyticity is even more crude and explicit in Carnap's so-called principle of tolerance: "In logic there are no morals. Everybody is at liberty to build up his own logic"(2)

Nowadays some versions of this linguistic conception of analyticity command a great deal of popularity within the Anglo-Saxon tradition of philosophy in Britain, the States and in various English-speaking countries.

There is no doubt that Wittgenstein's early views as shown in his Tractatus Logico-Philosophicus, have been a notable starting point for this tradition of philosophy. But it is not easy to determine whether the linguistic-conventionalistic thesis of analyticity as developed by Carnap and Ayer could in fact be regarded

---

1. Language, Chapter 4, page 77.
2. The Logical Syntax of Language, 17.

as originating from the Tractatus. One thing, however, is quite certain : the concept of tautology, which is a criterion of analyticity for almost all those who regard the analytic/synthetic distinction as clear and valid, taken from Wittgenstein's Tractatus. Russell, for instance, admits freely that the concept of 'tautology' is due to Wittgenstein. He wrote in 1919 :(1)

"It is clear that the definition of 'logic' or 'mathematics' must be sought by trying to give a new definition of the old notion of "analytic" propositions. Although we can no longer be satisfied to define logical propositions as those that follow from the law of contradiction, we can and must still admit that they are a wholly different class of propositions from those that we come to know empirically. They all have the characteristic which, a moment ago, we agreed to call "tautology". This, combined with the fact that they can be expressed wholly in terms of variables and logical constants (a logical constant being something which remains constant in a proposition even when all its constituents are changed)-will give the definition of logic or pure mathematics. For the moment, I do not know how to define "Tautology". It would be easy to offer a definition which might seem satisfactory for a while; but I know of none that I feel to be satisfactory, in spite of feeling thoroughly familiar with the characteristic of which a definition is wanted. At this point, therefore, for the moment, we reach the frontier of knowledge on our backward journey into the logical foundations of mathematics'.

In a footnote on the same page, Russell writes the following :

"The importance of "tautology" for a definition of

---

1. Introduction to Mathematical Philosophy, page 204.

mathematics was pointed out to me by my former pupil Ludwig Wittgenstein, who was working on the problem..."(1)

Wittgenstein himself says in the Tractatus, that logic cannot be concerned with what is the case, that is of affairs"(2)

"A state of affairs (a state of things) is a combination of objects (things)"(3)

"In logic nothing is accidental...."(4)

"... It is clear, however, that logic has nothing to do with the question whether our world really is like that or not"(5)

Yet when Wittgenstein speaks of logic as having nothing to do with the facts about the world, he does not seem to mean that logic is an arbitrary fabrication of the human mind, which has nothing objective about it. On the contrary, he draws a definite relationship between logic and reality:

"Logical sentences describe the scaffolding of the world or rather they present it. They treat of nothing. They presuppose that names have reference, and atomic sentences have sense. And this is their connection with the world. It is clear that it must show something about the world that certain combinations of symbols which essentially have a definite character - are tautologies - Herein lies the decisive point; we said that in the symbols which we use, something is arbitrary, something not. In logic only the latter expresses; but this means that in logic, it is not we who express, by means of signs, what we want, but in logic the nature of the essentially necessary signs itself assents. That is to say if we know the logical

---

1. Introduction, page 204.
   We shall see later, when we consider Carnap that he, too has taken the concept of tautology, as characteristic of analytic sentences from Wittgenstein.
2. Tractatus 2.
3. " 2.01
4. " 2.012
5. " 6.1233

syntax of any sign language, then all the theses of logic are already given"[1]

It is, however, rather difficult to comprehend what the exact relation between logic and the world is in Wittgenstein. It seems that when he says that logic has nothing to do with the question of what the world is like, he means that logic cannot "say" anything about the world, and "say" here is used in a special technical sense, namely to express something factual. The distinction between what can be said and what cannot be said is very important in Wittgenstein. Whatever can be said is a picture; and a picture is a fact, a state of affairs. Since logical truths are tautological, they are unsayable; they can only be "shown" or "represented". They are shown or represented through their relationship with the grammar of language. Wittgenstein identifies the aggregate of logical truths, which he sometimes describes as the configuration of logical space or as the logical form of reality, with the grammar of language. By the grammar of language, Wittgenstein seems to mean, as Maslow[2] has pointed out, the formal conditions necessary for the application of a language in a possible world. Wittgenstein writes[3]:

"6.1 The propositions of logic are tautologies

6.11 Therefore the propositions of logic say nothing (they are the analytic propositions)

6.12 The fact that the propositions of logic are tautologies shows the formal-logical-properties of language and the world".

These Wittgenstein notions have exerted great influence on the members of the Vienna Circle, and all subsequent philosophy. Yet, it is not very easy to

1. Tractatus, 6.124 [Pear's and Guiness's Translation].
2. A. Maslow: A study in Wittgenstein's Tractatus
3. Tractatus, page 121

determine to what extent one could identify these views with those who hold, like Carnap and Ayer, that mathematical truths are linguistic conventions. A full investigation of these points, although quite relevant, would take us too far, and the essential points I wanted to make in this chapter are:

1) That the analytic/synthetic distinction is one of long philosophical tradition, to which Leibniz and Kant in particular have contributed.

2) That it has been sometimes confused with the different, but related, distinctions between (i) Necessary and contingent propositions (ii) A priori and empirical or a posteriori propositions.

3) That all these three distinctions can be drawn, and in fact are drawn by different philosophers, in three ways

(i) with respect to the content or subject matter of a proposition

(ii) with respect to the ways of comfirming or justifying it

(iii) with respect to the ways we know or become acquainted with it

4) Although the distinction is drawn by a majority of modern analytic philosophers, and in particular by Wittgenstein and Russell, yet Quine, whose views on analyticity are central to this thesis, directs his misgivings about the concept mainly against the account given of it by neopositivists like Carnap and Ayer. This point will become clear in the coming chapters especially the fourth one.

5) Wittgenstein's characterization of logical truths as tautologies influenced all subsequent accounts of analyticity.

In the next chapter, I shall attempt to give an expository account of the recent attack on the analytic/

synthetic distinction by Quine, White and Waismann, while the third chapter will be devoted to a critical discussion of these attacks as well as to the replies which have been provoked by them. The fourth and final chapters will then consider a related but more technical and sophisticated issue raised by attacks on the distinction - the debate between Quine and Carnap as to the admissibility of intensional concepts into scientific discourse.

Chapter Two

The Attack on the Analytic/Synthetic Distinction

Chapter Two

Quine's General Philosophical Position

Quine is an outstanding contemporary philosopher who has made a number of significant contributions both to the pragmatic and neo-positivistic traditions of philosophy. Many of his philosophical views have been centres of controversies, e.g.

(a) his theory of ontic committment in which he says we are committed to postulate the existence of physical things by the very way in which we talk about those things. For him 'to be is to be a value of a variable'; and it is only quantified variables which are considered to have pure reference and to which our ordinary singular terms are reducible[1].

(b) his theory of the indeterminancy of radical translation in which he stipulates that in translating the language of a primitive tribe we may end up with incompatible translation.

(c) his view that we cannot confirm or infirm singular statements; science or scientific knowledge is only confirmable or infirmable as a whole unit. The belief that we can confirm or infirm[2] singular statements is the reductionistic dogma of empiricists.

---

1. We shall see later when we consider Quine's theory of 'Canonical Notation', how he arrives at those conclusions

2. Quine's use of the word "infirm" is indeed uncommon. The word itself is rare and almost unused as an opposite of "confirm". The word "disconfirm" is more common. The Concise Oxford Dictionary defines "infirm" as "Physically weak, esp. through age; (of pesoni mind, judgement, etc.) weak, irresolute (often - of purpose). This point concerning the word 'infirm was brough to my attention by Prof. C.K. Grant.

(d) The Analytic/Synthetic distinction is NOT a hard and fast one. The belief that there is an absolute distinction of kind between analytic and synthetic truths is another dogma of empiricists.

Almost all of those views are still being discussed and are largely unsolved. But the fact that Quine's views are disputable does not affect his position as an eminent philosopher; rather they contribute to his distinction and originality.

Although Quine can generally be regarded as having strong positivistic tendencies, he challenges two important and central doctrines of the logical positivists:

(1) he rejects the view that singular statements can be confirmed or infirmed, and that there are statements in which the factual component is null, and as such they are never falsified by experience. According to Quine our body of scientific knowledge is monolithic in the sense that it faces the tribunal of experience as a system. Statements are not verified or falsified one by one, rather they are judged by experience as aggregates. And when they do face experience as groups, it is always possible that they might be revised in the light of experience. Thus any group of statements, whether they belong to pure mathematics, logic or empirical science, could be, in principle, abandoned.

(2) he also rejects the view that there is a hard and fast cleavage between analytic and synthetic statements. Actually, this view is based upon and complimentary to his first view. It is because he believes that any statement or group of statements

could be given up in the face of a contrary experience, that he rejects the belief in an absolute distinction between analytic and synthetic statements. Traditionally, analytic statements are thought to be immune from revision by experience, and hence the sharp distinction between them and those statements which suffer refutation at the hands of experience.

Perhaps, we can best understand Quine's views regarding (a) and (b) by considering briefly how these views relate to his general philosophical position as a philosopher who rejects the positing of any intensional objects[1], and who, in his flight from intension, has taken great pains to work out a theory of meaning in terms of dispositions to verbal behaviour.

In Chapter Six of his book, "Word & Object", Quine argued against the theory of intensionality, the theory that we need to stipulate abstract entities or mental images as objects of the "meanings" of sentences, that is as references of sentences in non-extensional contexts. He did not only argue against the stipulation of proposition to represent what sentences express or mean, he also argued against the positing of attributes and relation.

He says that it was felt essential to introduce propositions "as translational constants; as things shared somehow by foreign sentences and their translations. They have been wanted likewise as constants of so-called philosophical analysis. ... as truth vehicles and as objects of propositional attitudes"[2]. But Quine believes that the positing of propositions will not satisfy these

---

1. We shall see later, especially in the final chapter, what Quine's rejection of the intensional means - for instance he rejects propositions as things shared by sentences which have the same meaning (whatever this might mean) in a given language or as translational constants of different languages
2. Quine "Word and Object" page 206.

needs. Then he goes on to say that his objection against the positing of propositions, "apply with equal force to attributes and relations".

Having rejected intension, Quine could no longer avail himself of the use of the family of interelated terms "analyticity","synomymily", "self-contradiction", "Definition", "necessary" and "semantical rule", because these are intensional terms pregnant with meaning. He could only make use of them if he can give an extensional characterization of any one of them; because the others can be defined in terms of it. Meanwhile, he will continue using them, with the reservation that these concepts await further classification. When his critics, especially Strawson and Grice, have objected to his usage of these terms on the grounds that he himself has them declared to be unclear and intensional, Quine replied, without explicit reference to his critics, in the following way, and I quote:

"For consider how I have persisted in my vernacular use of "meaning", "idea" and the like, long after casting doubt on their supposed objectivity, ... What is involved here is simply a grading of austerity. I can object to using a certain dubious term at crucial points in a theory, on the ground that to use it would deprive the theory of its desired explanatory forces but I can still use and condone the term in more casual or heuristic connections, where less profundity of theoretical explanation is professed."[1]

Although Quine has made known his misgivings over analylicity and related intensional concepts since the publication of his article "Truth by Convention" in 1936,

---

1. ibid, page 210.

it is in his book "Word and Object", published in 1960, that he works out in great detail what he believes to be at least a sketchy characterization of the Theory of meaning in non-extensional terms. Of course he has been working on it for a long time and he has given hints and parts of it in some of his papers and lectures at various Universities. But it is in this book that he brought the whole thing together for the first time.

Quine gives his behaviouristic approach to the question of meaning in the context of what he calls "Radical Translation". This concept is derived from the imaginary situation when we are confronted with the question of communicating with a hitherto unknown and untouched primitive tribe or people. No dictionaries or translators of any sort are available, and all we can rely upon is our ability to listen to noises which our primitive informant utters, record them, and try to find out what these terms mean by observing what stimulus prompted him to utter that particular noise. Once we have done this, we can set out to confirm that it was the stimulus which we observed and guessed as the cause which led him to utter the noise that really in fact prompted him into uttering it, by making use of the informant's disposition to assent or dissent whenever that stimulus occurs again and we utter the noise at the time of its appearance.

For instance, a white rabbit jumps out of the grass and the native utters the noise "Gavagai", the linguist notes down the term "rabbit", but he cannot rest content with this. The native might mean "rabbit", "white", or "animal" by his term "Gavagai". So the linguist must find out first of all the native equivalences of "Yes" and "No", and then go on to eliminate the other two

possibilities by uttering the word "Gavagai" when, for instance, a black rabbit is seen, and if the native assents, then the linguist understands that to the native the word "Gavagai" could only mean either "animal" or "rabbit". The linguist can eliminate the first possibility perhaps by producing a wooden counterfeit of a rabbit and then utter the word "Gavagai", and if the native assents here, then the linguist can be pretty sure that by this word the native "means" rabbit.

8 In this way Quine has arrived at what he calls stimulus meaning. Let us see how Quine sets out to define the meaning of sentences such as "Gavagai" which he believes are the sort of sentences which our jungle linguist must begin with, and I quote:

"... and for these (sentences such as "Gavagai") we now have before us the makings of a crude concept of empirical meaning. For meaning, supposedly, is what a sentence shares with its translation; and translation at the present stage turns solely on correlation with non-verbal stimulation.

Let us make this concept of meaning more explicit and give it a neutrally technical name. We may begin by defining the affirmative stimulus meaning of a sentence such as "Gavagai" ... a stimulation 6 belongs to the affirmative stimulus meaning of a sentence S for a given speaker if and only if there is a stimulation 6 such that if the speaker were given 6, then were asked S, then were given 6, and then were asked S again, he would dissent the first time and assent the second."

Quine then similarly defines negative stimulus meaning by interchanging "assent" and "dissent" in the definition of affirmative stimulus meaning. Then he defines stimulus meaning as the ordered pair of the two.

Having defined stimulus meaning as more or less what is meant by empirical meaning, Quine goes on to give a characterization of the notion of synonymity and analyticity based on it. I will not discuss this characterization here, but it is significant that Quine himself considers these characterizations to be very sketchy. With certain qualifications and reservations Quine defined synonymity as sameness of stimulus meaning. Then analyticity has been characterized in terms of synonym. What concerns me here is to bring out in a very sketchy way how Quine tried to characterize these intensional notions in an extensional behaviouristic way. It must be this kind of characterization which was always in Quine's mind when he attacked the belief in an absolute and fundamental cleavage between analytic and synthetic statements, on the grounds that the term in analytic lacks any definite and precise sense, and moreover that this term cannot be defined in terms of "definition", "synonymity", "semantical rule", "self-contradiction", etc., etc., because these notions are in as much a need for classification as "analyticity" itself.

However, I think Quine's misgivings about the analytic/synthetic distinction go far deeper than simply that the nature of this distinction is not quite clear or even that there is a huge class of borderline cases where we cannot distinguish the analytic from the synthetic. It was Waismann, in his series of papers about Analytic/Synthetic, who took this (line of) approach to the problem. I think Grice and Strawson, in their criticism of Quine's paper "Two Dogmas of Empiricism", probably did not fully appreciate the depth of Quine's attack on the Analytic/Synthetic distinction.

They have devoted the greater part of their article "In Defence of a Dogma" to show that it is not possible to dismiss the distinction simply on the grounds that it is unclear, which they admitted. They argued that we can perfectly well make sense of the distinction by pointing out clear and unambiguous examples of analytic and synthetic statements, and this is in itself quite sufficient to show that such a distinction does in fact exist, and that to deny it exists would not make any sense.

First of all, I think Quine never intended to deny the very existence of the distinction although he did say that it is not clear[1]. What Quine does deny is that there is a sharp distinction between analytic and synthetic statements. Secondly, a more important point, Quine was not worried about the distinction simply because it is not clear. His doubts about it are of much more profound nature, and, as I have said earlier, are related to his distaste for intensional objects. They are also related to his mistrust of phenomenalistic reductionism, the view that our observation sentences are reducible to sense date sentences.

In his article "Mr. Strawson on Logical Theory" Quine spells out what he describes as "a deeper level of misgiving, over the notion of analyticity", he writes:

"But misgivings over the notion of analyticity are warranted also at a deeper level where a sincere attempt has been made to guess the unspoken Weltanschauung from which the motivation and plausibility of a division of statements into analytic and synthetic arise.

---

1. Quine would say that the analytic/synthetic destruction is unclear both in its sense and application, though the former unclarity is more fundamental to him.

My guess is that Weltanschauung is more or less attenuated holdover of phenomenalistic reductionism"[1]

Quine goes on in the same article to say that a philosopher may reject phenomenalism in its full reductionistic sense, in favour of admitting that statements carry in most part an irreducible extra-phenomenal burden over and above their phenomenal import, but may still continue to hold one of the following alternative positions:

(a) that statements still possess their phenomenal import as separate statements taken one by one

(b) that statements are tied to the testimony of the senses only in a systematic or holistic way which defies any statement-by-statement distribution of sensory certificates.

Quine says that if a philosopher holds (a), he will find it natural to accept in principle a division between analytic and synthetic truths, the former being those in which the phenomenal content is nil. If on the other hand his position is (b), he may be expected to find no way of putting some truths into "empirical quarantine and judging the remainder to be free of infection. For him the contribution which sensory evidence makes to knowledge is too inextricably intertwined to admit of a sentence-by-sentence separation"[2].

Quine's opposition to radical phenomenalistic reductionism is due to his belief that we are committed to stipulating the existence of physical objects by the very way in which we talk. Physical things have a basic function in our ordinary language, a function

---

1. Quine: "Mr. Strawson on Logical Theory", Mind, Oct. 1953.
2. Quine: ibid.

which cannot be satisfied or performed by sense data. I quote:

"... For the trouble is that immediate experience simply will not, of itself, cohere as an autonomous domain. References to physical things are largely what hold it together. These references are not just inessential vestiges of the initially intersubjective character of language, capable of being weeded out by devising an artificially subjective language for sense data. Rather they give us our main continuing access to past sense data themselves; for past sense data are mostly gone for good except as commemorated in physical posits. All we would have apart from posits and speculation are present sense data and present memories of past ones; and a memory trace of a sense datum is too meager an affair to do much good. Actual memories mostly are traces not of past sensations but of past conceptualization or verbalization.

There is every reason to inquire into the sensory or stimulatory background of ordinary talk of physical things. The mistake comes only in seeking an implicit sub-basement of conceptualization, or of language. Conceptualization on any considerable scale is inseparable from language, and our ordinary language of physical things is about as basic as language gets."[1]

The views discussed above are some of the motives which prompted Quine to attack the sharp distinction between analytic and synthetic statements. As I have already said before, Quine never intended to reject the existence of the distinction as such. What he rejects is the belief, which he calls a dogma of empiricism and

---

1. Quine: Word and Object pages 2 and 3

a metaphysical article of faith, that there is a hard and fast distinction between these statements: in his article, "Mr. Strawson on logical theory", Quine explicitly grants that certain given sensory events seem more relevant to some statements than to others, and that some statements seem less directly touched than others by sensory events in general. His objections against the absolute analytic/synthetic distinction are deeper and are connected with some fundamental issues that we have already considered. One further such issue is Quine's conception of the nature of logical truth.

Quine[1] objects to the Strawson's characterization of logical truths in terms of analyticity because he thinks that analyticity itself is in a bad need of characterization. According to Quine, logic should be characterized in terms of truth (that is to say truth in Tarski's semantical sense, which is extensional; Quine's dislike for intension is again manifest) and the notion of logical vocabulary. Quine writes[2]: "... if we suppose a prior inventory of logical particles, comprising 'no', 'un-', 'not', 'if', 'then', 'and', etc., then in general a logical truth is a statement which is true and remains true under all reinterpretation of its components other than the logical particles".

These logical particles, also called logical vocabulary and logical constants by Quine and others, represent a two-fold difficulty:

1. Firstly their nature or sense is difficult to define
2. Secondly the distinction between logical and non-logical terms is not easy to explain

---

1. "Mr. Strawson on Logical Theory"
2. "Two Dogmas", pp.22.

Pap criticizes Quine's[1] definition of logical truth cited above on the account that the notion of a logical constant is a difficult one. He writes[2]:

"... Quine's definition would still leave us with the troublesome question: by what criterion are we to distinguish logical constants from nonlogical constants."

The customary procedure of logicians who define their meta-logical concepts with respect to a specified deductive system is to define "logical constant" simply by enumeration. But while such definitions serve the function of criteria of application, they clearly cannot be regarded as analyses of intended meanings. To give an analogy, suppose we defined "coloured" by enumerating n known colours, i.e. coloured = C_1 or C_2 ... or C_h. And suppose we subsequently became acquainted with a new colour which we name "C_{h+1}". On the basis of our definition it would be self-contradictory to say that C_{h+1} is a colour, or at any rate we could not say that it is a colour in the same sense as the initially enumerated ones. Thus so-called definitions by enumeration do not tell us anything about the meaning of the defined predicate, and the same is true of many recursive definitions. In fact, recursive definitions of "logical constants" given by logicians usually amount to an enumeration of logical signs with the additional stipulation that any sign definable in terms of these alone is also a logical sign. The problem of defining this basis metalogical concept explicitly, however, cannot be said to have been solved.."

---

1. Quine is really ambiguous on this point because in other places he contends that the distinction between logical and nonlogical terms is not absolute; it is gradual.
2. Semantics and Necessary Truth, p.153.

This problem of defining "logical constant" is particularly important if a sharp and absolute distinction is to be drawn between analytic and synthetic statements; because the latter distinction, as it is drawn in contemporary philosophy, depends on the distinction betweem logical and non-logical terms. We have seen Schlich, Aye, Carnap, and others, define analytic statements as those which hold independently of experience, and whose truth is guaranteed by the meanings of the non-descriptive or logical terms. Now, if the distinction between the logical and the non-logical cannot be shown; and share Pap's views on this point, to be hard and fast, so is the distinction between the analytic and the synthetic.

Having made these remarks about items in Quine's general philosophical position which I think are implicitly or explicitly presupposed in his fierce attack on the absolute distinction between analytic and synthetic statements, I shall now go on to consider this attack itself. I shall begin by indicating clearly the line of argument which Quine follows in his attack, and I shall then discuss it critically. With this ends this first part of this chapter.

Quine on "Two Dogmas of Empiricism"

In this paper Quine critically rejects two beliefs which he thinks are maintained by empiricist without empirical justification, so to speak, because these two beliefs are according to him two unempiricist dogmas of modern empiricism. The two beliefs are:

1. The belief in an absolute cleavage between analytic and synthetic propositions.
2. The belief that that which experience confirms or infirms are singular statements, because these singular statements are the elementary or basic units of significant discourse.

Instead of proposition (1), Quine advocates a distinction of degree between analytic and synthetic statements. He says that our whole body of significant statements from the casual matters of empirical sciences such as physics, history and geography to the most rigorous disciplines of mathematics and logic is determined by experience in a way which allows a great deal of freedom and choice in the construction and reconstruction of our conceptual systems or schemes. Thus we are able to reject any statement whatever, no matter how strong our belief in its truth is at the moment, or maintain any statement whatever, come what may, should we be faced with a contrary experience which our present conceptual system does not accommodate. In other words, the term "analytic" is not to be explained in terms of immunity from revision from experience, rather it should differentiate from its correlate "synthetic" by being further remote from the impact of experience. That is it is, just a matter of remoteness or nearness from experience which circumscribes or engulfs in a rather loose way all significant statements. Thus it is wrong, according to Quine, to hold that analytic statements are universally valid because no relevant experience can falsify them. It is always important, I think, that the reader should always notice that whenever Quine accepts certain statements as analytic, he is taking the

word 'analytic' in the sense which I explained above, and not in the old sense of being tautologous and thus immune from the revision of all possible experience. For Quine, even the verbal, the definitional convention can be altered or even abandoned, should a contrary experience arise: for instance, suppose that one asserts a statement P; challenged to defend one's assertion, one falls back on its verbal structure, say XYZ. Now, it may be that certain sensory experiences would call for an abandonment of one's claim, or for a supporting of it by adding to XYZ. But at the moment such a demand is not being made; and until it is, one could call P 'analytic' in the sense that at the moment it is very remote, and therefore untouched by experience.

And instead of (2), Quine advocates a holistic theory of confirmation in which the unit of our significant discourse is said to be not singular statements, but "the whole of science". Quine says that statements face the tribunal of experience in groups, not one by one. The belief that experience in fact confirms or infirms singular statements is a dogma of empiricists which originates from the mother-dogma of reductionism: the view that non-analytic significant statements are reducible to sense-data statements.

In the last section of his paper, Quine sketches what he considers to be an empiricism without these dogmas (1 and 2), (Taking into account his views about the analytic/synthetic distinction and experimental verification.)

Let us now consider how Quine manages to isolate what he calls the two dogmas of modern empiricism, and how he sets about his aim of liberating empiricism from these two dogmas.

The First Dogma

The analytic/synthetic distinction could be explained if we could explain either of the two correlated terms, "analytic", "synthetic", because once we clarify one of them the other can be characterized in terms of it. Now it seems to me that "analytic" provides an excellent candidate for investigation because it is extremely ambiguous and is generally subject to misuse. Quine does not say why he picked up "analyticity" rather than "syntheticity", but he may have been guided in his choice by the fact that the dubious nature of the former term demands far more explanation. Instead, he tries to explain or characterize the nature of the notion itself.

Yet, strangely enough, right at the very beginning of his essay, Quine admitted logical truth of the kind: (a) no unmarried man is married, as an analytical statement with which he has complete peace of mind - no trouble whatsoever. It is analytic statements of another type on which he has misgivings, namely those of type (b) no bachelor is married.

In trying to answer the question of analyticity of (b), Quine goes into a series of unsuccessful investigations.

1. First he tries to explain analyticity by reference to "meanings". But he asks: what are "meanings"? He answered this question by rejecting the stipulation of meant entities. According to him "a felt need for meant entities may derive from an earlier failure to[1] appreciate that meaning and reference are distinct". According to Quine, the moment we

---

1. 'Two Dogmas of Empiricism', pp.22.

divorce the theory of meaning from that of reference, we realise that the primary business of meaning is simply the synonymy of linguistic forms and the analyticity of statements, "meanings themselves, as obscure intermediary entities, may well be abandoned[1]".

2. The analyticity of the statement (b): (No bachelor is married) could be defined in terms of synonymity and logical truths in the following way:
Statement (b) can be turned into the logical truth - No unmarried man is married, if we put "unmarried" which is synonymous with "bachelor" in (b).
The only trouble with this characterization of analyticity for Quine is that we do not possess any clear characterization of the notion of synonymy itself.

3. Quine also rejects Carnap's characterization of analytic statement as those statements which are true under every state-description. A state-description, according to Carnap, is any exhaustive assignment of truth values to the atomic or non-compound statements of the language. According to Quine, Carnap's characterization of analyticity, does not in fact work, because the statements of our language are not in fact mutually independent. For instance: (1) John is a bachelor and (2) John is married, may both turn out to be true, under a certain state-description; and thus "No bachelor is married" will no longer be analytically true. It is because language contains logically-synonymous terms like "bachelor" and "unmarried" that Carnap's definition of "analyticity" in terms of "state-description" does not work.

---

1. From a Logical Point of View , pp.22.

4. Analyticity by Definition

Quine says that we might seek to characterize the analyticity of the second class of statements, the "No bachelor is married" - variety by saying that these statements reduce to those of the first class, the logical truths, by definition. What is meant here is that "bachelor" may be defined as "unmarried man", and thus by substituting the latter for the former in the statement "No bachelor is married" we arrive at a logical truth.

The flaw in this account, Quine goes on, is that definition, whether it is the work of a lexicographer or of a philosopher, is based in pre-existing and pre-supposed synonymies.

However, there is one kind of definition which does not presuppose synonymy. This is the sort of definition which contains an explicit convention to the effect that a certain novel notation is being introduced for purposes of abbreviation. "Here the definiendum becomes synonymous with the definiens simply because it has been created expressly for the purpose of being synonymous with the definiens"[1]. Obviously, this kind of definition will not serve to define analyticity as ordinarily understood.

5. Interchangeability as a Criterion for Synonymy

The synonymy of two linguistic forms might be defined, Quine maintains, in terms of their interchangeability in all contexts without change of truth value - i.e. interchangeability *salva veritate*, to use Leibniz's phrase. But obviously

---

1. Quine: Two Dogmas, p.26.

such linguistic forms as "bachelor" and "unmarried man" are not everywhere interchangeable salva veritate, for instance "Bachelor of Arts". But this difficulty could be avoided if we say that the interchangeability which is meant to be a criterion of synonymy does not apply to parts of words, it only applies to words as whole units. The difficulty here is, of course, that we appeal to unclear notions of 'wordhood'. But let us ignore the difficulty for a while. We are faced with the question: Is changeability salva veritate a strong enough condition for synonymy, or is it too wide?

By synonymy here, Quine does not refer to complete identity in psychological associations or poetic quality of two linguistic forms. What he is interested in is what he calls cognitive synonymy; the sort of synonymy which will turn an analytic truth into a logical one.

It is obvious that Quine thinks that changeability salva veritate is not a sufficient condition for synonymy. It could only be one in an intensional language, a language which contains such adverbs as "necessarily". According to Quine, such a language would not serve to explain or define synonymy and analyticity, because these and other related notions are presupposed by such a language. In an extensional language which is free from any intensional terms like "analyticity", "synonymy", "definition", "necessary" ... etc. etc., changeability, salva veritate, does not assure us of the kind of synonymy we are looking for.

At this stage Quine says that since we cannot succeed in our plan to define synonymy, and then use this definition to characterize analyticity, we may have taken a wrong approach. Let us then try to define "analyticity" first. Once we have succeeded we can then easily define synonymy in terms of it.

Analyticity in Terms of Semantical Rule

It might be the case, Quine continues, that the difficulty in drawing a clear and sharp distinction between analytic and synthetic statements is due to the fact that ordinary language is vague, and that the distinction could be drawn unambiguously once we had an artificial language with its semantical rules explicitly laid down. Semantical rules for any particular artificial language are such rules which attribute a certain property or characterization e.g. analyticity or truth, to a class of statements belonging to that language. For instance, a semantical rule for an artificial language L_o, may take the form of an explicit specification to the effect that a certain class of statements of L_o, represents all analytic statements of L_o. Quine says that the trouble with such a kind of semantical rule, is precisely that it appeals to the very notion which it is meant to explain, namely an unexplained notion of analyticity. Alternatively our semantical rule may take the form that such and such statements are included among the truths of L_o. Such a rule does not lead, of course, to an unclear notion of analyticity; but it merely stipulates that a certain group of statements, together with others, are to count as true. Let us call this second form of the semantical rule R_2, then analyticity may be defined in the following way:

A statement is analytic if it is not merely true, but true according to the semantical rule R_2.

It is quite clear that we have not achieved any progress towards the classification of analyticity by stipulating R_2. Instead of appealing to an unclassified notion of analyticity as we did in our first semantical rule, we now appeal to an unexplained notion of "semantical rule".

Quine concludes this discussion of what he regards as one of the dogmas of empiricism, by saying that semantical rules of artificial languages are of no help in explaining the notion of analyticity; and that these rules are of interest only if we already understand "analyticity".

Then Quine goes on to hint at the motive which governs those who draw an absolute distinction between analytic and synthetic statements. He says that such people are led from the true proposition that truth in general depends on both language and extra-linguistic fact, to the false proposition that certain statements are merely and exclusively determined by linguistic considerations, because their factual component is null. These statements are labelled as analytic, and in this way an absolute distinction as drawn between analytic and synthetic statements. But according to Quine, "that there is such a distinction to be drawn at all is an unempirical dogma of empiricists, a metaphysical article of faith"[1].

---

1. "Two Dogmas of Empiricism" by Quine, pp.37.

The Second Dogma: Reductionism

It seems to me that according to Quine the first dogma, that there is an absolute distinction between analytic and synthetic statements, is based upon a deep and more fundamental dogma, namely the dogma of reductionism.

What is the Dogma of Reductionism?

The kind of reductionism which Quine attributes to modern empiricists has to do with their verification principle of meaning. This principle has come to be the most characteristic of modern empiricism. According to some formulations of this principle, a statement, which is not analytic, is meaningful if and only if it can be confirmed or infirmed by experience.

But what, Quine asks, is precisely the relationship between experience and statements, which we call confirmation or infirmation? In what sense does experience confirm or infirm statements? One way of answering this question is to say that statements are confirmed by experience if they correspond to sensory events of which they are direct reports, otherwise they are not confirmed or infirmed by experience. However, this will be reductionism in an extreme and radical form, and it can be pursued back to Locke and Hume in one version or another. But in recent times, statements are accepted as the atomic and most basic units of the reductionistic programme (instead of ideas (Locke) or terms). Carnap's Aufbau is a magnificent effort to bring about radical reductionism, in the sense that it tries to work out a sense datum language, into which ordinary languages can be translated. But Carnap's reductionistic programme in the Aufbau is in fact not so

radical. It presupposes logic and set theory and in consequence the language of pure mathematics, and by doing this it presupposes not only physical and sensory entities, but abstract entities such as classes etc.

However, Carnap himself later on abandoned radical reductionism. He abandoned his belief that all statements about physical objects can be translated into statements about immediate experience. He adopted the view that "every sentence is equipollent to some sentence of the physical language, and can therefore be translated into the physical language without changing its content."[1] This is the thesis of Physicalism, as was called by Dr. Neuralk. But the dogma of reductionism continued to exist in a more subtle and refined form: namely that associated with each synthetic statement is a range of possible sensory events such that the occurrence of any of them would contribute towards the confirmation of the statement, and that also associated is another unique range of possible sensory events whose occurrence would tend to disconfirm that statement. Quine says that the dogma of reductionism manifests itself in the supposition that each statement, taken in isolation from its fellows, can admit of confirmation or infirmation, at all. It is the counter-suggestion of Quine that "our statements about the external world face the tribunal of sense experience not individually but only as a corporate body"[2].

Quine says this second dogma supports the first dogma that there is cleavage between the analytic and the synthetic in this way: "as long as it is taken to be significant in general to speak of the confirmation

---

1. Carnap: Philosophy and Logical Syntax, page 89
2. Quine: "Two Dogmas of Empiricism", page 41

and infirmation of a statement, it seems significant to speak also of a limiting kind of statement which is vacuously confirmed, ipso facto, come what may; and such a statement is analytic."[1]

Quine says that the two dogmas; that of the analytic/synthetic distinction and that of reductionism, stem from the same root. They stem from the fact that the truth of statements depends both upon factual and linguistic components: the factual component boils down to a range of confirmatory experience, while the linguistic component has nothing to do with experience. But where a limiting case exists in which all that matters for the truth of a statement is the linguistic consideration we have an instance of analyticity. Quine believes that from the above proposition it is an easy step to assert the two dogmas which he rejects.

Empiricism Without the Two Dogmas

Quine then goes on to give a thorough version of empiricism which contains no unempirical dogmas. I quote[2]:

"The totality of our so-called knowledge or beliefs, from the most casual matters of geography and history to the profoundest laws of atomic physics or even pure mathematics and Logic is a man-made fabric which impinges on experience only along the edges - Or, to change the figure, total science is like a field of force whose boundary conditions are experience. A conflict with experience at the periphery occasions re-adjustments in the interior of the field ...

---

1. ibid, page 41
2. ibid, page 42

But the total field is so under-determined by its boundary condition, experience, that there is much latitude of choice as to what statements to re-evaluate in the light of any since contrary experience."

Quine says that statements inside our conceptual system are logically interconnected, so that if any of them were re-evaluated, some others are also revalued. It is this fact which makes it misleading to speak of the confirmation or infirmation of individual statements. And since there is always plenty of choice as to what statements we need to revise in the event of contrary experience, it becomes "folly to seek a boundary between synthetic statements, which hold contingently on experience, and analytic statements, which hold come what may. Any statements can be held true come what may, if we make drastic enough adjustments elsewhere in the system"[1].

Quine goes on to say that, on the other hand and by the same token, no statement even if it belongs to logic or mathematics, can be held to be immune from revision.

Thus the analytic/synthetic distinction is not one of kind according to Quine. If anything it is a matter of degree. This does not mean that we cannot isolate certain statements which we are reluctant to revise or give up in case we need to accommodate a new contrary experience, or that there are no statements which we readily abandon in this adjustment . We do in practice maintain certain statements, e.g. logical and mathematical statements and then give them up, if at all, after a great deal of reluctance we give up some

---

1. ibid, pp.43.

others very easily. But in principle, in making a shift to accommodate a contrary experience, revision could strike anywhere, and conversely we could retain any statement we wish to maintain.

I do not wish to criticise Quine's views in this chapter. To do so would make it too long, and would lead to repetition, as I shall be considering the views of Quine's critics in the next chapter. For the remainder of this chapter I shall consider briefly some views of those who support Quine's rejection of the absolute distinction between the analytic and the synthetic.

The Views of Other Anti-dualists

By the term antidualists I shall mean those philosophers who do not accept an absolute distinction between analytic and synthetic statements, like Quine, or those who reject the distinction altogether, like Waismann and White.

It is, of course, Quine who is the most outspoken antidualist, and who has dealt successive blows against what he considers to be an unempirical dogmatic belief in the absolute distinction. But by no means, is he the only antidualist, or even in some important respect the most radical in his opposition to the old distinction. F. Waismann, M. White, Nelson Goodman and Tarski could be viewed as antidualists in some sense or another.

Waismann's Definition of Analyticity in Terms of "Operator" and "Logical Truth"

Waismann is suspicious of artificial languages. He seems to object to the practice of picking terms from ordinary language, divorcing them from the context in which they ordinarily occur and finally moving them into

an artificial array of notations belonging to an artificial language where they are explicated. He objects to this practice on the ground that terms of ordinary language are essentially vague and suffer from an irremediable irregularity which he calls "open texture". The term "chair" or "table" is open in texture in the sense that the classmembership of the class of tables and chairs is incomplete and incompletible. We have no means of specifying, by recursion or otherwise, all the things which we call chair or table, whenever we are confronted by chair-like or table-like things, we have to decide whether to include them in the class of chairs and tables or not.

'Analyticity' as ordinarily used is one of those terms of ordinary language which suffers from a great measure of vagueness and openness of texture. Naturally enough, and because of his belief that the notion is essentially imprecise, Waismann is very critical of all attempts towards the definition and precision of analyticity.

In five papers[1], Analytic/Synthetic, he examines a wide range of definitions and characterizations of analyticity which have been advanced by different philosophers, and he accepts none of them as adequate. He also demonstrated the existence of a huge class of statements which are borderline cases where it is not possible to say of them whether they are analytic or synthetic due to the fact that these live terms suffer from openness of texture. From these two conclusions

---

1. Published in Analysis, volumes 10-13 (1949-1953)

Waismann rejects the analytic/synthetic distinction. According to him, since we are unable to make exact sense of either of the correlated terms "analytic" and "synthetic" which go to make up the analytic/synthetic distinction, it does not make sense to speak of the distinction itself.

Of course, Waismann's emphasis on the importance of making an exact sense of analyticity as a precondition of drawing the distinction is similar to Quine's. But it must be remembered that

1. Quine never rejected the distinction as such, although some passages in his article "Two Dogmas" may be misleading in this respect; while Waismann, it seems to me, tends to reject it, although he never explicitly says so.
2. Although Quine does object to the distinction on the grounds that analyticity and related concepts are unclear, this is by no means his major objection to the making of an absolute and fundamental cleavage between the analytic and the synthetic. He has a deeper reason for doing so, connected with his views on the revisibility in principle of our conceptual systems by experience. Quine writes:

> "For vividness I have been speaking in terms of varying distances from a sensory periphery. Let me try now to classify this notion without metaphor. Certain statements, though about physical objects and not sense experience, seem peculiarly germane to sense experience - and in a selective way: some statements to some experiences, others to others. Such statements especially germane to particular experiences, I picture as

near the periphery. But in this relation of "germaneness" I envisage nothing more than a loose association reflecting the relative likelihood, in practice, of our choosing one statement rather than another for revision in the event of recalcitrant experience. For example, we can imagine recalcitrant experiences to which we would surely be inclined to accommodate our system by re-evaluating just the statement that these are brick houses on Elm Street, together with related statements on the same topic. We can imagine other recalcitrant experiences to which we would be inclined to accommodate our system by re-evaluating just the statement that these are no centaurs, along with kindred statements. A recalcitrant experience can, I have urged, be accommodated by any of various alternatives re-evaluations in various alternative quarters of the total system; but, in the cases which we are now imagining, our natural tendency to disturb the total system as little as possible would lead us to focus our revisions upon these specific statements concerning brick houses or centaurs. These statements are felt, therefore, to have a sharper empirical reference than highly theoretical statements of physics or logic or ontology. The latter statements may be thought of as relatively centrally located within the total network, meaning merely that little preferential connection with any particular sense data obtrudes itself."[1]

---

1. Two Dogmas, p.43.

While Waismann seems to reject the distinction on the grounds that analyticity is an essentially imprecise notion because it is open textured.

3. While Quine issues from the standpoint of both a radical and extreme empiricists who wants to purge and purify empiricism from its unempirical dogmas, Waismann seems to be moved by a mistrust and suspicion of the tendencies of some of the modern empiricists to treat natural languages after the model of artificial languages. The distinction between natural and artificial languages is obviously a very important one according to Waismann, and it is based on the fact that natural language terms are open textured.

In what follows, I shall attempt to outline Waismann's views as presented in his papers very briefly.

Waismann begins his enquiry about the nature of analyticity by discussing Kant's account of it. He finds Kant's[1] account unsatisfactory on the ground that it appeals to a metaphoric notion of "containment" which obscures and restricts the range of judgements to those which consist of subjects and predicates. Moreover, Kant's discussion of the analytic/synthetic distinction is strongly saturated with psychological terms such as "judgements", "conceived" and the like.

Then Waismann considered Frege's definition of analyticity, which, he says, has been adopted by A.Pap[2].

---

1. Kant is dealt with in some detail in the Introductory chapter.

2. "Indubitable Existential Statements", Pap in Mind 1946.

"An analytic statement may roughly be characterised as a statement whose truth follows from the very meanings of their terms".

Waismann says it is not clear what is meant by follows here, because it is certainly not equivalent to logically follows. As a matter of fact, deductions do not have meanings as a starting point. But, Waismann continues, if logical validity is to depend on the meanings of logical terms, then deductions might very well start from meanings.

Next Waismann quotes the following definition of analyticity from Schlick:

"... analytic judgements rest upon the law of contradiction, they derive from definition by means of this law".

Obviously this characterization of analyticity is rather vague and obscure. Waismann says he agrees with Quine that what Schlick really means by a logical consequence of a definition is more exactly describable as a logical truth definitionally abbreviated: a statement which becomes a truth of logic when definienda are replaced by definientia.

Schlick's characterization of analyticity can be reformulated to read in the following way:

"A statement is analytic if it can, by means of mere definitions, be turned into a truth of logic".

In this characterization, definition acts as a tool of transformation. Thus definition is similar in function to other transformers or operators.

Waismann distinguishes two types of operators:

1. Logical, typified by different rules of Logic
2. idiomatical or linguistic, an example of which is the following:
   there is a planet that moves round the sun =

there is such a thing such that it is a planet and that it moves round the sun

This equivalence is true neither on empirical nor logical grounds, says Waismann; it is true simply because, according to the idiomatic use of English language, the two sentences come to mean the same thing.

Waismann's Version of Schlick's Definition of Analyticity

Waismann proposes to amend Schlick's definition in the following way, which he thinks is clearer and more comprehensive:

A statement is analytic if it can, by means of mere definitions, logical and idiomatic operators, be turned into a truth of logic.

The accuracy of the above definition depends on the clarity and precision of the notions of "Logical truth" and "the logical and idiomatic operators". Waismann believes that both of these concepts are blurred and consequently the concept of analyticity itself is blurred.

In the fore-going paragraphs I merely stated Waismann's views. I hope to comment on them together with Quine's in the next chapter. However, there is one more antidualist, Marton White, whom I would like to consider very briefly in what remains in this chapter. I shall also just state some of the most important of his views, and reserve any criticism I may have of those views to the next chapter.

White's objection to the Analytic/Synthetic Distinction

By contrast with both Waismann and Quine, White[1] is not interested in characterizing the sense of analyticity

---

1. Marton White: "The Analytic and the Synthetic: An Untenable Dualism", in Linsky's Semantics and the Philosophy of Language.

He is interested in characterizing the reference of it. In this respect, White accepts the class of logical truths as true candidates for the term "analytic", without hesitation. The logical truths which he accepts as genuine representatives of analyticity are logical truths in the narrowest sense, e.g.

1. $(p \vee q) \equiv (q \vee p)$

But White is worried about another class of statements, which are traditionally known as examples of the so-called essential predication, e.g.

a. i. All men are rational animals.

ii. Every brother is male.

White asks in what sense these statements are analytic and how different they are from statements which are merely synthetically true, statements like:

b. i. All men are bipeds

ii. Every brother exhibits sibling rivalry

White agrees with Quine that the notion of symonymy is very obscure indeed, and that he would accept the second of statements (b) as analytic if and only if (1) those statements are convertible into logical truths of the first kind by putting synonyms for synonyms; (2) the motion of synonymy itself is made clear.

In other words, White demands a definition of the term "synonymy" only in order to accept the analytic/synthetic distinction. A definition of "synonymy" is regarded as satisfactory by White, if it is expressed in unambiguous terms. By contrast with Quine, he does not insit on a behaviouristic characterization of it.

White goes on to consider two proposed criteria for sorting out analytic statements:

1. Analytic statements are those whose denials are self-contradictory.

White says that the statement:

"It is not the case that all men are rational animals" is not an explicit contradiction of the form "A and not A" and that no such contradiction can be deduced from it. If it is said that this statement is self-contradictory because "man" is synonymous with "rational animal", then the question is begged since the notion of "synonymy" stands in no less need for classification than the notion of analyticity itself. Thus, if the criterion were construed literally it would not be helpful, and if it were not construed literally, the question would be begged.

2. "If we were presented with something which was not a rational animal, we would not call it a man".

Thus "All men are rational animals" is analytic.

White says that according to the above criterion of analyticity, statements such as "All men are featherless bipeds" which are synthetic, is not distinguishable from analytic statements, such as, "All men are rational animals". The very things which lack rationality, and therefore are not called "men", will also lack "feathers" and at the same time are not "biped". So this criterion is quite useless.

These seem to be the most important points in White's opposition to the Analytic/Synthetic distinction. I shall attempt to comment more fully on the antidualists views when I come to the next chapter, when I consider the defence of the distinction.

Chapter Three

The Defence of the Analytic/Synthetic Distinction

Chapter Three

(A) Criticism of Quine's Views on Analyticity.

Quine's views on analyticity and the analytic/synthetic distinction have met a flood of critical reviews and discussions, more philosophers disagreeing than agreeing with him. But I think that in many cases the depth of his views on this subject and the important fundamental issues which they raise have escaped the notice and appreciation of his critics. It seems to me that Quine's views can be understood and appreciated only if those issues have been fully taken into consideration. For that matter, Quine's objections to the analytic/synthetic distinction can only be objectively criticized if we do not lose sight, even for a moment, of the total context in which they were raised. It would be quite fruitless to adopt a piece-meal approach to Quine's views on analyticity, as many of his critics have done. In many cases, it is such critics who denied Quine's views any value and showed no or little appreciation for their depth and originality. This is not to suggest that those who take a general approach are not critical of Quine, or that Quine's views themselves are faultless; it is just meant as a warning against the practice of considering Quine's views on analyticity in isolation from the total context in which they are raised.

In the last chapter I have gone some way towards the clarification of some of the issues involved in Quine's attack on the analytic/synthetic distinction by considering the background of that attack. Now, before going on to consider what points of criticism were advanced by Quine's critics, and whether they are justified or not,

I feel I must add some points which I hope will help to explain more fully the context in which Quine mounts his attack against the old distinction.

In the first place, it is of the utmost importance to be realized that Quine is reacting against such philosophers as Leibniz[1], Locke and Hume, who used to draw a sharp distinction between two worlds which they believed to be quite apart and separate: the world of reason, the "logical" or "verbal" world and the world of facts, the "physical" or "factual world. Those philosophers made this dichotomy because of their underlying belief that what can be learned from the exploration of one of those worlds has no essential connection with what can be learned from the other. It is also equally important to be realized that Quine is reacting against Schlick, Carnap and Ayer. For this latter group of philosophers the analytic/synthetic distinction is an absolute one and it is so co-extensive with the contrasts between the verbal and the real; the necessary and the contingent; and the a priori and the empirical.

For Quine these absolute distinctions are unclear and unacceptable. They spring from the reductionistic dogma which ought to be eliminated. For him, our attempts to verify empirical statements never confront us with anything like atomic sense-data, or simple and immediately apprehended facts which confirm or infirm a particular statement. No isolated statement is ever confirmed or refuted by experience alone. We could uphold any state-

---

1. In fact those three philosophers made three different distinctions; for Leibniz, the distinction is between the necessary and the contingent; for Locke it is between certain and probable knowledge; for Hume it is between truths of reason and matters of fact.

ment whatever, come what may, provided we are ready to accommodate the contrary experiences by abandoning other statements, and so adjusting or revising our conceptual system as a whole. Conversely, we can in a similar way give up any statement, no matter how strongly it has been confirmed in the past, provided we are ready to make the necessary shifts and re-shuffles in our conceptual systems-rearrangements which might sometimes be quite extensive.

Thus what is confirmed or infirmed by experience is not isolated statements, but the whole of our conceptual system, and no part of our conceptual system could be confirmed or infirmed without reference to experience. There is no case in which a statement or even group of statements can be confirmed or infirmed without the certification of experience.

Thus, Quine does not only react against Leibniz, Locke and Hume's dichotomies, but brings himself against the powerful group of contemporary philosophers, mainly logical positivists, who believe that there are important truths, including those of logic and mathematics, which being factually vacuous, are certifiable by linguistic consideration alone. More generally, those logical positivists believe that the significance of statements is due to two components. One is empirical or factual, and the other is linguistic. The first component is governed by empirical realities, while the other is governed by conventions. In the limiting case of factual vacuousness, only the linguistic component dominates and hence we have an analytic as opposed to a synthetic or empirical statement - that is, a statement which has some factual content. In this way the sharp distinction between analytic and synthetic statements is made by these recent philosophers as it has been made, in different ways by the early phil-

osophers.

Quine accepts the proposition that the significance of statements consists of two components, one factual and the other linguistic. But he disputes the existence of the limiting cases in which the significance is totally determined either by language or by facts. For him, the significance of statements is determined by,
(a) the pragmatic behavioural attitudes of the users of the language (If there are any linguistic conventions, they must fit here)
(b) the kind of reality or factuality or experience which those statements seek to express, interpret and organize.

For Quine there is no way of dissociating pure syntax and linguistic consideration from those two factors, no way of divorcing pure syntax from pragmatics and semantics. The three must be considered as an undivided whole. Experience and reality is at the bottom of everything, and in some sense determines everything: that is to say, our language and behavioural attitudes are in some sense determined by experience. But yet experience does not strictly and uniquely determine our language and behaviour. There is a great degree of choice and freedom, and so great room for conventions of language and symbolism. In general, there is a great measure of freedom in our conceptualization activity. But this freedom never becomes absolute at any point, if we are engaged in scientific enquiry. We must always exercise this freedom of choice with an eye to experience.

For Quine, science as a whole is nothing more or less than our total conceptual system. The relation between science and experience is that the former faces the tribunal of the latter as a whole. I quote his essay once more:

"The totality of our so-called knowledge or beliefs,

from the most causal matters of geography and history to the profoundest laws of atomic physics or even of pure mathematics and logic, is a man-made fabric which impinges on experience only along the edges. Or, to change the figure, total science is like a field of force whose boundary conditions are experience. A conflict with experience at periphery occasions readjustments in the interior of the field"(1)

It is this context of attention to the totality of knowledge that Quine questions the absolute distinction between analytic and synthetic statements and stipulates a difference of degree between them. His view is essentially a global one, and for it analytic and synthetic statements form a kind of continuum in which the difference between them is vague, no hard and fast line of demarcation can be drawn.

According to Quine, any attempt to draw such a hard and fast line will force its maker into intensional territory. Quine's distaste and flight from intensional is a characteristic and central theme of his philosophy. For him, intensional notions such as "meaning", "proposition", "analyticity", "synonymy", "necessity", are unclear and are supposed to make reference to abstract entities which he rejects. Therefore, Quine tried to explain these intensional notions extensionally.(2)

With these remarks in mind, I shall now go to consider the views of Quine's critics on analyticity and the analytic/synthetic distinction.

Objections to Quine's views.

(1) Does Quine reject Analytic/Synthetic Distinction

Quine is criticized by Grice and Strawson and others(3)

---

1. Two Dogmas of Empiricism.

2. We shall see how Quine proposes to eliminate intensions in the final chapter.

3. Among those raising this objection are : G.K. Herbert, H. Putnam, W.N. Walsh and others.

on the grounds that he rejects the analytic/synthetic distinction as such. These critics argue that this distinction is not only backed by a long philosophical tradition, but is established by a dominant and current philosophical usage. The fact that they are cases which can not easily be classified as either analytic or synthetic does not justify the rejection of the distinction, as Waismann thinks, because these are also clear-cut cases of analytic and synthetic statements. Moreover, the classes of analytic and synthetic statements are open classes in the sense that we can always add new members to them and on the basis of the distinction Grice and Strawson, rightly argue that this is all that is needed to draw any distinction :(1)

".... But there is no need to appeal only to traditions in order to show that the analytic/synthetic distinction exists(2) for there is also present practice. We can appeal, that is, to the fact that those who use the terms "analytic"and "synthetic" do to a very considerable extent agree in the applications they make of them. They apply the term "analytic" to more or less the same cases and hesitate over more or less the same cases. This argument extends not only to cases which they have taught so to characterise, but to new cases. In short, "analytic" and "synthetic" have more or less established philosophical use, and this seems to suggest that it is absurd, even senseless, to say that there is no such distinction. For in general, if a pair of contrasting expressions are habitually and generally used in application to the same cases, where these cases do not form a closed list, this is a sufficient condition for saying that there are kinds

---

1. Grice and Strawson "In Defence of a Dogma".
2. My words.

of cases to which the expressions apply; and nothing more is needed for them to mark a distinction".

But Grice and Strawson themselves retreat from saying that this is what Quine wants to say; at all events, they retreat from saying that Quine rejects the analytic/synthetic distinction in so crude a way. Instead they claim in their paper, that what Quine wants to say is that the difference which philosophers suppose themselves to be drawing by use of the correlated terms "analytic", "synthetic" simply does not exist. However, Grice and Strawson are satisfied that Quine wants to reject the analytic/synthetic distinction in one way or the other.

It seems to me that this interpretation of Quine is incorrect; that Quine does not wish to reject the existence of the distinction as such, but only wants to discredit or dispute the existence of a sharp and absolute distinction between analytic and synthetic statements. What leads me to this view are the following reasons :

(i) First of all, Quine in the beginning of his paper, "Two dogmas of empiricism" says that he has no problem regarding the analyticity of logical truths, or the class of statements typified by the example,

No unmarried men are married:

nor does he have any problem about a second class of statements where analyticity is established by explicit stipulation. His doubts about analyticity are caused by another class of statements typified by the example :

No bachelors are married:

But even this latter class of statements could be accepted as analytic if synonymy has been explained to Quine's satisfaction.

(ii) Even within his unified system of science and conceptual scheme, Quine gives analytic statements a kind of central and privileged position. They are abandoned only when we make a very extensive conceptual revision, a conceptual

revision in which one cannot accommodate contrary experience by revising and giving up empirical statements alone. This is because these analytic statements lie in the core and centre of our conceptual system, and as such are not affected by light or small adjustments in the system.

What Quine is keen to reject is the sharp distinction between analytic and synthetic statments because it leads, according to him, to some kind of atomic reductionism which is unempirical, and some kind of language/fact dualism which does not take full consideration of our pragmatic attitudes. However, I think Quine is to be blamed for failing to bring up this point clearly and unequivocally. Not only this, but there are phrases in his writings which, if considered in isolation, strongly suggests that he rejects the distinction as such. One of these phrases is the following one :

..."But a boundary between analytic and synthetic statements simply has not been drawn. That there is such a distinction to be drawn at all is an unempirical dogma of empiricists, a metaphysical article of faith."(1)

What Quine ought to say or wishes to say is that no hard and fast boundary has been drawn between analytic and synthetic propositions and that no such definite boundary, as a matter of fact, exists. It seems to me that this is one important instance in which the opponents of Quine, with Grice and Strawson at the head of the list, have in fact misinterpreted his objection to the analytic/synthetic distinction. This objection could be valid against F. Waisman who is primarily worried about the distinction's apparent failure to apply to a very large class of borderline cases and who rejects the distinction as such because of this reason. But as I have said above, this misinter-

1. "Two Dogmas of Empiricism" Quine.

pretation of Quine is not totally without justification.

(2) Is Quine being Over-fussy about certain Criteria of Clarity?

Quine is alleged, by Grice and Strawson, Hibert and others, to be engaged in a dubious line of argument in which he jumps from the premise that the nature of the analytic/synthetic distinction is unclear to the conclusion that the distinction as such does not exist. Grice and Strawson freely admit that Quine is quite right in saying that the nature of the distinction as it stands in unclear and is in bad need of further clarification. But they argue that this fact does not justify the rejection of the distinction. Moreover, they allege that Quine is perhaps being over-fussy about this point setting up excessively high standards of clarity and demanding that if the distinction is to be clarified it must be shown to satisfy them. The nature of this demand is thus described by Grice and Strawson:(1)

"To make "satisfactory sense" of one of these expressions ("analytic" and "synthetic") would seem to involve two things, (1) It would seem to involve providing an explanation which does not incorporate any expressions belonging to the family-circle [here the reference is to the family of intensional terms comprising : "meaning", "proposition","necessity", "synonymy" etc. which Quine rejects] (2) It would seem that the explanation provided must be of the same general character as those rejected explanations which do incorporate members of the family-circle. It is true that Quine does not explicitly state the second requirement; but since he does not even consider the question whether any other kind of explanation would be relevant, it seems reasonable to attribute it to him."

Thus it seems that Quine requires of a satisfactory explanation of the analytic/synthetic distinction that it should take the form of a pretty strict definition which does not use any of those intensional terms.

1. "In Defence of a Dogma" Grice and Strawson.

Strawson in his paper, "Proposition, Concepts and Logical Truth" attempts to show that it is not possible to do away with intensional notions if Quine's view is to make any sense at all. In particular, he showed that Quine's characterization of logical truths, and consequently of analyticity, does rest on intensional notions whether Quine likes it or not. I shall not discuss this last point now, but come to it later and consider it in its own right. For the moment let us consider whether Quine is justified in claiming that it is not possible to draw a sharp distinction between analytic and the synthetic unless the nature of the distinction is clarified first.

Grice and Strawson would say it is quite possible to draw the distinction without awaiting any further clarification. They say that there are many distinctions inside and outside philosophy which still await adequate philosophical clarification, but which are not rejected for this reason.

It seems to me that this is another case in which Quine has been misinterpreted. But it is quite easy to see that this misinterpretation s tems from the first one in which Quine is alleged to be rejecting the distinction as such.

Quine's main problem is to find out not whether the analytic/synthetic distinction does in fact exist or not, but rather whether it is one of kind or degree. Quine writes[1]:

"The issue over there being classes seems more a question of convenient conceptual scheme; the issue over there being centaurs, or brick houses on Elm Street, seems more a question of fact. But I have been urging that this difference is only one of degree, and that it turns upon our vaguely pragmatic inclination to adjust one strand

---

1. "Two Dogmas " page 46.

of the fabric of science rather than another in accommodating some particular recalcitrant experience. Conservatism figures in such choices, and so does the quest for simplicity.

Carnap, Lewis, and others take a pragmatic stand on the question of choosing between language forms, scientific frameworks; but their pragmatism leaves off at the imagined boundary between the analytic and the synthetic. In repudiating such a boundary I espouse a more thorough pragmatism. Each man is given a scientific heritage plus a continuing barrage of sensory stimulation; and the considerations which guide him in warping his scientific heritage to fit his continuing sensory promptings are, where rational, pragmatic". It is quite obvious that you do need to explore its nature before you can decide whether the distinction is one of degree or kind. Perhaps Quine's instance on the clarification of the nature of the distinction would be quite superfluous if the issue is whether the distinction as such does in fact exist or not, as Grice and Strawson have pointed out. It seems to me that the analytic/synthetic distinction bears on many central issues both in sematics and scientific method and for this reason the clarification of its nature, is far more important than just to claim that the existence of clear-cut cases of analytic and synthetic statements is a sufficient proof that the distinction as such does exist. Quine is interested in the distinction not for its own sake, but because it is related to some very important issues concerning scientific enquiry. And whenever issues of foundation of science are considered one does need to be very clear about meanings of terms and the distinctions which they pre-suppose. So I think Quine is quite justified in his enquiry about the clarity of an extremely ambiguous term "analyticity" and the

analytic/synthetic distinction which it presupposes. Yet, I am not quite sure at this point whether Quine is justified in his flight from intension, though he surely is justified in rejecting the explanation of analyticity in terms of any member of those intensional terms such as "synonymy", "necessity", "meaning"..... because he has shown that these terms are in no less need of clarification than the notion of analyticity itself.

(3) Does Quine Appeal to Intensional Terms in his Characterization of Logical Truth ?

Strawson says in his paper "Propositions, Concepts and Logical Truth" that Quine's characterization of Logical truths presupposes the intensional notions of the identity of propositions and concepts. He expounds this in the following way :

According to Quine a logical truth is "a statement which is true and remains true under all re-interpretations of its components other than the logical particles".(1) In "Methods of Logic", Quine explains what he means by reinterpreting the components of a statement : he says it is making substitutions upon its component words and phrases "as we please" must not be taken literally; the substitutions which Quine means must be uniform: one must substitute the same phrase or word for every occurrance of the word or phrase to be substituted.

But what is meant by "same" here, Strawson asks; What is the criteria of the identity of substitution ? Strawson says that it is not sufficient to say that the substitution must satisfy the condition of "typographical identity", that is to say the condition that the substitution should be found to consist of the same letters arranged in the same groupings in the same order. Substitutions, according to the condition of typographical

---

1. "Two Dogmas of Empiricism". Quine's From a Logical page 23.

identity, have been made in the following two examples; but far from turning out to produce Logical truths they can produce false sentences:

(1) If he is sick, then he is sick,

Here the phrase "he is sick" is ambiguous; it could refer to someone's physical or psychological condition.

(2) No unilluminated book is illuminated,

We can easily imagine a situation in which this statement is a falsehood.

One way out of this difficulty is to say that the sentences or the expressions to be substituted for each other must have the same meaning or express the same proposition. But obviously, this way out is a blind alley for Quine, because it refers to the intensional notions of "meaning" and "proposition".

I think it is quite true that Quine does refer to some intensional notions both in his characterization of logical truth and elsewhere in his paper against the analytic/synthetic distinction. Moreover, I think Quine himself is quite aware of this. But he does not seem to be particularly ashamed of it. On the contrary, he seems to have an explanation for it which I find both reasonable and convincing. In his book Word and Object, in a tacit reference to Strawson's objection against his using some of the intensional notions which he has rejected as unclear, Quine says that it is quite a legitimate procedure in science to reject notions at one level of explanation where less confusion is likely to be caused by their use. In other words, Quine suggests that, while rejecting intensional concepts in explaining analyticity, on the grounds that they are likely to yield more confusion than clarity, he accepts, temporarily, such references in the characterization of logical truth, because it helps us to gain more insight into the nature of the notion which

we seek to characterize. The following quotation from Word and Object brings out what his aim was in using those intensional concepts which in another context he rejects:

".... For consider how I have persisted in my vernacular use of "meaning", "ideas" and the like, long after casting doubt on their supposed objects. True, the use of a term can sometimes be reconciled with rejection of its objects; but I go on using the terms without even sketching any such reconciliation. What is involved here is simply a grading of austerity. I can object to using a certain dubious term at crucial points in a Theory on the grounds that to use it would deprive the theory of its desired explanatory force; but I can still use and condone the term in more casual or heuristic connections, where less profundity of theoretical explanation is professed. Such grading of austerity is a natural adjunct of the scientific enterprise, if we see that enterprise in Neurath's way"(1)

Again, Quine returns to this problem to emphasize his basic and fundamental rejection of intensional idioms, allowing no room for any doubt over his resolution to oppose intensionality in science.

"The analysis in §32 was such as to spare us any temptation to posit peculiar "intensional objects" of hunting, wanting and the like. But there remains a Thesis of Brentano's illuminatingly developed of late by Chisholm, that is directly relevant to our emerging doubts over the propositional attitudes and other intensional locutions. It is roughly that there is no breaking out of the intensional vocabulary by explaining its members in other terms. Our present reflections are favourable to this thesis..... .... One may accept the Brentano thesis either as showing the indispensability of intensional idioms and the importance of an autonomous science of intension, or as

---

1. Word and Object, ch. 6. ("Flight from Intension) pp.210

showing the baselessness of intensional idioms and the emptiness of a science of intension. My attitude, unlike Brentano's, is the second.

.....Not that I would forswear daily use of intensional idioms, or maintain that they are practically dispensable. But they call, I think, for bifurcation in canonical notation which of the various purposes of a canonical notation happens to be motivating us at the time. If we are limning[1] the true and ultimate structure of reality, the canonical scheme for us is the austere scheme that knows no quotation but direct quotation and no propositional attitudes, but only the physical constitution and behaviour of organisms. If we are venturing to formulate the fundamental laws of a branch of science, however tentatively, this austere idiom is again likely to be the one that suits. But if our use of canonical notation is meant only to dissolve verbal perplexities or facilitate logical deductions, we are advised to tolerate the idioms of propositional attitude".[2]

With this long quotation from Quine I leave this point and move to consider another objection against him.

(4) Does the so-called Duhemian Argument Support Quine's Objection to Analytic/Synthetic Distinction?

G.H. Herbert claimed in his paper, "The Analytic and the Synthetic"[3] that the Duhemian Argument, which he accepts as correct, does not in fact support Quine's misgivings about the analytic/synthetic distinction. The so-called Duhemian Argument is, very briefly, that it is impossible to put to the test an isolated empirical state-

---

1. Rare word meaning paint, portray, depict or illuminate.
2. Word and Object, pp.220
3. Philosophy of Science (1959)

ment; testing empirical statements involves testing a whole group of statements or hypotheses. This argument leads to the following conclusions :

(1) Experience alone cannot compel us absolutely to the acceptance of any isolated empirical statement whatsoever, independently of our acceptance or rejection of some other statements.

(2) No isolated empirical statements can be conclusively falsified by experience independently of our acceptance or rejection of some other statements.

That is to say it is, in principle, possible to accept or reject any particular statement provided we are ready to make enough changes in the system of our hypotheses.

Herbert says that the Duhemian argument was originally designed and formulated in connection with an analysis of the logical structure of empirical science, and contributed greatly to the clarification of the distinction between pure and applied mathematics and logic. He wonders at the fact that Quine, ironically uses it to blur the old distinction between analytic and synthetic statements. However, Herbert does not elaborate on this point and does not explain to us how the Duhemian argument does explain the distinction between pure and applied mathematics and logic; because after all this distinction and the analytic/synthetic distinction are mutually interdependent.

Instead, Herbert goes on to consider the way in which Quine makes use of the Duhemian argument and to show that that use is quite unjustified. Quine uses the Duhemian argument in the following way: Since empirical statements are not, according to the Duhemian, confirmed or infirmed in isolation, it is impossible to define and explain cognitive synonymy in terms of statement confirmation. For instance, it would not be correct to say that two statements are synonymous if and only if their methods of empirical con-

firmation are alike; because obviously such a definition of synonymy presupposes that isolated singular statements are confirmed or infirmed by experience. And so long as it is not possible to define synonymy, we have, according to Quine, no means of defining analyticity, because it is possible to define analyticity only if we have a satisfactory definition of synonymy. Against this Herbert objects that although the Duhemian argument is generally valid, synonymy can still be defined in the following way :

Two statements S_1 and S_2 are synonymous if and only if the following three conditions are satisfied.

(1) $(P_1, P_2, \ldots, P_n \cdot S_1) \succ q$

(2) $(P_1, P_2, \ldots, P_n \cdot S_2) \succ q$

(3) The truth values of $P_1, P_2, \ldots, P_n$ are the same for both (1) and (2),

where :

(a) $P_1, P_2, \ldots P_n$ are statements which are confirmed at the same time and in conjunction with S_1 and S_2

(b) q is an observation statement.

Quine actually does not, to my knowledge, make a reply to Herbert, but it is not difficult to predict what he would have to say in this respect. I suppose he would object to the above definition of synonymy first on the grounds that it would not be easy to determine whether q is in fact an observation statement or not, and in the second place that it would not be easy to determine whether the statements which are implied by (1) and (2) are in fact the same statements. It would be possible to do this only if we had a criterion of statement-identity at our disposal. But as a matter of fact it is such a criterion which we are seeking.

The belief that we can isolate observation sentences and empirically confirm them is, according to Quine, reminiscent of atomic reductionism which he considers as an unempirical dogma. If Herbert proposes a similar definition to avoid the above objection, that is to say if he tries to show that the statements implied by (1) and (2) are in fact the same statement, he would be falling into a kind of circularity.

Herbert maintains that it is only because the terms "change", "adjustment", "revision", are in fact ambiguous that Quine's views on analyticity have a certain appearance of plausibility and simplicity. According to those views any kind of statement whether it belongs to geography, history, mathematics or logic, can, in principle, be revised. Herbert says that two main kinds of revision or change :-

(1) One is a kind of change which affects some empirical hypothesis within the framework of a given language with its conceptual apparatus.

(2) A completely different kind of change is one which happens in our conceptual apparatus itself, that is to say a change in our language and its semantical and syntactical rules. This second kind of change takes place when we re-define a term so that its referential meaning becomes different, or so that certain statements in which it occurs becomes functionally apriori : Such a kind of change, alleged Herbert, commits us only to a certain system of analytic statements, it does not enable us to derive any confirmable or disconfirmable predications.

Herbert wants to say that Quine does not take full account of the distinction between these two kinds of revision, and that this is a distinction of kind which is incompatible with Quine's gradualism and rejection of absolutism as far as the anlytic/synthetic distinction

is concerned. But I think that Quine is quite aware of the distinction between two senses of revision or change, nor would Herbert's objection discount him. Herbert's distinction would be one of kind only if the analytic/synthetic distinction is one of kind, the former pre-supposes the latter; or at all events the two distinctions are inter-dependent.

So, it seems to me, that Herbert's objections against Quine are answerable.

(5) Does Quine Postulate an Absolute Distinction between Logical and Descriptive Terms ?

It has been alleged by some of Quine's critics, including Grice and Strawson, that Quine's gradualism and rejection of dualism is not a radical one, and that it does end at an absolute distinction -namely that which he stipulates between logical constants and descriptive terms while considering the definition of logical truth :

"....a logical truth is a statement which is true and remains true under all re-interpretations of its components other than the logical particles."

Obviously, this characterization of logical truth does appeal to the distinction between logical and descriptive terms. That is to say, it appeals to meaning, which certifies logical truths, in contrast to facts, which certify empirical truths. But this distinction between meaning and facts is clearly more fundamental than the distinction between analytic and synthetic statements. If Quine did maintain a sharp distinction between meanings and facts, while at the same time rejecting the idea that the analytic/synthetic distinction is an absolute one, he would of course be guilty of a plain inconsistency. But I do not think that he ever postulates such a sharp and absolute distinction between meanings and facts. On the contrary, his whole point is that meanings should be married to facts and overt behaviour of organisms, otherwise he would not have been on the constant flight from intensions. To support this,

I would just quote this paragraph from his reply to Carnap[1] :

"Within natural science, there is a continuum of graduations, from statements which report observations to those which reflect basic features, say of quantum theory or the theory of relativity.... statements of ontology or even of mathematics and Logic form a continuation of this continuum, a continuation which is perhaps yet more remote from observation than are the central principles of quantum theory or relativity. The differences here are in my view differences only in degree and not in kind. Science is a unified structure, and in principle it is the structure as a whole, and not its component statements one by one, that experience confirms or shows to be imperfect".

Quine is supposed to have made this point quite clearly, when he considers the characterization of logical truths. But actually he does not. Yet he does clarify it in the second part of his paper "Two Dogmas of Empiricism", and in quotations like that just given.

(6) What Does Quine Mean by the "Whole of Science"?

It has been alleged by Herbert that there is no such thing as "the whole of science" to which Quine constantly refers; and that Quine did not really explain what he means by it. What Herbert wants to dispute is that in our day-to-day scientific enquiry we do not, in fact, meet such an entity as "the whole of science". Moreover, Herbert maintains that although Duhemian argument is on the whole correct yet as far as statement-confirmation is concerned we are never faced in practice with a situation which is as hopeless as the argument seems to suggest. That is to

---

1. Quine : "On Carnap's Views on Ontology" Philosophical Studies.(1951)

say, in actual practice we do, despite the Duhemian argument in fact confirm particular statements.

This may be true, but Quine is not interested in day-to-day matters but in matters of principle. The revision with which he is concerned is a revision in principle, and the issues with which he is ultimately concerned are theoretical issues about the foundation of our methods of scientific enquiry. So this last remark of Herbert is not wholly relevant to Quine's position. As to the question whether Quine did or did not make clear what he means by the phrase "the whole of science" I think the quotation on page and others[1] which I gave when I was considering Quine's general philosophical position, both in the last chapter and at the beginning of this chapter show quite clearly what he means by it. To my mind, there is no obscurity here.

Is it Possible to Refute Quine's Arguments.

I have pointed out that Quine cannot in fact be refuted by simply pointing out clear-cut cases of analytic and synthetic statements and maintaining that this is all that is needed to justify the existence and validity of the analytic/synthetic distinction. Quine, as I have shown, never wanted to dispute the existence of the distinction as such. What he is justifiably interested in is finding out what the nature of this distinction is : is such that the distinction is one of kind or is it one of degree ? And what rationale does this distinction have ? In other words what makes us feel that this distinction is of this nature rather than another. In particular, what are the motives and reasons of the dualists, of those who believe in an absolute distinction between analytic and synthetic statements ? Here Quine has made four important challenges to those who defend the absolute distinction, the dichotomists,

---

1. See "Two Dogmas of Empiricism". From a Logical p.42

and I feel it is possible to refute Quine only if those four changes have been met. The four challenges are the following:

(1) The nature of the distinction must be clarified and explained in such a way as to justify the belief in a hard and fast cleavage between analytic and synthetic statements.

(2) The explanation required in (1) must not be given in terms of any intensional idioms.

(3) Due to the Duhemian argument it is not possible to hold any kind of statement as immune from revision. This argument is of course in a direct clash with the theory that necessary or analytic statements are in consequence immune from revision because they are factually vacuous, or tautologous. They are the extreme or limiting case, in which only the linguistic component reigns absolutely. The only factors that matter here are linguistic conventions, and it is those linguistic conventions which make those statements universally valid and necessary :

"The principles of logic and mathematics are true universally simply because we never allow them to be anything else... And the reason for this is that we cannot abandon them without contradicting ourselves, without sinning against the rules which govern the use of language... In other words the truths of logic and mathematics are analytic propositions or tautologies"(1)

Thus the Duhemian argument seems to go against the belief in an absolute analytic/synthetic distinction.

(4) Quine declares that he is prepared to accept a sharp distinction between analytic and synthetic statements, if it is possible to define analyticity in terms of an extensional sense (not intensional one) of synonymity. Such a definition, however, he submits, is not possible

---

1. Ayer : "Language, Truth and Logic" ch.4.

even in principle, because of a basic indeterminacy in translating or interpreting overt behaviour of organisms and human beings. Quine formulates this view of the indeterminacy of radical translation in connection with the question of translating the language of a hitherto unkown and primitive tribe.

As I have said above, Quine can be refuted only if it can be shown that propositions one to four are in fact false or at least do not support the rejection of an absolute distinction between analytic and synthetic statements : I have been considering objections against propositions one, two and to some extent three and four. I shall devote the whole of the next chapter or at any rate a greater part of it, to the full investigation of proposition four. But in what follows I shall elaborate my comments on the third proposition by considering to what extent Quine is right in rejecting the linguistic interpretation of analyticity ?

We know by now, that according to Quine, it is never the case that some statements are factually vacuous, and that there are no statements whose truth is determined by the linguistic component alone. Quine accepts the proposition that, in general, the truth of any particular statement is determined by two components: one is factual, the other is linguistic. What he rejects is the two extremes, that is to say he rejects the belief that there are purely linguistic or factual statements. Therefore he rejects the verbal/factual distinction, and consequently the analytic/synthetic distinction in their strong or absolute sense. As I have said earlier, Quine brings himself here against a mighty group of philosophers who maintain one form or other of the linguistic theory of analytic statements. Again Ayer seems to be the best representative of those philosophers, because it is Ayer who gives to the linguistic theory of analyticity a very

sophisticated formulation. For Ayer, an analytic statement is one which "is true solely in virtue of the meaning of its constituent symbols, and cannot therefore be either confirmed or refuted by any fact of experience"(1)

This definition of "analyticity" can be traced back to Frege's definition of analyticity in terms of definitions and principles of logic. According to Frege, if in trying to find the proof of a proposition "we come only on general logical laws and on definitions, then the truth is an analytic one"(2)

What Frege means here is that statements are composed of symbols which are either descriptive or logical or both. Attackers and defenders of the distinctions are agreed that the meaning, whatever this term means, of the descriptive terms bears on experience one way or another. However, it is the 'dichotomists' alone who insist that there is a difference in kind, between logical and descriptive terms, and consequently insist that the meanings of the logical terms do not bear on experience but are factually vacuous, and governed only by conventions and linguistic usage. Therefore, when they claim like Ayer that analytic statements are certifiable solely by the meanings of their component symbols, they mean that the truths of analytic statements is determined solely by the meanings of the logical constants. Of course, an analytic statement may be composed of logical as well as of descriptive terms. But the descriptive terms can be eliminated by being translated away, through definitions and synonymies into primitive ones which can be represented as variable so that the truth of the statement depends only on the logical constants.

---

1. Ayer : Language, Truth and Logic. Introduction to the second edition, page 13.
2. The Foundation of Arithmetic. Austin's translation, page 4e.

It is quite easy to predict how Quine would in fact reject the above characterization of analyticity :
(1) he would reject the sharp distinction between logical and descriptive terms as I have said earlier, although he did not clarify this point satisfactorily in the "Two Dogmas of Empiricism". For Quine, experience circumscribes, so to speak, everything in science : "Total science is like a field of force whose boundary conditions are experience."(1)
(2) He would not accept that meanings are governed exclusively by convention of linguistic usage, so that denying analytic statements would be "sinning against the rules which govern the use of language"(2), to use Ayer's phrase. For Quine there simply are no statments whose truth is determined by linguistic considerations alone.
(3) Quine would not accept the characterization of analytic statement as tautologies, or factually vacuous.
(4) Quine would raise difficulties about the questions of "definitions", "synonymies", "meanings", and indeed about the whole domain of intensionality.

I have already considered most of these Quinean views. But I must add a word here about the conventional or linguistic theory of necessary or analytic statements or truths. They are obviously so many versions of this so-called conventionalist theory that it is misleading to group them under a single heading ;
(1) In the firstplace, if by conventionalist theory of analytic truths, is meant that our use of a certain string of signs, e.g. "red", to designate a certain property, e.g. "redness", is a matter of convention, then of course

---

1. Quine : "Two Dogmas of Empiricism" p.42
2. Ayer : Language, Truth and Logic. p.77

the theory is correct, for it is possible that we might have used a different string of signs and symbols to designate that property, say "hard", "desk" or "Khartoum". But it is easy to see that on such an interpretation the conventionalist theory is trivial. If we change the strings of symbols or letters composing the analytic or necessary statement :

"Nothing is both green and red all over at the same time", by using another set of strings of letters, the sentence will obviously change, but the new sentence will obviously change, but the new sentence will also express an analytic or necessary statement or proposition. The meaning of the sentence, or what the sentence expresses, would not change, provided that the new strings of symbols "red", namely "hard", "desk", and "Khartoum", do not retain their old designations or meanings but rather the meaning originally allotted to "red". Therefore, the old linguistic rule which makes the statement "Nothing is both red and green all over at the same time" has not changed. I mean the rule, "Do not attribute the properties "redness" and "greeness" to the same object at the same time, by referring to it by the strings of letters "red" and "green" simultaneously, because those strings designate incompatible characteristics or properties of colours", The rule is still there when we substitute "hard" or "desk" or "Khartoum" for "red" because these new strings of letters would not be retaining the meanings they have at present.

It is because the old rule for the use of the strings of letters[1] "fed" and "green" is not being changed in this process of adopting certain new strings of letters to designate certain properties and characteristics, that the meaning of the sentence "Nothing is both red and green all over at the same time" does not change. (2) But if the conventionalists may want to go further. For them we do not only adopt certain strings of letters

---

1. I am deliberately avoiding the use of the word "word" because it is ambiguous.

in a conventional and arbitrary way that does not change the meaning of the sentences in which those strings of letters occur; we also adopt new linguistic rules, yet still do not change the meaning of the sentences which used to pre-suppose the old rules. If they say this then they are obviously wrong. The meaning of those sentences is bound to change with the changing of the linguistic rules upon which they are based. If, for instance, we change the strings of letters "red", and "green", with those of "hard" and "good", in such a manner that the properties "hardness" and"goodness" whatever these may be, do not in fact exclude one another, then we should no longer have the linguistic rule saying :

"Do not apply "hard" and "good" to one object simultaneously at the same time because the properties hardness and goodness are, in actual fact, incompatible". It follows that the statement :

"Nothing is both hard and good all over at the same time", would no longer be an analytic one.

It seems then that it is the meanings which we assign to the strings of letters "red", "green", which bear on the analyticity of the statement "Nothing is both green and red all over at the same time". If the process of introducing new series of letters to replace the old ones affect or change those meanings, they consequently change the linguistic rules which those meanings presuppose. In this particular case of "redness" and "greeness" being replaced with "hardness" and "goodness" such that while the meanings of the first two terms are mutually exclusive as far as their application to one and the same object all over at the same time, the meanings of the second two terms are not, the original statement or proposition would change. While it was originally analytic, the new proposition resulting from this substitution is not.

Thus the analyticity of :

"Nothing is both green and red all over at the same time" is not determined by any kind of arbitrary convention which we might happen to adopt in relation to the usage of strings of letters. It is based on the meanings of those strings of letters. And this meaning seems to be grounded in factual considerations. It is because "redness" happens to be in actual fact incompatible with "greeness" that the above statement is analytic. No matter what strings of letters we happen to choose to designate those two properties, the proposition that these two properties cannot subsist or adhere to one thing all over at the same time, will always be analytic.

Kneale[1] proceeds along similar lines in criticizing the conventional theory of necessary truths, and I think to the extent which I went in considering the issue in the last few pages his criticism is on the whole justified. 3) Some people even go to the extent that Quine himself advocates some conventional theory of science and scientific enquiry by adopting and employing the Duhemian Argument. This is essentially a reference to Quine's views that experience does not determine uniquely our conceptual system or even language; that is a considerable latitude of choice in interpreting any particular experience; and that this choice is only governed by pragmatic consideration of simplicity and our wish to maintain a more or less stable conceptual system in order to be able to communicate easily. But obviously Quine's conventionality is kept firmly within a circle whose circumference is experience. If it does not bisect that circumference at all. For that matter Quine's conventionalism is of an entirely different kind from that of Ayer when he says that analytic statements are factually vacuous, and that their analyticity or necessity is determined by linguistic convention, about the meanings of the words that compose them. Carnap gives

1. The Development of Logic Ch.10. Section 5, pp.628.

an even more dramatic version of Ayer's conventionality :

"In Logic there are no morals. Everyone is at liberty to build up his own logic, i.e. his own form of language, as he wishes. All that is required of him is that, if he wishes to discuss it, he must state his methods clearly, and give syntactical rules instead of philosophical arguments. The tolerant attitude here suggested is, as far as special mathematical calculi are concerned, the attitude which is tacitly shared by the majority of mathematicians!"(1)

Obviously, a full consideration and discussion of the linguistic or the conventional theory of analytic truths is out of the scope of this thesis. It is enough to be shown that the acceptance or rejection of the analytic/synthetic distinction lies at the basis of this dispute. It is because Ayer and Carnap sustain the verbal/factual distinction, which Quine rejects, that they characterize analytic statements as factually vacuous and as certifiable by linguistic considerations alone.

In the next chapter, I shall consider the question of synonymy, and attempt to assign to what extent it is possible to characterize the notion itself in a satisfactory way. It must be recalled here that Quine says that he would accept an absolute distinction between analytic and synthetic statements if analyticity can be explained in terms of synonymy. But Quine sustains certain misgivings about the possibility of this, because he believes the notion of synonymy itself is in great need of clarification. Some of Quine's critics, in fact tried to refute him by giving definitions of synonymy or by simply saying that, although they don't possess a definition of the notion at the moment, yet they guess it would not be impossible to give such a definition. I shall investigate the possibility of such a definition, and the question whether

---

1. Carnap : The Logical Syntax of Language. (English translation 1937.)

Quine can after all be refuted this way. So far I have maintained that Quine has not been refuted by any of the objections which his critics have raised against him. I have tried to give a full account of those objections, and how they can be answered by Quine. However, I have not considered the objection raised against him in relation to the question of synonymy because I believe it is a big question and must be treated in its own right. The discussion of synonymy would occupy the greater part of the next and final chapter in this thesis. A lesser part of that chapter will be devoted to concluding remarks. I shall also consider other minor issues such as the question whether Quine's views can in fact be reconciled with his opponents'.

Chapter Four

Intensionality, Synonymity and Analyticity

Chapter Four

In the last chapter,I attempted to show that some important objections against Quine's position on analyticity and related issues can be met, and stated that in general I was of the opinion that Quine is not refuted by those objections. I also expressed the opinion that some of Quine's critics missed the real value and depth of his arguments and consequently their attempts to refute him have not achieved anything as original and interesting as the Quinean arguments which prompted them.

In this chapter and the next one I will try to assess whether Quine can be refuted in his more fundamental and ambitious programme - that is, the rejection of intensionality from scientific discourse. I think that his dissatisfaction with intensional idioms[1] such as 'meanings', 'analyticity', 'synonymy', 'propositions', 'properties', is the heart of his philosophical activities. In particular, his shunning of intension is central to his rejection of an absolute distinction between analytic and synthetic truths, and to his rejection of that phenomenological reductionism which locates empirical content of significant statements ultimately in such entities as sense-data. For Quine there are no such entities, and there is no sub-language which can be characterized in terms of them.

---

1. In the next chapter I shall consider, rather briefly, Quine's theory of "canonical notation" by means of which he seeks to eliminate intensionality.

Quine's rejection of intensionality in science is not purely negative. That is to say he does not merely grumble against the common use of intensional idioms in science, on the ground that those intensional idioms are not clear and imprecise. His thesis is much more interesting and positive; he claims that the common usage of those idioms gives a distorted picture of the nature of the scientific enterprise and of disrupt, the kind of insight into reality we hope to achieve through science. Moreover, in Quine's view, intensional language leads to mistaken theories of scientific knowledge and truth. One such mistaken theory is that mathematical and logical truths are immune from empirical revision because they are factually vacuous; they are simply true by linguistic entities, namely meanings.

In view of this , it is best to distinguish two steps in Quine's attack on intensionality:

a. The negative step: Here Quine tries to show that the common usage of intensional idioms in scientific language is not justified because it leads, among other things, to:
   i. The drawing of sharp distinctions such as the analytic/synthetic; apriori/empirical; necessary/contingent; verbal/real, etc.
   ii. These distinctions in turn lead or are justified by reference to at least two types of truth which are different in kind. The first is truth by language or linguistic conventions; it corresponds to the first members. The distinctions just mentioned,distinctions which are identical for many of the philosophers who draw them. The second is truth by empirical experience.

iii. the belief that it is possible to reduce scientific discourse to a phenomenological sense-data language.

Quine's From a Logical Point of View could be viewed as representing this negative step, although, of course, it contains some elements of the second positive thesis. Also belonging to this negative phase are many of his early articles such as "Truth by Convention", "Quantifiers and Propositional Attitudes", "Mr. Strawson on Logical Theory", "Carnap on Logical Truth".

b. The positive one: Here Quine tries to develop an extensional theory of communication for science based on physicalism, as explained by his theory of ontological committment; behaviourism, as developed in his theory of radical translation; pragmatism, as displayed, among other things, by his theory of the indeterminacy of radical translations, and by his views on the role of convention, elegance and simplicity in scientific enquiry.

This phase is mainly developed in his latter works, especially Word and Object. In this book, Quine develops his thesis of extensionality in science. In the first chapter, he explains the importance of regarding our talk in terms of physical, common sense things as basic as we can get. In particular he claims it is wrong to consider that this talk or discourse is reducible to that of sense-date. In chapter two, he explains how it is possible to hold a theory of meaning as constituted by extra-linguistic stimuli and by our overt behavioural responses to them. Thus we avoid having to posit meanings as linguistic entities, or indeed, any other

intensional objects such as propositions. The rest of the book develops those theses with other related assertions, such as the theory of radical translation. In both of these phases Quine's views clash with current and largely dominant philosophical views. In particular, he clashes with the views of Rudolf Carnap who represents, largely, logical positivism in its most recent form. Carnap, of course, acquired this position by both being one of the founders of the Viennese Logical positivism of the 1930's, and by playing a major role in its subsequent development.

Some of the doctrines which Quine attacks, e.g. phenomenonogical reductionism, are no longer maintained by today's logical positivists, and represent an early stage of this philosophical movement. But others remain as points of difference between Quine and Carnap. Among such unresolved issues is that of the analytic/synthetic distinction and the related topic of whether there is analyticity and truth by language and convention. Both of these are, of course, related to the more general debate as to the admissibility of intensions in scientific communications.

That such issues mark points of divergence between Quine and Carnap is evident from the following quotations from Carnap in which he explicitly refers to them. He writes[1]:

"... My conception of semantics starts from the basis given in Tarski's work,[2] but differs from his

---

1. The Philosophy of Rudolf Carnap (1963) edited by P.A. Schilpp
2. The reference here is to Tarski's definition of semantical conception of Truth, as was outlined in his paper to the International Congress for Scientific Philosophy held in Paris, September 1935, which was later contained in his book, The Concept of Truth in Formalized Languages (Oxford 1956).

conception by the sharp distinction which I draw between logical and non-logical constants, and between logical and factual truth ..."[1]

He writes elsewhere in the same book:[2]

"I mention above the problem of the distinction between logical and factual truth, which constitutes a point of divergence among those working in semantics. To me it had always seemed to be one of the most important tasks to explicate this distinction, in other words, to construct a definition of logical truth or analyticity. In my research for an explication, I was guided on the one hand by Leibniz's view that a necessary truth is one which holds in all possible worlds, and on the other hand by Wittgenstein's view that a logical truth or tautology is characterized by holding for all possible distributions of truth-values. Therefore the various forms of my definition of logical truths are based either on the definition of logically possible states or on the definition of sentences describing those states (state-descriptions). I had given the first definition of logical truth in my book on syntax[3]. But now I recognise that logical truth in the customary sense is a semantical concept. Therefore, using some of Tarski's results, I defined L-truth in semantics, as an explication for the familiar concept of logical truth, and related concepts such as L-implication and L-equivalence. In this way the distinction between logical and factual truth, which had always been regarded in our discussions in the Vienna Circle as important and fundamental, was at least vindicated. In this distinction we had seen the way

---

1. ibid, page 62
2. ibid, page 63
3. The reference here is to The Logical Syntax of Language

out of the difficulty which had prevented the older empiricism from giving a satisfactory account of the nature of knowledge in logic and mathematics. Since empiricism had always asserted that all knowledge is based on experience, this assertion had to include knowledge in mathematics. On the other hand, we believed that with respect to this problem the rationalists had been right in rejecting the old empiricist view that the truth of "2 + 2 = 4" is contingent upon the observation of facts, a view that would lead to the unacceptable consequence that an arithmetical statement might possibly be refuted tomorrow by new experience. Our solution, based on Wittgenstein's conception, consisted in asserting the thesis of empiricism only for factual truth. By contrast, the truths in logic and mathematics are not in need of confirmation by observations, because they do not state anything about the world of facts, they hold for any possible combination of facts."

Now, before I go on to elaborate on the various allusions made by Carnap in that rather lengthy but very significant quotation, I should like to make two brief remarks on it:

1. Carnap seems to have accepted Leibniz's characterization of Logical truth in terms <u>of truth in all possible worlds</u>. Now to me it seems that the weakness in this Leibnizian characterization is the word "possible". What does the word mean? Does it mean:

   a. Logical possibility?
      It cannot because (i) Leibniz's characterization will be circular (ii) the phrase "logically possible" is unclear as it consists of two unclear words.

b. Possible world or state of affairs is one that could happen? Here we have hardly explained anything, because the word "could" is as unclear as the word "possible" itself.

c. A possible state of affairs or a possible world is one that can be imagined or conceived? The trouble with these two different words is that they are both psychological and subjective. But a man's imagination and conception is a function of the kind of experience to which he has access, and the kind of intellectual ability which he happens to have. Both such properties are obviously contingent, in the sense that they could be otherwise. Therefore, the number of the range of the possible worlds is a function of our power of imagination and conception, which tends to vary according to whether those powers happen to be wide or narrow.

It will be seen later that Carnap avoided this last objection on the score of subjectivity, by giving Leibniz's phrase "all possible worlds" a linguistic[1] interpretation in terms of state-descriptions, instead of the usual ontological or epistemological interpretation which it used to have. I shall comment on this variant of Leibniz's Thesis when I come to consider Carnap's views more fully.

---

1. Carnap must have been guided in this by Wittgenstein's notion that a possible world is one which we can say something about: "The limits of my language means the limits of my world" - Tractatus 5-6

2. My second comment on the quotation from Carnap concerns his acceptance of the Wittgensteinian notion of tautology as the trait or property which characterizes logical and mathematical truths:

a. The term 'tautology' in the technical sense is originally connected with truth tables, and the propositional calculus. An expression is tautologous if it is true under all assignments of truth values to its component parts. These assignments cover all combinations and permutations of the truth values of the component parts. This is yet another reproduction of the Leibnizian "true in all possible worlds" contengation of logical truth, and one would object to those raised against Leibniz's criterion. One may say, for instance, that the range of all combinations and permutations of truth values is limited in such laws as these of excluded middle and double negatives, because in truth-table operations we actually make use of them. Yet these laws cannot be shown to be logical units by the same criterion.

b. even in the propositional calculus, truth is defined in terms of logical constants like v and ⊃ and we have not been told what a logical constant is.

c. Suppose we say that a tautology does not say anything simply because it enumerates all possible occurances of an event. What we say is rather vague, as it contains the unclear, and as yet unexplained, word "possible". Indeed there is even a sense in which our assersion could be false. Consider the sentence:

> "Tomorrow, it will either rain or not rain". One could say that this statement does have a factual content, namely that the natural phenomenon which we experience and to which we give the name "rain" is capable of two modes only. It either happens or it does not. It is even possible to imagine a case where this information is both quite new and surprising, for instance, for a creature coming to the earth from another planet where it never rains. It is our knowledge, in the first place, that the phenomenon"rain falling"has only these two modes which enables us to say that the sentence "Tomorrow, it will either rain or it will not" exhausts all the possibilities concerning the falling of the rain. It is a similar kind of knowledge of the range of modes which prevents us from saying that a sentence like "A human being either walks or does not walk" exhausts all the modes of the up-right movement which a human being is capable of performing.

If it is claimed that the statement, it either rains or it does not, is factually vacuous or tautologious, because its truth does not depend on its factual content, but is simply derivable from its form, that is $p \vee \sim p$, then it is not easy to see what this might mean:

a. Does it mean that its truth is merely derivable from the string of the uninterpreted marks $p \vee \sim p$? This can hardly be the case, because the uninterpreted string simply does not mean anything, and I cannot say how it is possible to predicate truth of that which is meaningless.

b. On the other hand, it might be said that its truth depends on the meaning of the words "not" and "or" which are symbolized by (~) and (v) respectively, of course, it would be added that the notion of meaning, is not to be taken here in its strong empirical sense (which for the neopositivists is to be defined by a weak sense of confirmation by experience[1]); it must be taken in a conventionalist and prescriptive sense: it is we the user of the language, who want the expression p v ~p, where p stands for a given statement and v, ~ stand for 'or' and 'not' respectively. However, I share Quine's misgivings[2] about this linguistic, conventionalistic and normative thesis of logical truth; and moreover I share Pap's misgivings, which I mentioned before, about the meanings of the so-called logical constants.

For instance, the concept of negation seems to be suggested to us by experience. It is because certain states of affairs exclude others, that we learn and derive the concept of mutual incompatibility. We learn that wetness excludes dryness, being five feet tall excludes being three feet tall, being in Durham excludes being in Khartoum, and so on. If the law of excluded middle does not depend on a particular experience rather than the other, this is because it somehow reflects a basic general feature of our experiential reality. Perhaps this may explain why we are reluctant to give it up on the score that a particular state of affairs does not seem to demonstrate it.

---

1. See Ayer's formulation of the principle of verification.
2. These are discussed later in this chapter.

Another reason which may help to explain why these laws of thought are held to be necessary and universally valid, is that, given our ordinary conceptual system, we can justify or vindicate them apriori without reference to a particular state of affairs. But to say that a statement can be justified a priori is not to suggest that it is factually vacuous. Frege's distinction between the content or subject matter of statements and its justification must be upheld here.[1] Moreover, it is also important to realize that when we say that these laws of thought can be justified a priori, we do not mean that they are a priori in an absolute sense of complete independence of all our experience. Experience constitutes, in a Kantian sense, an unescapable limitation of our ordinary conceptual system which is exemplified by the natural languages. So when we say that a statement or a group of statements is justifiable a priori, we mean that they are a priori within this conceptual system. However, the way in which experience influences our conceptual system, is not easy to determine. But this influence is sometimes very concrete and easy to lay one's hands on, while in other cases it is very remote and vague and rather difficult to detect. What we call empirical statements are cases of the former situation, whereas what we call a priori are examples of the latter one. In particular these laws of thought must be instances in which the impact of concrete and particular experience is loose and far-fetched.

I shall now add some more comments on the quotation from Carnap, and I shall begin by bringing up more fully the points which he alludes to in passing in that quotation.

---

1. The Foundation of Arithmetic, Austin's translation pp.3e

First of all Carnap refers in the passage quoted earlier to his conception of semantics as based on Tarski's definition of truth, but rather different because it stipulates a sharp distinction between factual and logical truth.

The characterization of Carnap's conception of semantics is first sketched in his books Introduction to Semantics. It is further developed in his later book, Meaning and Necessity. In what follows I shall try to indicate the essential features of Carnap's conception of semantics, and then to assess whether or not Carnap's semantical method is successful in drawing a sharp distinction between logical and factusl truth. After all, by Carnap's own admission this distinction is of an utmost theoretical importance both for semantics in general and as a distinctive feature for his own semantical conception. Carnap writes, and I quote[1]:

"The problem of the nature of logical deduction and logical truth is one of the most important problems in the foundations of logic and perhaps in the whole theoretical philosophy ... The view will have to be explained that logic is a special branch of semantics, that logical deducibility and logical truth are semantical concepts. They belong to a special kind of semantical concept which we shall call L-concepts (for logical truth we shall use the term'L-truth', for logical deducibility 'L-implicate')."

---

1. Introduction to Semantics, pp.56.

Carnap believes, as is evident in the quotation on page 6, that he has solved the problem of the analytic/synthetic distinction by giving an adequate explication of the notions of L-truth and analyticity within his semantical system. Let us now indicate the essential feature of his conception of semantics as first sketched in his book Introduction to Semantics.

1. He first distinguishes between Object-Language and Meta-Language[1].

"The language spoken about in some contexts is called the object language, the language in which we speak about the first is called the meta-language".

For instance; if we describe the grammatical structure of Arabic in English, then in this case Arabic is the Object Language while English is the Meta-Language.

By 'language' here Carnap means a system of means of communication. Thus the aggregate of languages includes, besides spoken and written natural languages such as English, German, Arabic, etc., code languages, gestures, sign languages etc.

2. Carnap then distinguishes between Pure and Descriptive Semantics, displaying once again his fondness for sharp distinction. Although his semantical method is designed to show that there is a sharp distinction between analytic and synthetic truths, Carnaps distinction between Pure and descriptive semantics, actually presupposes and makes use of the analytic/

---

1. Introduction to Semantics, pp.3.

synthetic one. He is not entitled to make such a presupposition, because his distinction between pure and descriptive semantics is an essential feature of the semantical conception which is supposed to explicate analyticity. He writes[1]:

"Semantical investigations are of two different kinds; we shall distinguish them as descriptive and pure semantics ... descriptive semantics describe facts; it is an empirical science. On the other hand, we may set up a system of semantical rules, whether in close connection with a historically given language or freely invented; we call this a semantical system. The construction and analysis of semantical systems is called pure semantic. The rules of a semantical system S constitutes, as we shall see, nothing else than a definition of certain semantical concepts with respect to S, e.g. 'designation in S' or 'true in S'. Pure semantics consist of definitions of this kind and their consequences; therefore, in contra-distinction to descriptive semantics, it is entirely analytic and without factual content."

3. Carnap, then, characterizes a system of pure semantics in the following way[2]:

"A semantical system is a system of rules which state truth-conditions for the sentences of an object language and thereby determine the meaning of these sentences. A semantical system S may consist of rules of formation, defining 'sentences in S', rules

---

1. ibid, pp.12.
2. ibid, pp.22.

of designation, defining 'designation in S', and rules of truth, defining 'true in S'. The sentence in the meta-language 'is true in S' means the same as the sentence itself. This characteristic constitutes a condition for the adequacy of definition of truth".

As an example of a semantical system, Carnap specifies the following one:

The Language System S^1

1. Formation Rules

Given that S_2 contains the following seven signs:
3 individual constants, viz., m_1, m_2, m_3
2 predicates, viz., pr_1, pr_2
2 parentheses, viz., '(',')', then sentence of S_2 are expressions of x_x the form
pr(m)

2. Designation Rules

(a) m_1, designates Chicago
(b) m_2, designates New York
(c) m_3, designates Carmel
(d) pr_1, designates the property of being large
(e) pr_2, designates the property of having a harbour

3. Truth Rule

A sentence $pr_1(m_2)$ is true if and only if the designation of m_2 has the designatum of pr_2 (i.e. the object designated by m_2 has the property designated by pr_2).

We must keep in mind that such systems of pure semantics as S_2 are intensional systems in the sense that its rules of designations "do not make factual

---

1. ibid, pp.23,24.

assertions as to what are the designata of certain signs. There are no factual assertions in our semantics"[1]. Apart from this the intensional nature of such systems as S_2 is also evident in the positing of properties as designata, though of course they are not posited as physical objects.

However, Carnap is not keeping a secret the inclusion of intensional and abstract entities in his semantical system. This is a major point of difference between him and Quine. Although Quine may reluctantly accept some abstract entities like class and number in semantics and mathematics, yet he is by no means ready to accept intensional objects such as meanings, propositions, properties etc. Carnap refers to this point as follows: he writes[2]:

"The concept of intension or meaning is closely related to that of logical truth. Recently Quine has declared that this concept is unintelligible to him. He has challenged those who regard it as scientifically meaningful to offer not only a semantical criterion for the concept of intension with respect to an artifically constructed language system, but in the first place an empirical, behaviouristic criterion in pragmatics with

---

1. How pure semantics can avoid factuality, Carnap does not say. Dr. P.J. FitzPatrick, of Durham University, criticizes Carnap here: "To say that the designation of m_1 has the designation of pr_1 surely does involve the notion of significance in its stronger empirical sense (the way we get to know what 'large' means and what 'New York' means) otherwise, why use 'New York' and 'large'? Why not say m_1 designates a, pr_1 designates b, and $pr_1(m_1)$ is true if and only if a is b. But here, all we have done is introduce two more letters and an artificially simplified notion of 'designation'".
2. The Philosophy of Rudolf Carnap, ed. by P.A. Schipp, pp. 67.

respect to natural language. To me it seemed clear that it should be possible to provide a[1] criterion of this kind, since linguists in their empirical investigations have always studied the meaning of expressions."

In what follows I shall briefly indicate how Carnap applies his method of extension and intension to the definitions of the L-concepts, in particular L-truth. Then I shall consider Quine's objections to this method, and in particular his objections to Carnap's characterization of logical truth. I shall also consider more fully Quine's distaste for, the flight from, intension. Those issues have been in constant discussion among philosophers in general, and between Carnap and Quine in particular ever since White and Quine declared their objections against the analytic/synthetic distinction in the late forties and the early fifties.

---

1. To my knowledge Carnap has not offered such a criterion.

2. Carnap's early semantical definitions of L-concepts are given in section C of Introduction to Semantics. Those definitions were intended as explications for the notions of logical truth and analyticity in such a manner as to formulate and justify a sharp distinction between logical and factual truths. Besides they were also, as I have already stated, intended to be one of the distinctive features of the Carnapian conception of semantics. Now, I am not going to give those definitions here, because Carnap himself has abandoned them in favour of the new method of analysis of semantical meaning which he developed in his book Meaning and Necessity, and to which he gives the name of "The Method of Extension and Intension".

Carnap's Method of Extension and Intension

Carnap's method of extension and intension is reminiscent of Frege's distinction between the nominatum or reference of an expression and its sense. Frege introduced this distinction so as to reform the traditional theory that the meaning of an expression (or a name) is what the expression names (its referential object or nominatum). In this theory if two sentences name the same object (same nominatum) then they are identical, and any of them can be substituted for the other in any context without changing the initial truth value of that context. Now, the naming theory of meaning leads to the following paradoxes:

A. The Evening Star is the Morning Star, since the two phrases "Evening Star" and "Morning Star" name one and the same entity, and since they name the same entity, we can substitute one for the other without changing the truth value of sentence (1); viz. (2) The Morning Star is the Morning Star. Now, here the paradox is this: while sentence (1) is interesting and informative, sentence (2) is trivial and unimformative, and although both refer to the same entity, they still seem to be different in meaning.

Frege solved this difficulty by introducing the distinction between naming and sense. Every expression, according to this distinction, has both a nominatum and a sense or meaning; and thus although the two phrases above have the same nominatum they have different senses.

B. Another paradox of the naming theory is the one which Carnap calls 'The Antimony of the Name-Relation': consider the sentence, (a) Necessarily, the Morning Star is the Morning Star. Now if we substitute the phrase

"Evening Star" for one of the occurrences of "The Morning Star" we get the following sentence: (b) Necessarily, the Morning Star is the Evening Star. Now (b) should remain true since (a) is true, but obviously it does not.

To solve this puzzle, Frege had to introduce meant entities[1] to stand as names for the sense of the expression in context like that of (b), which he calls oblique, i.e. non-extensional or non-referential.

Carnap's Extension and Intension

Instead of Frege's pair[2] (nominatum, sense) Carnap introduces the pair (extension, intension). Carnap says[3] that the two pairs coincide in ordinary, non-oblique contexts. That his pair, like that of Frege, is intended to represent two components of meaning (in a wide sense): the concept of intension (and of Frege's 'sense') refers to meaning in a strict sense, "as that which is grasped when we understand an expression, without knowing the facts, the concepts of nominatum and extension refer to the application of the expression, depending upon facts."

"A decisive difference between our method and Frege's consists in the fact that our concepts are independent of the context. An expression in a well-constructed language system always has the same extension and intension; but in some contexts it has its ordinary nominatum and its ordinary sense, in other contexts its oblique nominatum and its oblique sense."[4]

---

1. Thus in oblique contexts, names acquire new nominata (which here are meant entities), and thus acquire new senses.
2. Frege: "On sense and nominatum", in Readings in Philosophical Analysis by Freigh and Sellards p.86.
3. Meaning and Necessity, pp.124.
4. ibid, pp.125.

I shall not consider here how Carnap, Quine and others propose to solve the paradox of "name-relation", but will deal with the point when I consider Quine's programme for eliminating intensionality from science. For the moment I will consider how Carnap proposes to define L-concepts by the method of extension and intension.

Carnap's conception of Logical Truth

Carnap proposes to explicate the customary concept of logical truth as is current in philosophical literature: what Leibniz called 'necessary truth', and Kant 'analytic'. He carries out this definition of L-truth and other L-concepts in a symbolic language or semantical system, say, S_1, which is similar, yet more comprehensive, than the system S_2 which I discussed earlier in this chapter. The essential components of this system, are again,

A. (1) connectives, such as $\sim$, $\supset$, V, ...
   (2) individual variables
   (3) quantifier with only bound variables
   (4) the operators: $(\imath x)(\ldots\ x\ \ldots)$ for individual description $(\imath x)(\ \ldots x \ldots)$ for abstraction expression.

B. Rules of designation for individual constants and predicates.

C. Rules of Truth or truth conditions.

D. Rules of Range.

Now, S_1 is supposed to be the object-language. Carnap also specified a suitable meta-language for it.

Definition of Truth in S_1

'True in S_1' is defined recursively by Carnap. He first gives the truth-conditions for all the sentential connectives and the quantifiers, the sum of which constitutes a recursive definition of "true in S_1". As

examples he gave the following rules of truth:

a. The sentence[1] 'Bs' is true if and only if Scott is a biped.

b. A sentence[2] $\mathfrak{S}_2 \times \mathfrak{S}_1$, is true on S_1 if and only if at least one of the two following components is true; where $\mathfrak{S}_k$ stands for a sentence in the meta-language M.

c. A sentence $\mathfrak{S}_2 = \mathfrak{S}_2$ is true if and only if either both components are true or both are not true.

These three rules of truth in conjunction with others and together with rules of designation, determine for every sentence in S_1 a sufficient and necessary condition of its truth. Carnap does not work this definition of truth in detail here, although he does develop it elsewhere[3]. But he is presupposing a definition of truth such that if we assert a certain statement in M saying that a certain sentence S_2 is true, then all we mean is the translation of the sentence e.g. 'Hs' is true in S_2' means the same as 'Walter Scott is human'. The relation of such a definition of truth to that of Tarski is too obvious to need stating. All other semantical concepts are defined in Carnap in terms of the concept of truth.

Definition of L-concepts.

In defining L-concepts Carnap makes use of the concepts of state-description and range.

State-description

A state-description is a class of sentence in S_1 which contains for every atomic sentence either this

---

1. The term "sentence" is used in Carnap's meta-language (M) in the sense of "declarative sentence".
2. Use of German letters is not explained by Carnap.
3. Introduction to Semantics, Ch.7.

sentence or its negation, but not both, and no other sentence. As I have said earlier in this chapter, Carnap's concept of state-description is not really new; it is only a linguistic reformulation of the ontological, Leibnizian concept of all possible worlds or the Wittgensteinian one of all possible states of affairs.

The Concep of Range

The range of a sentence, e.g. 6_2, is the class of all those state-descriptions in which that given sentence holds.

Carnap says that semantical rules can be given which determine uniquely whether or not a particular sentence in S_2 holds in a given state-description. Examples of such semantical rules are:

1. An atomic sentence holds[1] in a given state-description if and only if it belongs to it.
2. 6_1 holds in a given state-description if and only if ~~6~~ it belongs to it.

It is such semantical rules that determine the range of a particular sentence in S_1, therefore they are called rules of ranges. These rules, together with the rules of designation, give an interpretation for all sentences in S_2. The meaning of a sentence in S_1 is nothing more than those cases in which, out of all possible cases, it is true, and those in which it is not.

The concept of L-truth itself is not defined in terms of the concept truth. But the concept of truth figures in the following conditions of adequacy which a satisfactory definition of L-truth must satisfy:

---

1. It is difficult to see hod "holds" is explained by "belongs" here. This point has been suggested to me by Dr. P.J. FitzPatrick.

Convention:- A sentence S_1, is L-true in a semantical system S if and only if S_1, is true in S in such a way that its truth can be established on the basis of the semantical rules of the system S alone, without any reference to (extra-linguistic) facts.

It is this convention which betrays the linguistic character of Carnap's characterization of logical truth. I shall have a chance to criticize this convention, when I consider Quine's objections to Carnap's linguistic theory of necessary truth. (In Carnap the terms 'L-truth', 'necessary truth' and 'analytic truth' are identical.)

After all this explanatory survey of Carnap's conception of semantics, and of his method of extension and intension, we are at last ready to state his definition of L-truth. It was essential to make this explanatory survey, because Carnap's views are the best representation of the dichotomist point of view, that is to say the view which maintains a sharp distinction between analytic and synthetic propositions. In particular many arguments used by Quine in this attack on that distinction and on intensionality in general are directed against Carnap. Since the thesis of extensionality (i.e. the thesis that intensional idioms and intensional objects are not justified in science) is basic to the Quinean position, Quine will be sufficiently refuted, if that thesis is discredited. Conversely if Carnap's method of extension and intension can be justified, then there will be no need for Quine's scepticism.

Definition: A sentence S_1 is L-true (in S_1) $=_{df}$ S_1 Holds in every state-description (in S_1).

It is quite clear that this definition of L-truth is meant to satisfy the linguistic thesis expressed in the convention of page 125 of this chapter: if G_1 holds in every state-description, then the semantical rules of range suffice for establishing its truths, that is its truth does not depend on the contingent facts of a particular state-description since there is no such state-description in which it does not hold. If, on the other hand, a sentence does not hold in all state-descriptions, it follows that there is at least one state-description in which it does not hold, and if this state-description is true, then this sentence is false. But whether this last state-description in which G_1 might not hold is true or not depends on factual considerations.

As I have said before, Carnap's definition of L-truth, is a linguistic reformation, in terms of state-descriptions: of the old Leibnizian definition of necessary truth as one which holds in all possible worlds. It is the obscurity of the word possible, which makes this Leibnizian definition unacceptable. The equivalent of the word possible in Carnap's system is the word "range". Instead of all possible worlds in which a necessary truth holds, Carnap talks about the range of an L-truth sentence, which is the class of all those.

Now, how do we determine the range of a particular sentence? Carnap tells us that it is the rules of ranges which determine the range of a particular statement. Now, these rules of ranges make use of such logical constants as the negation, conjunction, and disjunction signs, and also of the law of the excluded middle, in such a way that if a sentence holds in certain state-descriptions, then its negation holds in all the other state-descriptions;

therefore the disjunction of the sentence and its negation holds in every state-description. On this, I would here make the following comments:

1. The notion of a logical constant is unclear, and in most cases it is either taken for granted or else derived from a belief in a sharp distinction betweem logical and non-logical signs; this distinction, as we have seen before, is very difficult to explain. And since it is more basic than the analytic/synthetic distinction, the latter cannot be used to explain it. Yet Carnap allows himself both to distinguish sharply between logical and descriptive signs, without explaining it satisfactorily, and to use this distinction in the construction of his semantical system, and in his subsequent definition of L-concepts. To my mind this procedure is quite strange: unless we have a clear notion of what constitutes the logicality of a sign, we cannot really draw a sharp distinction between logical and descriptive signs; at all events, if this distinction needs further verification, then the distinction between the analytic and synthetic also needs clarification. Although Carnap is quite aware that the descriptive/logical distinction between signs is not clarified sufficiently, he still allows himself the advantage of using it. Carnap writes[1]:

"In preparation for the later discussion of L-concepts, the distinction between logical and descriptive signs is explained. By descriptive

---

1. Introduction to Semantics, pp.5.

signs we mean those designating things or events, their properties or relations, etc. The two kinds of signs can easily be defined with respect to any given system (special semantics), but a definition for systems in general (general semantics) is not yet known."[i]

Yet even in special semantical systems, Carnap does no more than merely enumerate certain signs, e.g. sentential connectives such as V and ⊃ and others saying that these signs constitute what we mean by logical signs. In other words, he is failing to explain such signs intensionally, and indeed gives only an extensional definition of them in the pejorative sense of merely enumerating all the members which belong to a given class. But he does not define a property which will enable us to give the title of logical to certain signs while withholding it from others.

2. My second remark concerns the much disputed Carnapian notion of semantical rules. Carnap says that the semantical rules which he uses in the construction of his semantical systems have nothing to do with factuality.[ii] They are simply grounded on conventions and since those semantical rules are said to determine the meaning or interpretation of the systems they belong to, language itself is completely conventionalized. Carnap himself does not tell us how he constructs his semantical systems; this is he does not tell us the pre-systematic motives, purposes, intuitions which guide him to construct those systems the way he

does. For instance he does not tell us why all his semantical systems consist essentially of

(1) Rules of Formation:
    (a) laying down certain logical constants having to do with sentential connections or quantifications etc.
    (b) giving certain rules of designation.
(2) Rules of Transformation which consist of
    (a) Range-rules
    (b) Truth-rules

Nor does he explain how we are led to the specification of certain truth and range rules to the exclusion of possible others.

I am inclined to believe that in such semantical systems one is bound to be making implicit or tacit use of certain presystematic intuitions regarding such notions as truth and language which cannot be regarded as completely devoid of factual content. Physical reality must be in some way or other reflected in the way we talk about it. The fact that all known natural languages have more or less a basic similarity of grammatical structure indicates, I think, the essentially one physical reality which all humans experience. The way physical things are clarified by similarity and difference, genus and species must reflect itself in our verbalization and conceptualization. To say that verbalization is arbitrary and conventional and completely distinguishable from factuality seems to deny such links between language and physical reality. Carnap, as a proponent of linguistic and conventionalist theory of analytic truth, denies any links between language and factuality as far as a certain

class of sentences are concerned, namely those which are analytic.

In what follows I shall consider some more objections to the linguistic theory of analyticity. This theory is an important assumption that underlies the belief in a sharp analytic/synthetic distinction, as I have shown before.

Objections to the Linguistic Theory of Analyticity

In his paper "Carnap and Logical Truth"[1], Quine brings up the following objections to the linguistic theory of analyticity:

I. It is not the case that logical truths have been laid down by conscious, explicit conventions; and it is impossible even in principle to state the most elementary part of logic by such conscious and explicit conventions. The reason for this is that the laws of logic are infinite in number, and therefore they are not statable in singular, individual conventions. They must be given, if given at all, in general ones, in which case the laws of logic are needed to begin with in order to apply the general conventions to individual cases.

II. Since the rise of non-Euclidean geometries, truths of pure geometry have been regarded as good examples of truth by convention. Quine says this is not the case. First of all, there is no truth by convention in Euclidean geometry. What is conventional here is merely the classification of an already existing body of truths concerning shape and space into primitive ones or postulates, and

---

1. Published in The Philosophy of Rudolf Carnap, ed. by Schilpp.

complex ones or theorems. Secondly, non-Euclidean is conventionally derived from an Euclidean one, but since there is no truth by convention to begin with in Euclidean geometry, then it goes without saying that no such truth is involved in non-Euclidean geometry.

III. Quine allows that there is truth by convention in set theory, as distinguishable from elementary logic (which consists of (1) truth-function theory, (2) quantification theory and (3) identity theory). Quine writes[1]:

> "In set theory we discourse about certain immaterial entities, real or erroneously alleged, viz. sets or classes. And it is in the effort to make up our minds about genuine truth and falsity of sentences about these objects that we find ourselves engaged in something very like convention in an ordinary non-metaphorical sense of the word. We find ourselves making deliberate choices and setting them forth unaccompanied by any attempt at justification other than in terms of elegance and convenience. These adoptions, called postulates, and their logical consequences (via elementary logic), are true until further notice."

In connection with postulation in interpreted systems, Quine distinguishes between legislative and discursive postulation which constitutes truth by convention in set theory, while discursive postulation, as it occurs in elementary logic and elsewhere, does not constitute truth by convention at all. It is used merely to deduce

---

1. "Carnap and Logical Truth", published in The Philosophy of Rudolph Carnap, ed. Schilpp.

certain truths from an already existing body of truths. The legislative/discursive distinction can be drawn in the case of definition; truth by convention again being associated with legislative definition.

Quine does not specify more precisely the legislative/discursive distinction. Concerning postulation, he claims that the distinction does not refer to the consequences of the choices we make in picking procedures for deciding what is true and what is false about objects like sets. Thus the distinction does not refer to groups of sentences. Rather, it refers to the acts of choice and deliberation which are connected with the above-mentioned procedures. In so far as those consequences are simply determined by considerations of elegance and convenience, they are conventional. But this conventionality "is a passing trait, significant at the moving front of science but useless in classifying the sentences behind the lines. It is a trait of events and not of sentence".[1] A similar account of the legislative/discursive distinction in case of definition is given by Quine.

Although Quine advocates a radical brand of empiricism which is free of the two dogmas which he rejects, yet he allows a sizeable role for convention in science, taken with 'convention' in the sense of the last paragraph. This concession stems from his theory of interpretation of experience. In this theory experience is compared to the boundary condition of a field of force. Thus a change in the boundary conditions is conducive to changes within the system, but there is no unique way which prescribes such subsequent changes. Considerations of

---

1. ibid, pp.395.

simplicity, elegance and convenience play a considerable role. And this is where convention as "a passing trait of events" enters, for this is how Quine describes the relationship between our scientific conceptual systems on the one hand (which include all sciences from logic and pure mathematics to geography and history), and experience on the other: the latter "underdetermines" the former. I shall say more about those Quinean views, when I come to the second part of this chapter.

The important thing to remember is that, for Quine, this kind of conventionality is not peculiar to logical truths or to Carnap's semantical system, and thus does not serve to characterize logical truths in such a way as to lead to the postulation of a sharp distinction between logical and factual truths. Rather it is conventionality which is initiated by our need to systematize and organize an empirical experience. Thus factuality is a leading consideration, besides simplicity, elegance and convenience, in our decision to adopt this or that convention.

I tend to think that these objections to the linguistic theory of necessary truths are on the whole plausible. There are, of course, many more objections against this theory, made by such philosophers as A. Pap[1], W. Kneale[2], Max Black[3], and others, but the scope of this thesis does not allow a more comprehensive and detailed examination of this important linguistic and conventional theory of analyticity.

---

1. Semantics and Necessary truth
2. The Development of Logic
3. Problems of Analysis, published by Routledge & Kegan Paul.

Carnap's Reply to Quine

However, before I leave the question, I shall consider briefly two points raised by Carnap in his "Quine on Logical Truth"[1] which is a reply to the article by Quine we have examined[2]. After pointing out certain difficulties which, in my view do not affect Quine's basic position, Carnap considered two objections raised by Quine against his account of analyticity, and said he had some difficulty in understanding them. They can, in fact, be made clear only if they are considered in relation to some other more basic Quinean views. The two objections are:

1. The notions of "Semantical rules" and "meaning postulates"[3] as employed in Carnap's account of analyticity are unintelligible.
2. The notion of "analyticity" and "synonymity" are acceptable only if they are not simply explained by rules in pure semantics, but rather they are explained in behaviouristic terms.

Quine and Semantical Rules

We said earlier that Carnap used to identify the concepts "logical truth", "analytic truth", and "necessary truth". But later he accepted the distinction between the first two concepts, which was made by Quine and others.

---

1. The Philosophy of Rudolph Carnap, ed. by Schilpp.
2. See page 130 of this chapter
3. Carnap's papter on "Meaning Postulates" is included as an appendix (B) in Meaning and Necessity. Carnap nowhere in this paper says explicitly what he means by 'Meaning Postulates'. The term is explained by a supposed example of a meaning postulate, Carnap does not tell us why the example is an example of a meaning postulate. See page 224.

For Quine, the concept of analyticity is more inclusive than logical truth. That there is a class of analytic sentences e.g. If Jack is a bachelor, then he is unmarried (1) which can not be classified as logical truth in the sense that its truth does not merely depend on the meanings (whatever this may mean) of logical constants.

Now, Carnap acknowledged that his characterization of logical truth in terms of state-description does not explain instances of broad analyticity as an example just gives. To account for these, Carnap introduces what he calls Meaning Postulates into his semantical system such as those described earlier in this chapter[1]. For instance, in order to provide for example (1), Carnap lays the following meaning postulate[2]:

$(P_1)'(x)(Bx \supset \sim Mx)'$, where B stands for 'bachelor' and M stands for 'married'

For the above meaning postulate no rules of designation for B and M are laid down in Carnap, because they are not necessary for the explication of analyticity. Postulate P_1 such meanings of M and B as is necessary for analyticity of (1), viz., the incompatibility of the two properties. In general meaning postulates are introduced to bring up explicitly the nature of logical relations that hold between intended meanings of primitive predicates such as M and B in example (1). The laying out of these logical relations in the form of meaning postulates is thus an essential requirement of the explication of analyticity in the broad sense.

---

1. Refer to pages 117 and 118 of this chapter.
2. Carnap "Meaning Postulate" in Meaning and Necessity

Now, Quine's objection to the notions of "semantical rules" and "meaning postulates" is that these notions are unclear in Carnap and can be recognized only by their labels of headings. Carnap says that he was at first rather puzzled by this objection. He says that the class of the admitted forms of sentences in a formalized language L, or the axions of a logical calculus, are recognizable only by such headings or labels as "Sentence Forms in L" or "Axioms". If this procedure is unobjectionable (which seems to be the case), why should it be objectionable in the case of other features of the formalized systems, such as semantical rules or meaning postulates[1]. Yet later on Carnap says he has understood the Quinean objection concerning these latter notions to be directed against not his proposed semantical explications of the notions of logical truth and analyticity, but rather against the customary presystematic explanations of these notions. These presystematic explanations of analyticity are not only vague and ambiguous but also basically uncomprehensible, according to Quine, which is why he demands a pragmatic and behaviouristic criterion for them, while he does not require such a criterion for the notion of truth, for instance, Quine accepts the concept of truth, Carnap continues, because even before it has been systematically explicated by Tarski and others, it has a sufficiently clear ordinary and presystematic usage.

---

1. But surely Carnap's "Meaning Postulates" where initially introduced to explain the analyticity of such examples or ordinary language as "No bachelor is married". However, Carnap did no more than simply reproduce in symbolic form, without any explanation, these examples in his semantical systems, and he gave them the name of "meaning postulates".

I think that Carnap is quite right in saying that the passage in which Quine refers to Carnapean semantical rules is very difficult to understand. When he says,

"In short, before we can understand a rule which begins 'A statement S is analytic for language L_o, if and only if ..., we must understand 'S is analytic for L' when 'S' and 'L' are variables"[1].

Now, in this passage Quine seems to suggest, as Carnap says, that he rejects out of hand the coming explication of 'analytic", because 'analytic' as an explication is unintelligible and unclear. The unintelligibility and unclarity which Quine refers to here must be a pre-systematic one. Yet, he says that, in the beginning of the same article[2] that he has no difficulty in understanding the analyticity of strictly logical sentences such as,

No married man is married

which seems to imply that "analyticity" has some pre-systematic sense at least in certain contexts. More generally, Quine says in many places he both accepts and makes use of intensional idioms such as 'analyticity', 'synonymy', and others in ordinary, causal or heuristic connections. He objects to them only when theoretical and systematical clarification is involved. Moreover, it makes sense to reject attempts at clarifying a concept which is obscure and unclear in ordinary contexts, on the ground that the attempts do not manage to eliminate unclarity. But it does not make sense, to my mind, to reject such an attempt on the ground that the initial pre-systematic explication is ambiguous or vague, because this is what the explication is all about.

---

1. Quine, "Two Dogmas of Empiricism", in From a Logical Point of View, pp.33.
2. ibid., pp.22.

In view of these considerations, I prefer to overlook this passage in Quine, and would rather try to understand and interpret what he means when he says that the attempt to clarify "analyticity" in terms of "semantical rules", and "meaning postulates" in artificial semantical systems, is unsatisfactory. In particular I shall attempt to show what he means when he says that Carnap's "semantical rules" and "meaning postulates" are recognizable as only "labels" or "headings" in Carnap.

I think that what Quine is demanding is an <u>extensional</u> definition or explication of the notion of analyticity as it is ordinarily understood in natural languages. If such a definition is possible, and if it is such that analytic truths are shown to be basically different from synthetic ones, then he would accept a sharp analytic/synthetic distinction. But unfortunately although 'analyticity' and 'synonymity' can be explicated in terms of behaviouristic and extra-linguistic stimuli, this definition is not such as to warrant the belief in a sharp analytic/synthetic distinction. The reason for this is that those behaviouristic stimuli cannot be interpreted in a uniquely determined way. Thus the characterization of 'analyticity' and related intensional idioms in terms of stimulus-meanings is essentially imprecise and indeterminate. This is Quine's doctrine of the indeterminacy of radical translation, which I intend to consider more fully later on. It is Quine's belief that these notions, which are in need of clarity, can only be explained behaviouristically. But for this kind of explanation is such that it cannot be made precise and determinate, and which he rejects in consequence all attempts, including Carnap's, which are made to explicate them in a determinate manner. In all cases, I suggest that

what he is rejecting are proposed explications, not explicanda; and that Carnap is wrong to think otherwise in the reply to Quine we have examined - a mistake probably caused by the obscurity of Quine's remarks referred to above. The following passage from Quine supports my interpretation that what he is rejecting is proposed explications. He writes[1]:

"Analyticity at first seemed most naturally definable by appeal to a realm of meanings. On refinement, the appeal to meanings gave way to an appeal to synonymy or definition. But definition turned out to be best understood only by dint of a prior appeal to analyticity itself. So we are back at the problem of analyticity ...

It is often hinted that the difficulty in separating analytic statements from synthetic ones in ordinary language is due to the vagueness of ordinary language and that the distinction is clear when we have a precise artificial language with explicit "semantical" rules. This, however, as I shall now attempt to show, is a confusion.

The notion of analyticity about which we are worrying is a purported relation between statements and languages: a statement S is said to be analytic for a language L, and the problem is to make sense of this relation generally, that is, for variable 'S' and 'L'. The gravity of this problem is not perceptibly less for artificial languages than for natural ones..."

From this point Quine goes on to demonstrate that Carnap does offer not a satisfactory explication of the notion of analyticity in terms of semantical rules of his artificial languages. When Quine says that the

---

1. Quine, "Two Dogmas", pp.32.

notions "semantical rules", and "meaning postulates" are only recognizable as 'labels' or 'headings', he does not say exactly what he means by this. But it seems to me that what he means by it is that Carnap does not state in his system just what kind of rules hold in his system as semantical rules and why they hold. That is to say, he does not state the reasons which guide him in his choice of a certain set of semantical rules of meaning postulates, to the exclusion of all others. Quine writes[1]:

"... Instead of appealing to un unexplained word 'analytic", we are now appealing to an unexplained phrase 'semantical rule'. Not every true statement which says that the statements of some class are true can count as a semantical rule - otherwise all truths would be "analytic" in the sense of being true according to semantical rules. Semantical rules are distinguishable, apparently, only by the fact of appearing on a page under the heading "semantical rules", and this heading is itself then meaningless".

Carnap says in his semantical systems, labels and headings such as "sentence forms in L" or "Axioms of L" or "semantical rules of L" act as no more than labels and headings; and that nobody objected to the procedure in the case of "sentence in L" or "Axioms of L". Why, then should Quine object to this procedure in the case of "semantical rules" and "meaning postualtes"? I think possibly the reason is that Quine is not objecting against those features of Carnap's artificial semantical system on their own right; he is objecting to their

---

1. ibid, pp.34.

use as having explanatory power as far as the explication of the ordinary concepts of intension, such as analyticity, are concerned. If he singles out semantical rules and meaning postulates, it is because these two concepts are directly involved in the above alleged explanation. Carnap himself is not interested in explicating logical concepts for natural languages. He says the problems of explicating concepts of this kind for natural languages are of an entirely different nature[1]. Actually, all that Carnap has done concerning analyticity is that he merely formalized Leibniz's and Wittgenstein's concepts of it, after putting his own stamp of emphasis on meaning and conventions on them. He has joined the two concepts together, utilizing Leibniz's notion of all possible worlds to develop his own concept of state-descriptions and their range, and at the same time utilizing Wittgenstein's characterization of logical truths in terms of tautology, that is to say factual vacuousness. What is more, Carnap has constructed his whole semantical system to serve his pre-systematic concept of analytic truth as one based on linguistic conventions which are completely aloof from any factual consideration. Thus Carnap's semantical systems are pre-supposing the sharp distinction between two levels of truths: the one basic on language and convention, while the other based on empirical facts; the separation being a sharp and absolute one. Describing to what extent he was influenced by Leibniz and Wittgenstein, Carnap writes[2]:

"To me it (the problem of the distinction between logical and factual truth) had always seemed to be one of the most important tasks to explicate this distinction,

---

1. Carnap, Meaning and Necessity, pp.223.
2. The Philosophy of Rudolph Carnap, ed. by Schilpp, pp.63.

in other words, to construct a definition of logical truth or analyticity. In my search for an explication I was guided, on the one hand, by Leibniz's view that a necessary truth is one which holds in all possible worlds, and on the other hand, by Wittgenstein's view that a logical truth or tautology is characterized by holding for all possible distributions of truth-values. Therefore the various forms of my definition of logical truth are based either on the definition of logically possible states or on the definition of sentence, describing those states (state-descriptions).

Carnap also writes referring to his paper "Meaning Postulates"[1]:

"It is the purpose of this paper to describe a way of explicating the concept of analyticity, i.e., truth based upon meaning, in the framework of a semantical system, by using what we shall call meaning postulates".

It is the idea of truth by language alone or by convention alone which Quine rejects as a bad theory of logical and analytic truths. It is important to repeat that Quine is not rejecting truth by convention as such. He is ready to admit that truth by convention is involved, at least in set theory, in what he calls 'legislative' postulation and definition as distinct from 'discursive'. If Quine rejects this conventionalism as a theory, then it goes without saying that he is justified in rejecting the formal version of it, inside Carnap's semantical system, where it is couched in terms of semantical rules and meaning postulates.

---

1. Meaning and Necessity, pp.222

Quine and the Behaviouristic Theory of Meaning

Quine's second objection to Carnap's account of analyticity is that it is intensional. Quine, as we have said earlier, does not regard as satisfactory any explication of any member of the whole family of intensional idioms such as 'analyticity', 'synonymy', 'meanings', etc., etc., which refers to an intensional notion. For instance, he says that analyticity could be smartly defined in terms of synonymy. But the trouble is that we do not posses a clear characterization of this latter notion. By 'clear' here Quine means "non-intensional".

Later on, in his book Word and Object, Quine gives an extensional characterization of synonymy in terms of overt behaviour. Yet this characterization is essentially indeterminate because of the indeterminacy of radical translation. Quine's findings in this respect are similar to those of Nelson Goodman. I shall say more about this when I consider Quine's views on this issue. But for the present I must consider the wider issues which is involved here in the conflict between Carnap, as representive of those who behave in a sharp analytic and synthetic truth, and Quine, as representive of the group of philosophers who are sceptical about it. (Incidentally, this group includes, Quine, White, Waismann, Nelson Goodman, Tarski and (to some extent and perhaps for different reasons) von Mises, who seems to accept Mill's view that statements of pure mathematics are empirical). This is the issue whether intensional idioms should be admitted in science or not. Since it is Quine who provokes this controversy I shall first consider Quine's views on the subject.

Chapter Five

The Question of Intensionality

Chapter Five

Quine's Rejection of Intension

We have seen how Frege and Carnap use the terms "intension" and "extension", and how these terms are adopted as improvements over the terminology of the theory of naming.

However, according to W. and M. Kneale,(1) the words "intension" and "extension" have their origin in the work La Logique ou l'Art de penser. This work is often called The Port Royal Logic, because it was composed by two leaders of the Port Royal Movement, namely Antoine Arnauld and Pierre Nicole. The work also reflects the distinctive views and characteristics of this movement, especially "a distinctive tone of earnest piety for which the movement became famous".(2) In the Port Royal Logic, the intension/extension distinction is introduced in the form a distinction between the "comprehension" and"extension" of a general term. The comprehension of a general term is defined as "the set of attributes which it implies, or, as the authors say, the set of attributes which could not be removed without destruction of the idea. Thus the comprehension of the idea of triangle includes extended shape, having three sides, having three angles, and having its interior angles equal to two right angles. The extension of a term, on the other hand, is the set of things to which it is applicable, or what the older logicians called its interiors"(3)

Kneale says that the words comprehension and extension as introduced by Arnauld and Nicole give rise to some difficulties. For instance, the word "comprehension" means in ordinary French the same as the word "understanding" means in English. From this one may naturally

---

1. W. & M. Kneale, The Development of Logic
2. Development of Logic, page 315.
3. The Development, page 318.

infer that Arnauld and Nicole mean by the comprehension of a general term what we understand by it, that is to say its meaning or significance. But the example they give does not seem to suggest this interpretation. For having interior angles equal to two right angles is said by them to be included in the comprehension of the idea of a triangle, and this character is indeed something which the idea of a triangle implies in a large sense. But, Kneale suggests, it is certainly not part of the meaning of the word "triangle".

Kneale says that since the middle of the nineteenth century English writers have commonly followed Sir William Hamilton in replacing "comprehension" by "intension" which has no use in ordinary language.

Another difficulty in Arnauld and Nicole's distinction is that the extension of a general term is defined as the set of its interiors. Kneale says that it is not clear whether those interiors are supposed to be species or individuals. Arnauld and Nicole seem to hesitate between the two. But we may harmlessly interpret them as using the word "extension" to refer to individuals.

Kneale says that the modern philosophical usage of the terms "intension" and "extension" in logic has arisen from Arnauld and Nicole's The Port Royal Logic, by a natural development. In current philosophical usage, propositions, meanings and attributes are considered to be examples of intensions, while truth values (regarded as objects), classes and individuals are examples of extensions.

For Quine intensions are the objects to which such idioms as "meanings", "proposition", "attributes", "necessity", "possibility", etc., are supposed to refer, by logicians like Frege, Russell or Carnap. Quine sustains the distinction which Frege has made between nom-

inatum and sense. He refers to the former as the theory of reference and the latter as the theory of meaning.(1) Yet he believes that this distinction, although indispensible in ordinary discourse, should not be allowed into the theoretical language of science. For this language he has an "austere" programme which does not tolerate intensional idioms or intensional objects, and whatever is indispensible in the theory of meaning must undergo a process of extensionalization before it qualifies for inclusion in the language. For instance, as we shall see later, Quine dispenses with the term "meaning" by resolving it into two components "significance" and "synonymy" and analyses these two terms in a behaviouristic way.

Quine's Theory of Canonical Notation :

In Quine's austere programme for the language of science, ordinary language is refashioned according to an empiricist and conventionalist pattern. Two major considerations dictate this : better communication and simplicity. To carry out this programme, Quine has devised a special notation which he calls "canonical notation". In this canonical notation we do not rest content with the less radical practice of eliminating various types of vagueness and ambiguity from ordinary language in order to achieve better communication, but we must do everything in our power to keep our theory simple. Quine writes(2)

"...Clearly it would be folly to burden a logical theory with quirks of usage that we can straighten. It is the part of the strategy to keep theory simple where we can, and then, when we want to apply the theory to particular sentences of ordinary language, to transform those sentences into a "canonical form" adopted to the theory. If we were to devise a logic of ordinary language for direct use on sentences as they come, we would have to complicate our rules of inference in sundry

1. "Notes on the Theory of Reference", in From a Logical.
2. Word and Object, page 158.

unilluminating ways".

The scope of this chapter does not allow an adequate account of Quine's canonical notation, and the austere programme which he achieved by means of it. Yet, I shall attempt to say a few words about some important features of it which are essential for an understanding of the rejection of intensional concepts.

According to Quine's theory of ontic committment, to be in a physical and objective sense is to be a value of a bound variable. Thus in effect the scope of physical and ontic existence is co-extensive with the scope of quantification. How Quine reaches this conclusion is an important feature of his canonical notation, namely that of drawing his important distinction between singular and general terms. General terms are reduced to predicates, and singular ones to quantified variables. Quine brings up this distinction in section 19 of Word and Object under the heading "Divided Reference". He says[1] that he has previously, in his lectures in Harvard and Oxford and elsewhere, called terms with divided reference "individuative" and "articulative", both of which suffer from unintended associations and both of which are preserved in Strawson's "Particular and General". He says that he now chooses the title "Divided Reference" because its stress on division, as against multiplication, seems best suited to what he wants to bring out. Quine describes the distinction as drawn in the following way:

"If a term admits the definite and the indefinite article and the plural ending, then normally under our perfected adult usage it is a general term. Its singular and plural forms are most conveniently looked on not as two kindred terms, but as ways in which one and the same term turns up in varying contexts. The '-s' of 'apples' is to be reckoned thus merely as an outlying

---

1. Word. Page 90. In a footnote.

particle comparable to the 'an' of 'an apple". We shall see later (24.36) that by certain standardizations of phrasing the contexts that call for plurals can, in principle be paraphrased away altogether. But the dichotomy between singular terms and general terms, inconveniently similar in nomenclature to the grammatical one between singular and plural is less superficial. A singular term, e.g. 'mama' admits only the singular grammatical form and no article. Semantically the distinction between singular and general terms is vaguely that a singular term names or purports to name just one object, though as complex or diffuse an object as you please, while a general term is true of each, severally of any number of objects....."(1)

This quotation, although rather lengthy, does not perhaps clarify the distinction which Quine wishes to make between singular and general terms. We run into trouble when we consider such terms as 'water', 'sugar', 'furniture','red', 'footwear', etc., etc.; the so-called mass terms. These terms, although grammatically like singular terms in resisting pluralization and articles, do not purport (unlike singular ones) to name a unique object each. In order to clarify this point Quine considers the role of terms in predication, because it is in the terms themselves rather than in what they name that the distinction between singular and general terms must be sought. How many objects a term names is not the basis of the distinction. For instance, 'Pegasus' counts as a singular term, although it is not true of any object, while 'natural satellite of the earth' counts as a general term though true of just one object.

The Distinction and Predication :

The distinction between singular and general terms

---

1. Word, page 90.

is clearest in the context of predication. Consider the sentence 'Mama is a woman', or in symbols 'Q is an F', where Q stands for a singular and for a general term. In predication a general term is asserted of a singular one to form a sentence which is true or false according as the general term is true or false of the object, if any, to which the singular term refers. It is because Quine is predominantly concerned with reference that the distinction between singular and general terms rather than the grammatical distinctions between the substantive, the adjective and the verb is so important for his canonical notation. Those grammatical distinctions, Quine claims, have little bearing on the questions of reference and they can be viewed in consequence simply as variant forms of a general term.

Mass terms like 'water' and 'sugar' can occur both as singular and general terms depending on their roles in predication. e.g.

1. That puddle is water
2. The white part is sugar

Here 'water' and 'sugar' are general terms, while in

1. Water is fluid
2. Sugar is sweet

they are singular terms.

It is perhaps rather difficult for us to see how 'water' and 'sugar' can be <u>singular terms</u> in the ordinary sense of these words. In the ordinary sense 'a singular term' is one which applies just to one object, while a general term has application to more than one object. But as I said in the previous page, Quine uses these two phrases in a very special sense. He says that the number of objects a term may refer to is not the basis on which he draws the distinction between singular and general terms. Quine writes :

"After all, it may be objected, the singular term

differs from general terms only in that the number of objects of which it is true is one rather than some other number. Why pick the number one for separate attention? But actually the difference between being true of many objects and being true of just one is not what matters to the distinction between general and singular. This point is evident once we get to derived terms such as 'pegasus', which are learned by description, or such as 'natural satellite of the earth'. For 'Pegasus' counts as a singular term though true of nothing, and 'natural satellite of the earth' counts as a general term though true of just one object. As one vaguely says 'Pegasus' is singular in thatit purports to refer to just one object, and 'natural satellite of the earth' is general in that its singularity of reference is not something purported in the term. Such talk of purport is only a picturesque way of alluding to distinctive grammatical roles that singular and general terms play in sentences. It is by grammatical role that general and singular terms are properly distinguished".(1)

What Quine means by grammatical roles is a relationship between a subject and a predicate in a sentence. In the same page, and in the paragraph following the one just quoted, Quine adds :

"The basic combination in which general and singular terms find their contrasting roles is that of predication. ....Predication joins a general term and a singular term to form a sentence that is true or false according as the general term is true or false of the object, if any, to which the singular term refers."(2)

Strawson criticizes(1) Quine's distinction between singular and general terms. However, his criticism of

---

1. Word, page 95,96.
2. Word, page 96.
3. Strawson's "Singular Terms and Predication" in Synthese, volume 19, No. 1/2, December 1968.

Quine is not radical here. He says he is prepared to accept Quine's account, provided that certain assumptions which are implicit in it are made explicit. He says that Quine tries to explain the distinction by refering us to "a situation in which there is, on the one hand, a sentence formed by joining two terms and in which there may or may not be, on the other hand, an object to which both terms are correctly applied. The difference in role of the two terms might be held to be shown by the implied differences between the ways in which these might fail to be such an object. Thus the failure might, so to speak, be justly laid at the door of the general term, but only if (1) there indeed was a certain object to which the singular term was correctly applied and (2) the general term failed to apply to that object, i.e. the object to which the singular term was correctly applied. It is implied that in this case of failure the sentence (statement) is false. Or again the failure might be justly laid at the door of the singular term; but this would be quite a different kind of failure. It would not be a failure of the singular terms to apply to the object, which..... where this which clause could be filled out by mentioning the general term. The failure of application of the singular term would not, like that of its partner, depend on its partner's success. It would be a quite independent failure."(1) The result of this latter failure would be a truth-value gap, that is to say it would not be proper to speak of the sentence in which such a failure occurs as true or false.

Strawson says this talk of grammatical role of terms in predication does not serve to establish a distinction between singular and general terms. He says that in the statement: "A comet was observed by astronomers tonight",

---

1. Strawson's essay : Synthese, Vol. 19.

the singular term "a comet" is not distinguishable from the general terms "was observed by astronomers" in respect of grammatical roles in predication. However, I find Strawson rather obscure on this point, because he does not say why he thinks that in the comet example, the singular term is not distinguishable from the general term. Yet, it seems to me that he says they are not distinguishable, because both of them refer to one and the same object. But we have seen Quine does not explain his distinction between singular and general terms along these lines. To the best of my knowledge, Quine has not yet replied to Strawson's criticism. Yet, one may meet this last remark by Strawson that the singular and the general terms in "A comet was observed by astronomers", by saying that the singular term is distinguishable from the general term by (a) it is a substantive occupying the subject position to the predicative copula; and its failure to apply to its object will result in a truth-value gap, while the failure of the general term will result in falsity (b) it is unlike a general term in predicative position in that it has no predicative copula prefixed to it and does not itself possess the form of a verb.

Strawson says he does not accept this way of distinguishing between singular and general terms; yet here again he is obscure and does not give reasons.

However, Strawson seems to have his own theory of singular and general terms which he keeps in the back of his mind all along and from the start when he criticizes Quine's theory it is from the standpoint of his own theory that Strawson criticizes Quine's views, and tries to reconcile them with his own views. Let us, therefore, examine Strawson's theory of singular terms and predication.

Strawson on Singular Terms and Predication :

Strawson gives the following examples :

(1) Mamma is kind

(2) The doctor is coming to dinner

(3) That picture is valuable

He says in these examples both the singular and the general terms apply to a single, concrete and spato-temporally continuous object; but they need not do that. They can apply to more than one object. Then he puts the following question and gives his own answer to it; he says:

"Now what is the characteristic difference between the relations of the two terms to the object? The characteristic difference, I suggest, is that the singular term is used for the purpose of identifying the object, of bringing it about that the hearer (or, generally, the audience) knows which or what object is in question; while the general term is not. It is enough if the general term in fact applies to the object, it does not also have to identify it."(1)

Strawson then goes on to explain the identificatory function of singular terms; he writes :

"Well, let us consider that in any communication situation a hearer (an audience) is antecedently equipped with a certain amount of knowledge, with certain presumptions, with a certain range of possible current perception. These are within the scope of his knowledge a present perception objects which he is able in one way or another to distinguish for himself. The identificatory task of one of the terms, in predications of the kind we are now concerned with, is to bring it about that the hearer knows which object it is, of all the objects within the hearer's scope of knowledge or presumption, that the other term is being applied to this identificatory task is characteristically the task of the definite singular term. That term achieves its identificatory purpose by drawing upon

---

1. Strawson's "Singular Terms and Predication" Synthese, vol.19.

what in the widest sense might be called the conditions of its utterance, including what the hearer is presumed to know or to presume already or to be in a position there and then to perceive for himself. This is not something incidental to the use of singular terms in predications of the kind we are now concerned with. It is quite central to this use."(1)

This Strawsonian account of the distinction between singular and general terms in predication is probably in the main correct. As Strawson himself has pointed out, there are many phrases in Quine which seem to point, admittedly rather waveringly, in this direction of the identificatory function of singular terms. The phrase about purporting or not purporting singularity(2) although vague and unclear is one of them. Another such phrase is that in which the singular term 'the lion' is said to refer to just one lion "distinguished from its fellows for speaker and hearer by previous sentences or attendent circumstances"(3)

However, Quine's account of the distinction between singular and general terms is clear in itself. Yet Strawson's account of it seems to be closer to the ordinary way of drawing it in natural languages. However, Quine's theory of cannnical notation, to which the distinction is central, is not constructed after the model of ordinary language. Rather it seeks to replace them, by reproducing all their indispensible characteristics except intensions, Quine is not completely ignoring ordinary language. He is just saying that it might be useful to do without certain aspects of it where possible. Quine writes :

"On the face of it there is a certain verbal perversity in the idea that ordinary talk of familiar physical things is not in a large part understood as it

---

1. Synthese, Vol.19 page 103.
2. Quine's Word, page 96.
3. Quine's Word, page 112.

stands, or that evidence for their reality needs to be uncovered. For surely the key words 'understood','real', and'evidence' here are too ill-defined to stand up under such punishment. We should only be depriving them of the very denotations to which they mainly owe such sense as they make to us....

There are, however, philosophers who overdo this line of thought, treating ordinary language as sacrosanct. They exalt ordinary language to the exclusion of one of its own traits:its disposition to keep on evolving. Scientific neologism is itself just linguistic evolution gone self-conscious, as science is self-conscious common sense"(1)

Thus Quine would not accept any blame for having sometimes to part company with ordinary language. However, before his canonical notation can be accepted as a substitute for the ordinary intensional language, he will have to prove (a) that it is as adequate for science as ordinary language (b) that it is more efficient than ordinary language for scientific communication, as he claims it to be. I shall have more to say about this later on in this chapter.

I conclude these remarks about Quine's distinction between singular and general terms by saying that it is not crucial to the distinction to be in accord with the way it is normally drawn in ordinary language. The distinction should be viewed as an integral part of his canonical notation as a whole, accepted if the latter is accepted, or rejected if it is rejected.

Now, and so far, Quine gets rid of one half of the terms of language, namely general terms by reducing them to predicate positions. Predication is a basic feature of his canonical notation, that is to say it is not further reduced to anything else. General terms such as 'apple' or 'apples' are both reduced to predicates. e.g.

"Turtles are reptiles" becomes,
(x) (if x is a turtle then x is a reptile"

Quine makes use[1] of Russell's theory of definite description in converting names into general terms. He extends Russell's theory which is originally applicable to phrases such as "The present King of France is bald", or "Scot was the author of Waverley", to apply to such names as "Pegasus". He rephrases Pegasus as the description "the winged horse that was captured by Bellerophon". But even if it is not possible to rephrase "Pegasus" as a description for some reason or another; we could still eliminate it by substituting for it the unanalysable and irreducible attribute of being Pegasus. We can refer to such an attribute by the verb 'is-Pegasus' or 'Pegasizes'. Thus for "Pegasus is" we can write : $(\exists x)(x \text{ pegasizes}' (y) (y \text{ pegasizes} \equiv y = x)$
Thus Quine somewhat deviates from the customary practice which reckons names as subordinate to singular terms. I am not going to press this point any further here, but it shows that Quine in constructing his austere theoretical language for scientific enquiry is quite ready to make considerable deviations from ordinary usage.

Now, having assigned all words to the categories of singular or general terms, and having further reduced all general terms including names to cases of predication, we are now left with the task of reducing singular terms, indefinite ones into something simpler.

All indefinite singular terms are reduced to cases of existential and universal quantification, and ultimately the former is reduced to the latter. This process brings us to the second basic feature of Quine's notation, namely Quantification. Quine reduces indefinite singular terms to quantifiers in the following way :-
(1) First to avoid ambiguity of scope, the indefinite

---

1. Quine's : From a Logical ; page 8.

singular terms are restricted to subject position. An example of the ambiguity is the phrase "big European butterfly". Is the scope of the adjective "big" just 'European' or "European butterfly". Other examples are,
(i) If any member contributes, he gets a poppy
(ii) If every member contributes, I will be surprised
Now here, the scope of "any member" in (i) could be the entire sentence and it could be just the first half of it. Similarly the scope of "every member" in (ii) could be the whole sentence and it could be just the first half. To avoid this ambiguity of scope we use the phrase "such that". Thus (i) becomes (iii) Each member is such that if he contributes, he gets a poppy. And (ii) can be rephrased similarly.
(2) In his canonical notation, Quine makes this restriction of indefinite singular terms to the subject position a constant and regular condition. Moreover, he insists that in this notation these subjects must always be followed by a predicate of the form 'is an object x such that... x...'.
(3) The phrase 'such that' is then substantivized by prefixing 'object' in order to accommodate variables.
(4) In this connection no need arises for distinguishing between "very", "any", or "each", since in place of all these we use the 'such that' clause. 'no', like the indefinite singular terms 'nobody' and 'nothing', can be replaced by means of 'each' negation.
(5) All essential forms of indefinite singular terms are thus reduced to 'every F' and 'some F' where F is a general terms in substantival form. These in turn are reducible to the two indefinite singular terms 'everything' and 'something'. Combining this with what has been said in steps 1 - 4 we get
(i) Everything is an object x such that (if x is an F then ....x.....)
(ii) Something is an object x such that (x is an F and ....

x...)

Thus all indefinite singular terms are reduced to 'everything' and 'something'. The usual notations for these are (x) and ($\exists$x) respectively. These prefixes are our normal quantifiers; universal and existential. Of course the latter is reducible to the former as not (x) not (....x....) and conversely. Thus all indefinite singular terms are reduced to universal quantification.

Predication, quantification and truth-functions are the only essential features of Quine's austere canonical notation. In the preceding pages we have seen some of the positive techniques by means of which these basic features are deduced. What remains is to show how Quine is able to confine his notation to these three features alone. In other words, we must now try to show the technique which Quine follows in refusing intensions entry to this canonical notation. We shall also examine the reasons which he gives for considering the notation as both complete and adequate to the purposes of scientific discourse. Perhaps it is important to emphasise at this point that Quine is under no illusion as to the extent and scope of his notation in comparison with ordinary language, and admits freely that its scope is much more restricted. He writes :(1)

"Taking the canonical notation thus austerely, and holding also to the formal economics of Chapter V, we have just these basic constructions: predication, universal quantification and the truth functions. The ultimate components are the variables and the general terms; and these combine in predication to form the atomic open sentences. What thus confronts us as a schema for systems of the world is that structure so well understood by present-day Logicians, the logic of quantification or calculus of predicates.

---

1. Ibid, page 228.

Not that the idioms thus renounced are supposed to be unneeded in the market-place or in the laboratory. Not that indicator words and subjective conditionals, are supposed to be unneeded in teaching the very terms- 'soluble'. 'Greenwich', 'A-D', 'Polaris' - on which the canonical formulations may proceed. The doctrine is only that such a canonical idiom can be abstracted and then adhered to in the statement of one's scientific theory. The doctrine is that all traits of reality worthy of the name can be set down in an idiom of this austere form if in any idiom."

The Banned Idioms of Intensions

In the above quotations we learn that some idioms such as the indicator words and subjective conditionals are banned from entering canonical notation. What other idioms are so banned and why are they banned? To the first question Quine will say that all idioms of intension, are banned. The second question he answers thus: "Intensions are creatures of darkness, and I shall rejoice with the reader when they are exorcised". Picturesqueness aside, what Quine means here is that intensional idioms and their corresponding objects are, even by the accounts of their defenders, irremediably obscure. They do not occur in a purely referential role in open sentences[1] and consequently they cannot be subjected to quantification in other words, they fail to meet Quine's criterion for our ontic committment: to be is to be a value of a bound variable. What kind of entities are objects of intensional idiom? Nobody, he submits, has offered an answer to the question. Besides, Quine's canonical notation, irrespective of whether it is complete and adequate or not, does not contain any reference of them. I am not going to consider here the adequacy and efficiency of Quine's canonical notation. Such an examination would

1. These are sentences with unbound variables; they are neither true nor false according to Quine.

indeed be relevant to the main theme of this thesis but clearly transcends it. Instead I shall try to enumerate the banned intensional idioms and to show what procedure Quine follows in arguing against them.

(1) Propositional Attitudes :

The term 'propositional attitudes' is Russell's invention[1]; a commoner term is simply 'propositions'. They can be described as the that-clauses of indirect quotations, or of verbs of believing, desiring, wishing, hunting, wanting and striving. They act as grammatical objects of such verbs.

(2) Propositions :

Besides the need to posit propositions as objects of propositional attitudes, they are also posited as "translation constants":"as things shared somehow by foreign sentences and their translations. They have been wanted likewise as constants of the so-called philosophical analysis, or paraphrase: as things shared by analysanda and their analysantia. They have been wanted as truth vehicles..."[2]

(3) Modalities

Strict or logical modal idioms such as "necessarily" and "possibly" are unconditional and impersonal modes of truth. Both for Lewis, the founder of modal logic, and for Carnap, a sentence like:

(i) Necessarily 9 4, is to be explained as

(ii) '9 4' is analytic.

Apart from his misgivings over the notion of analyticity Quine excludes these logical modalities from his canonical notation on the same ground as he excludes propositions, and propositional attitudes, namely opacity of reference.

---

1. Russell's An Enquiry into Meaning and Truth, page 21.
2. Ibid. Page 206.

(4) Dispositional terms and Conditionals :

Quine also bans from his canonical notation the strong or subjective conditional : 'If Caesar were in command of this army he would use the atomic bomb'.

Like propositional attitudes and indirect quotation, these[1] contrary-to-facts are not purely referential; we project ourselves, perhaps rather dramatically, into them by feigning belief in their antecedents and then finding out how convincing their consequent turns out to be. "What traits of the real world to suppose preserved in the feigned world of the contrary-to-facts antecedent can be guessed only from a sympathetic sense of the fabulist's likely purpose in spinning his fable"[2]

Counterfactuals are also seen in statements containing dispositional terms, e.g.
"If sugar were placed in water at a certain time it would dissolve". In connection with dispositional terms like 'soluble', what Quine bans from his canonical notation is the free application of the subjunctive conditional or the dispositional operation '-ble'. Much force of these dispositional terms is retained through use of other means.

(5) Relations, Attributes, indicator words and causal idioms.

All these are banned from Quine's canonical notation. Attributes, relations and causal (e.g. 'because') idioms are banned because of referential opacity. Indicator words such as 'this', 'that', 'I', 'you', 'he', 'now', 'here', 'then', 'these', 'today', 'tomorrow', are banned because they cause fluctuation in truth values.

Perhaps the points 1 - 5, and especially the last point, will serve to give a fair picture of the austerity

---

1. Quine did not mention other types of counterfactuals.
2. Ibid. page 222.

of Quine's canonical notations. As I said earlier I am not going to consider in detail how Quine in fact carries out his programme of notational austerity. But I shall consider in some detail how he carries out this programme in connection with propositional attitudes and propositions and with the related notions of meaning and synonymy. Before I do this, I shall give a quotation from Quine in which he sums up the features of his austere canonical notation. He writes :-

"When our objective is an austere canonical form for the system of the world, we are not to rest with the renunciation of propositional attitudes and the subjective conditional; we must renounce also the indicator words and other sources of truth-value fluctuation. 'Because' and like idioms of causal type go the way of the subjunctive conditional. With these and the propositional attitudes set aside, and modality and intensional abstraction dropped, and quotation reduced to spelling, and the indicative conditional canalized, no evident reason remains for imbedding sentences within sentences otherwise than by truth functions and quantification. How powerful this combination is has been borne out by extensive logical regimentations of parts of science, especially mathematics, at the hands of Frege, Peano, and their successors."(1)

The Banning of Opaque References :

We have said earlier that Quine's main reason for excluding intensional idioms and objects from his canonical notation is that intensions are not purely referential, while it is with pure reference that the notation is primarily concerned. Yet I have still to show just what Quine means by pure and impure reference and how he manages to show that intensional idioms like proposition attitudes and logical modalities are referentially opaque. I begin

1. Ibid. page 227.

with an explanation of terminology.

Pure and Opaque Reference

Consider, for example, Quine's[1] comments on the following sentences:

Giorgione = Barbarelli[2].....(1)

in which the two names refer to one and the same person, and,

Giorgione was so-called because of his size.....(2)

Sentences (1) and (2) are both true, yet the replacement of 'Giorgione' by 'Barbarelli' turns (2) into the falsehood :

Barbarelli was so-called because of his size ....(3)

Also consider the sentences:

Cicero = Tully.....(4)

'Cicero' contains six letters ....(5)

both of which are true. Yet, the replacement of 'Cicero' by 'Tully' into (5) turns it into the falsehood :

'Tully' contains six letters .....(6)

The reason for the falsity of (3) and (6) is the fact that whereas the names concerned refer to certain persons in (1) and (4), and thus occur referentially, they do not refer to any such persons or physical entities when they occur in (2) and (5).[3] The occurrence of these names in (2) and (5) is therefore opaque or not purely referential. It is this variation in reference which is responsible for the difference in truth value between (2) and (5). Quine is using here the principle of substitutivity as a criterion for pure reference. This principle states that, given a true statement of identity,

---

1. "Reference and Modality" in From a Logical Point of View. Page 139.
2. It is rather unusual to put the statement "The man called 'Giorgione' is identical with the man called 'Barbarelli'" in the form of the equation Giorgione = Barbarelli.
3. Of course other than the marks on the paper.

one of its two terms may be substituted for the other in any true statement and the result will still be true. This distinction between pure and opaque reference corresponds to that which Frege[1] makes between direct and oblique occurrences.

That the occurrence of 'Giorgione' is not purely referential can be seen better, if we re-phrase (2) in the following way :

"Giorgione was called 'Giorgione' because of his size."

Generally speaking the occurrence of names within quotation marks is not purely referential, because these do not simply refer to objects named. Example (5) illustrates the point. Quine explains this in the following way : "The principle of substitutivity should not be extended to contexts in which the name to be supplanted occurs without referring simply to the object. Failure of substitutivity reveals merely that the occurrence to be supplanted is not purely referential, that is, that the statement depends not only on the object but on the form of the name. For it is clear that whatever can be affirmed about the object remains true when we refer to the object by any other name."[2]

Quantification and Opaque Reference

In reducing all indefinite singular (those singular terms which are generally formed by putting 'an' before them instead of 'the', 'this', or 'that') terms to quantifiers. According to Quine definite singular terms do

---

1. "On sense and nominatum" in Feigl and Sellars "Readings in Philosophical Analysis"
2. From a Logical, page 140.

not affirm pure existence,[1] all pure existence is reduced to quantification. And since Quine's canonical notation is concerned exclusively with pure reference, it follows that quantification will uniquely determine its referential scope. To be is to be a value of a bound variable. Is it possible to quantify over opaque terms, that is terms with opaque reference? The answer must be that it is not possible, because such quantification would put terms with opaque references on the same footing as terms with pure or transparent reference. We have seen that this cannot be done (at least in the examples considered) because it would lead to unintended fluctuations of truth-values in sentences where a purely referential term is substituted for an opaque one. Moreover, such quantification would change the intended sense or significance of the sentences containing terms with opaque reference in such a way as to give a false impression of pure reference; and thus an impression of the ontic committment involved in them.

Consider the following example :

(1) Ali is hunting a unicorn...

To allow quantification into (1) is to render it in the incorrect and misleading form,

(2) $(\exists x)$(x is a unicorn. Ali is hunting x)

The incorrectness of (2) is obvious since there are no unicorns in the physical world. And quite apart from

---

1. Quine makes the distinction between definite and indefinite singular terms on page 112 of Word and object: Definite singular terms are the basic ones as far as the contrast between singular and general terms is concerned. When they fail in their reference a truth-value gap results. By contrast, the indefinite singular terms do not result in such gaps when they fail in their reference. They are just dummy singular terms, because they occupy, like the real definite singular terms, the subject position in predication. When they fail in their reference they merely result in falsehoods.

the zoological fact that unicorns do not exist, it would be wrong to quantify into a sentence which contains a verb of propositional attitudes such as hunting, wanting, believing, desiring .. etc., or for that matter any term with opaque reference. Again, consider

(3) Ernest is hunting lions...

or

(4) Ralph believes that there is a spy...

To quantify into (3) and (4) would change the usual senses of those sentences viz.,

(5) $(\exists x)$(x is a lion. Ernest in hunting x)...

and

(6) $(\exists x)$(Ralph believes that x is a spy)...

The normal procedure is to present (3) and (4) in the following way which gives their "likelier or notional sense"[1]

(7) Ernest strives that $(\exists x)$(x is a lion. Ernest finds x)

and

(8) Ralph believes that $(\exists x)$(x is a spy)..

Quine distinguishes between the notational sense of (3) and (4) as represented by (7) and (8) and their relational sense[2] as represented by (5) and (6). To quantify into contexts of opaque reference is to change their notational sense into their relational sense, whereas only the former is intended. And in a canonical notation where quantifiers determine the range of ontic existence, an object which cannot be represented as a value of a quantified variable, does not objectively exist. Objects of intension, because of their opacity of reference, cannot be represented as values of such variables, and so they cannot be admitted into this

---

1. Quine : "Quantifiers and Propositional Attitudes" printed in the Journal of Philosophy, Vol.53.(1956)
2. Quine did explain these two terms in his essays, however, he seems to mean by the first formulation (7) and (8) of (3) and (4), and by the second formulations (5) and (6).

canonical notation.

Yet this question of opacity of reference of intensional objects is a relative one. It is relative to one's ontic world. If one believes in an "over-populated world" in which not only physical objects count as entities but also objects of intension such as meanings, propositions, attributes, relations and so on, etc., then the distinction between terms of pure and opaque reference will cease to have any significance. But the trouble with such a world is that it is flooded with intensional objects, and that we seem to lose sight of the ordinary physical things with which extension is concerned. Thus, instead of having the ordinary material object the planet Venus, we have perhaps the three intensional objects, Venus-concept, the Evening-Star-concept, and the Morning-Star-concept. If we do this, we shall not be bothered any more by referential opacity. But Quine argues that is the price we pay for this, it is obviously very high indeed, for it calls for the sacrifice of our beloved ordinary world of persons and things. Quine writes :(1)

"Observe now the extravagent price of thus purifying the universe. Concrete objects are banished in favour of what Frege(2) called senses of names, and Carnap(3) and Church have called individual concepts. Numbers are banished in favour of some sort of concepts which are related to the numbers in a many-one way. Classes drop out in favour of class-concepts or attributes, it being understood that two open sentences which determine the same class still determine distinct attributes unless they are analytically equivalent. Unrestricted quantification into modal sentences has been bought at the price of adopting an ontology of exclusively intensional

1. From a Logical Point of View, page 153.
2. The reference here is to Frege's "On sense and Nominatum". In Feigl & Sellars' "Readings in Philosophical Analysis.
3. Meaning and Necessity

or idealistic type. It is by no means the most glaring evil of such an ontology that the principle of individuation of its entities rests invariably on the putative notion of synonymy or analyticity".

To this Quinean view that the elimination of opaque reference in order to allow for unrestricted quantification, carries with it the inevitability of eliminating all material things from the world. Carnap gives a direct reply. He writes :(1)

"... Quine says that the values of individual variables (e.g. 'x') in modal systems like S_2 and S_3 are individual concepts; on the other hand, he presumably regards individuals (concrete things or positions) as the values of individual variables in extensional systems like S_1 and S_2. Now the decisive point is the following: as explained previously (35), there is no objection against regarding variables as having intensions as values provided we are not misled by this formulation into the erroneous conception that the extensions have disappeared from the universe of discourse of the language..."

However, Carnap would not hesitate to eliminate extensions (e.g. classes) in favour of intensions (e.g. properties) if he is faced with a situation where he can not have both. He writes :

"Would it be better to take properties as primitives and to define classes in terms of properties or to take classes as primitives and to define properties in terms of classes. We have explained four methods for the first alternative.(2) Quine rejects it for the reason that a property is even more obscure than a class. Which of

1. Ibid. Page 199.
2. Carnap. Meaning and Necessity. Page 152.

the two is more obscure and which intuitively clearer is a controversial question...; it seems to be more psychological than logical. However, I think that most logicians agree that, if the terms 'class' and 'property' are understood in their customary sense, classes can be defined by properties, but it is hardly possible to define properties by classes; for a property determines its class uniquely, while many properties may correspond to a given class ..."

I cannot see how this passage can be reconciled with Carnap's well known views on the Thesis of extensionality, which he advocates in the Logical Syntax of Language. According to this thesis, designations of intensions are replaced by designations for extensions, while predicates which are appropriate to intensions are replaced by corresponding predicates appropriate to expressions.

On the other hand, one may question the view that properties are prior to classes, and that a property uniquely determines a class. Let us consider the property of being a rational animal. Now, according to Carnap, this property is logically equivalent to property 'Human'(1) in M^1. But the extension of 'Human' in M^1 is the class Human.(2) Thus the property 'Human' uniquely determines the class of human beings; and moreover it is prior to it since we only count as human those animals which display this property of rationality. But suppose we countenance a creature from another planet, which or who does not belong to the human race and has a curious shape with a tail and thick hair, but nevertheless talks and behaves exactly like a human being, would we be prepared to count him or it within the class of humans? It is obvious that, to say the least, the ques-

---

1. Meaning. Page 155.
2. Meaning. Page 154.

tion would need some deliberations. Similarly, suppose we disdover in some remote, and hitherto unknown island a primitive race which look very much like human beings, in that it displays all the physical characteristics of humans, but which is drastically inferior in intelligence to civilized humans, though remarkably more intelligent than the cleverest animals, would we be ready to include this race in that of the human being ? Again the question is not easy to determine. At any rate it looks as though it is the fact that members of the human race display certain characteristics among their fellow animals which subsequently suggests toothat the species human can be defined by the property "being rational animals,featherless,biped etc...."

However, the point at issue between Carnap and Quine here is that in view of the paradoxes of unrestrictive quantification into modal and other opaque intensional contexts, whether we should eliminate intensiona or extensions. Quine favours the first alternative and especially devises a theory of canonical notation to do this. However, he is prepared to accept Church's[1] proposal that in order to avoid these paradoxes in quantified modalities" a variable must have an intensional range - a range, for instance, composed of attributes rather than classes".[2] But he warns that we will then have to pay a high price indeed, namely to eliminate all ordinary physical objects. Carnap, as we have seen, does not accept this. He says that extensions can be re-introduced in quantified modal contexts very easily; Carnap writes :

"Therefore, if somebody insists on regarding a designator as a name either of its intension or of its ex-

1. A review of Quine's "Notes on Existence and Necessity" published in Journal of Symbolic Logic (1943).
2. Church's review of Quine's "Notes".

tension, then the first would be more adequate, especially with respect to intensional languages like M^1 and S_2. I think there is no essential objection against an application of the name-relation to the extent just described, for example, against regarding "Human" in M^1 and 'H' in S_2 as names of the property Human. The only reason I would prefer not to use the name-relation even here is the danger that this use might mislead us to the next step, which is no longer unobjectionable. In accordance with the customary conception of the name-relation, we might be tempted to say : "If 'Human' (or 'H') is a name for the property Human, where do we find a name for the class Human ? We wish to speak, not only about properties, but also about classes; therefore, we are not satisfied with a language like M^1 and S_2, which does not provide names for classes and other extensions". This I should regard as a misconception of the situation. M^1 is not poorer than M (the meta language) by not containing the phrase 'the class Human". Whatever is expressed in M with the help of this phrase is tranlatable into M^1 with the help of 'Human'.."[1]

This point about translating intensions into extensions might be correct, but it is hardly the point at issue now. The crucial point is whether intensions and extensions can co-exist in quantified modal contexts without leading to such paradoxes as "The number of planets is necessarily greater than 7". These paradoxes were the result of what Quine calls opaque reference. Hence they are removed if these opaque references are banned. This banning will practically shut out all intensions; because they all display this characteristic of opaque reference. Church, as we have seen, has solved this issue by exclusively limiting the range of his quan-

---

1. Carnap : Meaning and Necessity, page 158.

tified variables to intensions. Thus he does not commit himself to any entities of extensions. In Church's system, we lose our beloved ordinary physical things, as a price for avoiding paradoxes. But Carnap wants to retain both intensions and extensions and still avoid paradoxes. I do not think he encounters much success in this respect.

I am inclined to agree with Quine that in order to make use of the principle of universal substitutivity in all contexts without committing paradoxes we must bann all opaque references from our theory of communication. Church's method is out, because it eliminates ordinary physical objects. However, there is a point which causes me a bit of discomfort; and that is even if we in fact eliminate all explicit propositional attitudes on the grounds that they are referentially opaque, isn't it the case that in carrying out substitutions in non-intensional contexts, we still rely on implicit and assumed propositional attitudes?[1] Consider, for instance, Quine's example:

Giorgione = Barbarelli

even if we accept this rather odd way of writing people in equations, isn't it the case that in so doing, we are in fact relying on our knowledge that Giorgione and Barbarelli are one and the same person, and when we subsequently interchange Giorgione for Barbarelli in all non-opaque occurrences of the two names we are in fact relying upon this implicit propositional attitude. In general isn't it the case that any statement, in fact, involves the attitude and knowledge of him who makes it. If, for instance, we had a long list of all possible descriptions of Cicero, we could write ourselves a licence for exchanging one for the other. We could replace :

---

1. This was pointed out to me by my supervisor Dr. P.J. Fitzpatrick, lecturer in philosophy at the University of Durham.

X = "the consul who denounced Catiline later denounced Mark Antony" with
Y = "the author of Pro Caelio later denounced Mark Antony"
But, we in fact substitute Y for X only if we have grounds for doing so. And Quine seems to take no account of these grounds. However, much more than this is required by way of criticism before Quine's theory of extensionality can be discredited. This is all the more so because Quine is not maintaining the strong thesis that all intensional idioms are eliminable from ordinary language. He is simply trying to set up a theory of canonical notation in which basic and irreducible intensional idioms are translated, without loss, into an extensional language specially designed for scientific discourse. Moreover, Quine is not alone in advocating a thesis of extensionality; Russell, Carnap, Ayer, Kneale and others seem to accept this thesis in one version or the other.

On the other hand, before this thesis of extensionality can be established, we need to show that (a) our new extensional language is adequate for scientific discourse, and (b) that it is not only as comprehensive as the ordinary intensional language, but also more efficient than it. However, to pursue such a course is not feasible in the restricted scope of this thesis, and so I shall leave the issue at this point, and will attempt in what follows to show that Quine continues in his campaign against intensions. Quine rejects propositions as intensional objects, because they lack a criterion of identity; he does not accept the notion of logical equivalence as such a criterion.

Propositions and Synonymity :

We have already enumerated the various reasons which lead to the positing of propositions. We have also seen that in Quine's canonical notation propositions are not needed as objects of propositional attitudes, because those

were shown to be referentially opaque and thus do not posit any object. But besides objects for propositional attitudes, propositions are posited as (1) that objects shared by sentences of the same meaning, in much the same way as properties and attributes are posited as those objects which are shared among the various things which possess them (2) they are also posited as truth vehicles.

(1) Propositions as Translation Constants :

Quine says that, contrary to current belief, the positing of propositions as translational constants, that is to say as what is shared between the sentences of different languages[1] which have the same meaning, does not explain or clarify the enterprise of translation. Rather it conveys a false picture of their enterprise. The reason why this is so is that this enterprise of translation in its radical form - that is, when the sentences to be translated belong to a hitherto unknown language - suffers from an incurable indeterminancy of radical translation:

Quine writes[2]:

"The totality of dispositions to speech behaviour is compatible with alternative systems of sentence-to-sentence translation so unlike one another that translations of a standing sentence under two such systems can even differ in truth value. Were it not for this situation, we could hope to define in behavioural terms a general relation of sentence synonymy suited to translational needs, and our objection to propositions themselves would thereby be dissipated. Conversely, since the situation does obtain, the positing of propositions only obscures it. The notion of proposition seems to facilitate talk

1. Surely, we can talk of propositions for sentences inside one language.
2. Word and Object, page 207.

of translation precisely because it falsifies the nature of the enterprise. It fosters the pernicious illusion of there being a uniquely correct standard of translation of eternal sentences".

This Quinean conclusion that it is not possible to give an extensional definition of synonymy or sameness of meaning in terms of overt behaviour is very much similar to that of Nelson Goodman(1). Goodman seeks to explicate synonymy by means of extensions of names. According to him terms have primary as well as secondary extension. For instance, the primary extension of 'unicorn' and of 'centaur' is one and the same, namely the null class. Yet 'unicorn' is not synonymous with 'centaur', because the two terms have different secondary extensions which are designated perhaps by such predicates as 'unicorn-picture' and 'centaur-picture". For the two terms to be strictly synonymous they must have identical secondary as well as primary extensions. But this is impossible, because a secondary extension of a term could be anything, anything at all, that one may care to imagine. From this Goodman concludes that exact synonymy or sameness of meaning does not exist. Actually Goodman shares Quine's misgivings over the notion of analyticity and the sharp distinction between analytic and synthetic truths. The agreement here between them is more than accidental.

It goes without saying, then, that Quine and Goodman (and others), reject as inadequate all current explication of the notion of synonymy. Most of all, they do not accept Carnap's explication of synonymy or 'meaning-identity' in terms of logical equivalence. Perhaps one of the most important reasons which lead Quine to reject intensional objects is the ground that they lack

---

1. Goodman's "On likeness of Meaning", published in Linsky's Semantics and the Philosophy of Language.

a clear principle of individuation (because 'logical equivalence' is offered as a principle of 'intensional identity').

Quine writes[1]

"There are good reasons for being discontented with an analysis that leaves us with propositions, attributes, and the rest of the intensions. Intensions are less economical than extensions (truth values, classes, relations) in that they are more narrowly individuated. The principle of their individuation, moreover, is obscure.

Commonly logical equivalence is adopted as the principle of individuation of intensions.....

..... But the relevant concept of logical equivalence raises serious questions in turn..."

The serious questions which Quine refers to here are those which we discussed earlier when we considered his misgivings over the notions of analyticity, semantical rules and meaning postulates, all of which are employed by Carnap in his explication of logical truth. For Carnap L-equivalence is defined in the following way :

Definition[1]

$\mathfrak{G}_i$ is L-equivalent to $\mathfrak{G}_j$ (in S_1) $=_{df}$ $\mathfrak{G}_i \equiv \mathfrak{G}_j$ is L-true.

In other words two one-place predicates or designators Ox and Px are logically equivalent if and only if they hold in every state-description x thus,

$(x)\ (Px \equiv Ox)$.

For Carnap if two designators, e.g., Ox, Px are logically equivalent then they have the same extension.

Definition[2]

Two designators have the same intension in (S_1) = they are L-equivalent (in S_2)(i.e. they have identical intensions)

Carnap devises a stronger version of this principle of individuation of intensions, namely that of intensional

---

1. Meaning and Necessity, page 11.
2. Ibid, page 23.

isomorphism. Two designators are intensionally isomorphic, or have the same intensional structure, if they are not only logically equivalent as wholes, but their parts should be logically equivalent as well. Carnap writes :[1]

"....we shall say that two expressions are intensionally isomorphic or that they have the same intensional structure, because they not only are L-equivalent as a whole, but consist of parts in such a way that the corresponding ones[2] are L-equivalent to one another and hence have the same intension".

Carnap believes that mere intensional identity will not be strong enough to define the notion of synonymity. He now hopes that intensional isomorphism is strong enough to explicate that extra feature of synonymity which seems to resist explication by mere logical equivalence as predicted of expressions as wholes. Carnap[3] quotes the following Quinean[4] remark with apparent approval: "The notion of synonymity figures implicitly also whenever we use the method of indirect quotations. In indirect quotation we do not insist on a literal repetition of the words of the person quoted, but we insist on a synonymous sentence; we require reproduction of the meaning. Such synonymity differs even from logical equivalence; and exactly what it is remains unspecified". Thus for Carnap two expressions are synonymous if and only if they are intensionally isomorphic.

The most serious objections against this Carnapean explication of synonymy, apart from Quine's misgivings over the notion of L-equivalence, come from Linsky and B. Mates.

---

1. Ibid, page 56.
2. I made minor changes in Carnap's text to suit my quotational purposes.
3. Ibid, page 60.
4. "Notes on Existence and Necessity". Journal of Philosophy (1943.)

Linsky[1] advances the following valid objection against Carnap :- According to Carnap the one-place predicates A_i and A_j, which have the same extension, can be put in symbols in the following ways, by $A_i \equiv A_j$ for $(x)(A_i x \equiv A_j x)$ assuming that (1) $A_i \equiv A_j$ to be true (1) will be intensionally isomorphic to[2] (2) $A_i \equiv A_j$, since the corresponding parts of the two equations are equivalent, (2) can be expanded in the following way (3) $(x)(A_i \equiv A_i x)$ yet (1) is not intensionally isomorphic to (3) thus (1) is intensionally isomorphic (2) but not to its definitional expansion (3) The reason why (1) is not intensionally isomorphic to (3) is that the designator (x) in (3) can not be corresponded to a similar part in (1).

Mates[3] objection to Carnap is the following : Let "D" and "D" be abbreviations for two intensionally isomorphic sentences. Then the following two expressions are also intensionally isomorphic :

(1) Whoever believes that D believes that D.

(2) Whoever believes that D believes that D^1.

The following sentence is obviously true.

(3) Nobody doubts that whoever believes that D believes that D.

But (3) is intensionally isomorphic to the following sentence which is most likely false :

(4) Nobody doubts that whoever believes that D believes that D^1.

According to Linsky, Hilary Putnam reports that Carnap thinks the theory of intensional isomorphism in its present form cannot escape this objection by Mates.

---

1. The Encyclopaedia of Philosophy, Vol. 8. The section on "Synonymity" written by Linsky.
2. For more explanation of 'intensional isomorphism' see Ch. 4 of this thesis.
3. B. Mates "Synonymity" in Linsky's Semantics and the Philosophy of Language.

Synonymity and Interchangeability (salva veritate):

Benson Mates offers his own principle of interchangeability (salva veritate) as an explication of synonymity. According to this principle two terms are synonymous if and only if they are substitutable for each other in all contexts without changing the initial truth values of these contexts. For example consider the terms "bachelor" and "unmarried". Are they interchangeable salva veritate? Quine says they are not because if we substitute 'unmarried' for 'bachelor' in the following sentence, we get a falsehood : viz.
"Bachelor" has eight letters ....(2)

We could object to the above Quinean procedure by saying that the terms for which we are seeking to establish the interchangeability criterion are the ordinary names "bachelor" and "unmarried" which are used to designate extralinguistic objects or nominata. Now, obviously the term "bachelor" is not used in this sense in (1); rather it is used to designate a name of a name which is a word. So perhaps it is better to rewrite (1) in such a way as to make this point clear viz.
"bachelor" has eight letters...(3)
Thus we can not substitute "unmarried" for the word "bachelor". Apparently, Quine himself is ready to concede this point but argues further that he does not accept this amendment of the interchangeability criterion because it appeals to unclear notion of wordhood.

In my opinion, quite apart from this question of the unclarity of the notion wordhood, the principle of interchangeability salva veritate is faced with grave difficulties. Linsky[1] says that even if we take the terms, which we seek to establish as synonymous as names in the ordinary sense of designating extra-linguistic

1. Encyclopaedia of Philosophy ed. by Paul Edwards, Vol.8. The section on Synonymity, written by Linsky.

objects, the interchangeability criterion cannot be saved; for consider the following example :
The Brothers Karamazov is Dostoyevsky's greatest novel..(4)
Can we substitute "male sibling" for"brother" in (4) ? Of course we cannot, otherwise we get the falsehood:
The Male Siblings Karamazov is ....(5)
Also consider,
Jones want to know whether a bachelor is an unmarried man. ...(6)
Her also we cannot substitute "unmarried" for "bachelor" in (6), otherwise we might possibly get the falsehood : Jones wants to know whether an unmarried man in unmarried. ...(7)

If we accept Quine's physicalistic ontology, perhaps we could rephrase the cause of the failure of the principle of interchangeability salva veritate in (4) and (6), in terms of Quine's notion of referential opacity which we explained earlier. Such referential opacity is quite clear in (6), because (6) is an instance of the propositional attitudes which I discussed earlier.

So the final verdict on the concepts of synonymity and identity of meaning is that we do not have a satisfactory explication of them. Grice and Strawson admitted the importance of synonymity for the explication of analyticity; yet they do not offer any explication for it, although they expressed their belief that such an explication is not shown here to be impossible: they say that the fact that statements are confirmed in groups "requires only a slight modification of the definition of statement-synonymy in terms of confirmation and disconfirmation." All we have to say now is that two statements are synonymous if and only if any experience which, on certain assumptions about the truth-values of other statements, confirm or disconfirm one of the pair it also, on the same assumptions, confirms or disconfirms the other

to the same degree.... We are not, of course, concerned to defend such an account (of synonymy), or even to state it with any precision. We are only concerned to show that acceptance of Quine's doctrine of empirical confirmation does not, as he says it does, entail giving up the attempt to define statement-synonymy in terms of confirmation"(1)

We saw how difficult it is to make such an account of synonymy precise when we considered a similar account by G.K. Herbert(2) in chapter three of this thesis. Yet apart from this, Quine would object to such an account of synonymy on the ground of his theory of the indeterminacy of radical translation already mentioned. He would object on the same ground to the account Carnap gives of synonymy in his paper "Meaning and Synonymy in Natural Language"(3). Carnap was led to give an empirical and pragmatic explication of synonymy in the above paper by Quine's objections to his previous explication of it in terms of logical equivalence. Since Quine demands an empirical and extensional account of synonymy, Carnap says he has "accepted his challenge to show that an empirical criterion for intension concepts with respect to natural languages can be given".(4)

However I think that Quine's challenge is still there. In order to meet this challenge we have several obligations.

First, with respect to the sharp distinction between analytic and synthetic truths, we need to show, not only

---

1. Grice and Strawson on "In Defence of a Dogma".
2. "The Analytic and the Synthetic" Journal of Symbolic Logic (1959)
3. In "Meaning and Necessity": appendix D pp.233.
4. "Quine on Logical Truth" by Carnap, published in The Philosophy of R. Carnap ed. Schilpp.

that the application of this distinction is clear, but that the very nature of the distinction itself is obvious. It is Waismann who complains against the analytic/synthetic distinction on the ground that the boundaries of its application are uncertain, and that there is an immensely large class of borderline cases which cannot be grouped as either analytic or synthetic. In his five papers "Analytic/Synthetic" published in Analysis, Waismann gave many examples of such borderline cases. I have not devoted much space in this thesis to discuss his views on analyticity as presented in those papers, because I think that the doubts he has about it can be met by one of two strategies :

(1) Those borderline cases which can be viewed as either analytic or synthetic can be determined by considering the context in which these cases are stated. This point of the context has been brought out successfully, I think, by W.H. Walsh.(1)

(2) The other strategy that made by Hilary Putnam and others that the analytic/synthetic distinction, although valid and clear, is trivial, applying only to a few examples of truths. The majority of truths are such that it does not make sense to ask whether they are analytic or synthetic. Putnam writes(2):

"My point is not that there exists exceptional examples, but that there is a far larger class of such statements than is usually supposed. For example, to ask a bad question. Virtually all the laws of natural science are statements with respect to which it is not happy to ask the question "Analytic or synthetic? It must be one or the other, mustn't it?"

---

1. Walsh, "Analytic/Synthetic", published in the Proceedings of the Aristotelian Society (1953) page 77.
2. "The Analytic and the Synthetic", published in Scientific Explanation, Space and Time, which is Vol. III of Minnesota Studies in the Philosophy of Science, page 364.

Quine's objection to the drawing of the sharp distinction between analytic and synthetic truth is that there is an essential obscurity and dubiousness in the very nature of this distinction, quite apart from the issue whether its application is clear or not. The obscurity which Quine is eager to establish in connection with that distinction can be compared with that which exists in estimating the distinction between Tory and Whig in eighteenth century political history.(1) The distinction was not at all clear, nor did 'conceptual' characteristics claimed for the two parties help us very much in determining whether a given man belonged to one or the other. People were grouped as Tories or Whigs on the basis of a multiplicity of criteria such as family background, interests etc. etc.

Now, the only explanation which the dualists, those who draw a sharp analytic/synthetic distinction, give of the notion of analyticity is that of truth by linguistic meanings, namely the meanings of the Logical constants which go to constitute an analytic sentence. The descriptive terms could be eliminated by their synonymies.

Against the position of those dualists Quine raises the stubborn objections which I mentioned earlier, namely (1) The linguistic or conventionalistic doctrine of analyticity is not satisfactory, or at least does not justify the sharp discrimination of scientific truths into two separate compartments of analytic and empirical.
(2) 'Meanings' and the whole domain of intensional objects are not indispensible and, moreover, not suitable for scientific discourse. To get rid of the concept, Quine resolved his theory of meaning into two main components.(2) (i) 'alike in meaning' or 'synonymous' and (ii) 'having meaning' or 'significant'. Quine writes(3): "What had

1. The analogy was suggested by Dr. P.J. Fitzpatrick.
2. From a Logical Point of View : "Meaning in Linguistics" page 47.
3. Ibid., page 49.

been the problem of meaning, boils down now to a pair of problems in which meaning is best not mentioned, one is the problem of making sense of the notion of significant sequence, and the other is the problem of making sense of synonymy".

(3) I have earlier indicated Quine's misgiving over 'synonymy'. Also I have maintained that the notion, apart from Quine's objections, is still in need of clarification.

(4) Most of the dualists, e.g. Carnap, make use of the distinction between logical and descriptive terms in drawing a sharp analytic/synthetic distinction. I have shown that this use is not justified. Although Quine does not explicitly question the distinction between logical and descriptive terms, yet his misgivings over the analytic/synthetic one could very easily be extended to it. Misgivings over the logical/descriptive distinction have been voiced in great length and detail even by such dualists as Pap[1]. It is these misgivings about the problem of interpreting logical constants and similar consideration which led philosopher Putnam, in his paper already mentioned, and Gewirth[2] to say that Quine's views can in fact be reconciled with those of his opponents, and that the difference between them could be viewed as one of emphasis of context. While the gradualists (those who believe in a gradual or difference of degree between analytic and synthetic truths) emphasize a broad enveloping and all-embracing context of enquiry, the dualists or the dichotomists emphasize a more limited and immediate uniqueness of such context. However, I think that most of these reconcilatory attempts represent a shift towards Quine's position. To the extent that they do not, the difference

---

1. Semantics and Necessary Truth (1958) Yale Univ. Press.
2. "The Distinction between Analytic and Synthetic Truths" in Journal of Philosophy (1953).

between Quine and his opponents seems as wide as ever. On the one hand, Quine says the distinction between analytic and synthetic truths is a matter of degree. What he means by this is that all truths without any discrimination whatsoever, are subject to 'revisability-in-principle'. There is no special subset of truths which occupies the privileged position of immunity from revision. Yet there are degrees in our willingness to give up or revise truths to accommodate for new contrary experiences: thus there are certain types of truths which we easily give up when the need arises. These truths lie at the boundary of our conceptual systems and may be called "empirical" if we please provided that the term is divorced from its usual connotation. Other types of truths are situated at the centre of our conceptual system. Quite naturally our reluctance to give them up will be very great, because to give them up entails a radical revision of our system. But still they can be given up, if this is unavoidable. Besides the need to cope with changing experience, what matters is considerations of elegance and simplicity.

On the other hand, the dichotomists maintain that there are certain truths which are true and valid come what may, that is to say quite independently of experience. Examples of such truths are those of mathematics and logic. These truths are true by linguistic conventions, which have nothing to do with factual considerations. Such statements are <u>analytic</u> and are immune from factual revision, precisely because they purport to say nothing at all about the world. They are tautologies or factually vacuous. In sharp contrast to these are empirical truths which are the ordinary ones of physics, biology, geography etc.

Thus, these are the problems which have been raised in connection with the analytic/synthetic distinction, and which would have to be overcome before we could dis-

miss Quine's doubts about the existence of a sharp analytic/synthetic distinction. But there are yet other problems which need to be solved before making such a dismissal. And the problems, we know by now, are complicated enough. The most urgent of all these problems is that of the admissibility of intensions in science. So let us consider it first.

(B) The Thesis of Extensionality

This is the ambitious Quinean Thesis that it is possible to devise a canonical notation for scientific discourse which does not include any intensional idioms. That is to say it only makes use of such extensional objects as variables, sentences, truth values and classes. The principal questions concerning such a canonical notation are

(i) Is it possible, in fact, to construct such a notation?

(ii) Is it adequate for scientific discourse ?

(iii) If it is possible and adequate, is it more efficient in terms of clarity, ease and economy of scientific discourse than a language system which contains intensional idioms ?

It is quite clear that these are both important and big questions, and it is not possible to attempt their answer in this thesis. Yet unless we answer them and answer the question we raised in Section A, it would not be possible to judge Quine's solution to the problem of the analytic/synthetic distinction. As I have already suggested, Quine's problem is not so much that of the existence or non-existence of the distinction itself as the problem whether the supposed distinction is in fact one of kind (as the dichotomists say) or one of degree (as he himself, with Tarski, Linsky, White, Goodman and others believe). I have said enough to support my belief that Quine's problem is, in my view, quite a genuine one, and moreover quite important, in view of the importance of

the distinction for the theoretical foundation of semantics and for modern analytic philosophy. I have quoted Carnap on this point several times, and he admits the urgency and importance of the above distinction. Carnap's views are of special importance, I think, because in many cases, Quine formulates his views with special reference to him. On the thesis of extensionality which Quine advocates, Carnap has this to say.(1)

"The most radical method for eliminating any antinomy arising in connection with certain forms of expression consists in excluding these forms entirely. In the case of the antinomy of the name-relation this solution would consist of excluding all non-extensional contexts - in other words, in using a purely extensional language. To construct an extensional language system for certain restricted purposes involves, of course, no difficulties. But this is not sufficient for the present purpose. In order to eliminate the antinomy by excluding all non-extensional contexts, it would be necessary to show that for the purposes of any logical or empirical field of investigation an extensional language system can be constructed; in other words, that for any non-extensional system there is an extensional system into which the former can be translated.(2) The assertion to this effect is known as the thesis of extensionality. The problem of whether it holds or not is still unsolved ..... The question whether an extensional language is sufficient for the purposes of semantics will be discussed later; an affirmative answer does not seem implausible, but the question is not yet definitely settled...."

Carnap continues in the same passage to bring out the question of efficiency and simplicity of the proposed extensional language. He says :

---

1. Meaning and Necessity Page 141.
2. Actually Quine's position is rather that we can construct a canonical notation for science in which intensions do not show.

"...We should have to show, in addition, that an extensional language for the whole of logic and science is not possible but also technically more efficient than non-extensional forms of language.Though extensional sentences follow simpler rules of deduction than non-extensional ones, a non-extensional language often supplies simple forms of expressing;consequently, even the deductive manipulation of a non-extensional sentence if often simpler than that of the complicated extensional sentence into which it would be translated.Thus both forms of language have their advantages;and the problem of where the greater overall simplicity and efficiency is to be found is still in the balance. Much more investigation of non-extensional, and especially of modal language systems will have to be done before this problem can be decided.

Obviously, such an investigation cannot fit into the limited scope of this thesis. Yet it is quite relevant and important for any final judgement on Quine's views on the analytic/synthetic distinction.So for these reasons, and others, some of which I have stated already, I shall not, as I hoped I would, be able to pass a final verdict on who is right and who is wrong of the two sides of the debate on the question whether there is a sharp or graduated analytic/synthetic distinction.Yet by and large my sympathy lies with Quine; my interest has been roused a great deal by his challenging views. These views are highly unique and original, and represent an admirable degree of coherence and consistency. This coherence and consistency is quite evident in his views about analyticity. He seems to maintain the same views over a period of more than thirty years; thus his early papers of the thirties such as "Truth by Convention" are complementary to and continuous with his most recent works such as Word and Object (1960.) Selected Logic Papers (1966)[1], and The Ways of Paradox and other Essays (1966)[2]. Yet, by and large, the majority of

1. Published by Randon House, New York and Toronto
2. Published by Random House, New York and Toronto

his views are unpopular because of the revolutionary consequences they seem to entail, especially in relation to analytic/synthetic distinction and quantified modal logic. My position in this thesis is that Quine is as yet not refuted by the criticism of his opponents. I regret that I cannot pursue the matter any further in this thesis, but any further research into this problem of the analytic/synthetic dichotomy, should examine more closely Quine's theses of Extensionality and the related theses of the indeterminancy of Radical Translation and Ontic committment.

Some of the main conclusions arrived at in this thesis have been the following.

(1) The historical account of the distinction between analytic and synthetic truths given by such philosophers as Kant and Leibniz were found to be unsatisfactory.

(2) The distinction is construed to be primarily a distinction between kinds of truths, which are distinguished on the basis of their methods of justification. It is a distinction between sentences, statements, judgements and propositions in a secondary or derivative sense in so far as truths and falsehoods are predicable of them.

(3) The distinction as is currently drawn in contemporary philosophy envisages two kinds of truths:those which are tautologous or factually vacuous and are confirmable by linguistic considerations, and those which are empirical and are confirmable by factual considerations.

(4) Quine's misgivings about the distinction are mainly directed against this contemporary way of drawing it.

(5) In the second Chapter Quine's attack on the distinction is critically discussed and compared to the similar views of Waismann and White. Quine's attack is seen to be the most vigorous and the most difficult to refute.

(6) Distinction is one of degree not of kind.

(7) In the third Chapter the conclusion was reached that

Quine's attack on the absolute distinction between analytic and necessary truths is not set off by Grice and Strawson's defence of it. Quine's notion of graduated analyticity and factuality seems to be correct.

(8) In the fourth Chapter, Quine's view that there is no truth either by linguistic and conventionalistic considerations alone or by factual considerations alone, is generally upheld against the views of his opponents on this point; in particular logical truths do not seem to be linguistic. The consideration of Quine's views on the nature of logical truths is a preparation to his views on intensions.

(9) Quine's formulation of the suggested 'canonical notation' as an extensional language for science seems to be alright in itself, in the sense that it is a coherent regimentation of ordinary language. In this 'canonical notation' intensional idioms are not admitted on the score that they lead to paradoxes.

However, Quine is not saying that we can do without intensional idioms when engaged in ordinary talk. These are irreducible as far as the practical daily conversation is concerned.

The questions whether Quine's 'canonical notation' can be maintained and whether it is adequate and more efficient for scientific communication are not discussed here. Nevertheless, his essential thesis that there are graduations of analyticity and a priority can be sympathised with, at least on the ground that the rival dichotomist theories of analyticity do not seem to be satisfactory.

Since the spirit of this thesis is more sympathetic with Quine, I shall end it with the following quotation from a more recent article by him. He writes[1]

"The statement that momentum is proportional to

---

1. The Ways of Paradox and other Essays, See "Necessary Truth (1963)" page 48.

velocity was supposed to be mathematically necessary because that definition, when expanded, turned the statement into a mathematical triviality. It may well, if my scepticism is over the definition, to forget the definition and turn our attention to the mathematical triviality itself: "Mass times velocity is proportional to velocity" How is this for a case of mathematical necessity ?

Admirable, certainly. But is even this necessity somehow different in kind from what can be attributed to ordinary truths of physical theory or other natural sentences? A long-standing doctrine says that is is; and I should like to conclude my remarks by questioning that doctrine. It depends, I think, upon a terminological boundary between physics and mathematics.

Thus, let us begin by supposing that we have somehow drawn a boundary across the face of physics, at some points quite arbitrarily, so as to separate a more speculative and theoretical half of physics from a more experimental and empirical half. Let us call the one side theoretical physics and the other experimental physics. Now it strikes me that the contrasts that people are prone to draw between pure mathematics such as arithmetic, on the one hand, and physics on the other, can be drawn just as well between theoretical physics and experimental physics.

People say that physics is about the world, that it has empirical content, while arithmetic and other parts of pure mathematics do not. They grant that these mathematical disciplines have their motivation and their utility in the application to physics and other natural sciences, but they called this a matter only of motivation and application, not content. Now why can we not say precisely this of theoretical physics, in relation to experimental ? Certainly, it has its motivation and

utility in applications to experimental physics; but why not say that this again is a matter only of motivation and not of content ? I think our not saying this is an accident of nomenclature. Theoretical and experimental physics are both called physics; we see them as part of a single systematic enterprise, connecting ultimately with observation. Pure mathematics, on the other hand, partly because of its utility in natural sciences other than physics, is segregated in name; so we do not see it as just a further part of a broader systematic enterprise, still connecting ultimately with the observations of experimental physics and other natural sciences.

Boundaries between disciplines are useful for deans and librarians, but let us not overestimate them - the boundaries. When we abstract from them we see all of science-physics, biology, economics, mathematics, logic and the rest - as a single sprawling system, loosely connected in some portions but disconnected nowhere. Parts of it - logic, arithmetic, game theory, theoretical parts of physics - are further from the observational or experimental edge; and the theoretical parts are good only as they contribute in their varying degrees of indirectness to the systematising of that content.

In principle, therefore, I see no higher or more austere necessity than natural necessity; and in natural necessity, or our attributions of it, I see only Hume's regularities, culminating here and there in what passes for an explanatory trait or the promise of it".

It seems to me that the way in which mathematical and logical formulae fit so nicely and are applied so effectively in empirical sciences favours such a view of knowledge more than it favours the rival divisive and dichotomistic approach.

Bibliographical References

Ayer, A.J. - Language, Truth and Logic - The Camelot Press Ltd., London, Southhampton.

***

Black, M. - Problems of Analysis - Routledge and Kegan Paul.

***

Bunge, M. -"Analyticity Redefined", Mind, 1961.

***

Bird, C.H. - "Analytic and Synthetic", Philosophical Quarterly (1961).

***

Carnap, R. - The Logical Syntax of Language -(New York : Harcourt Brace, and London : Kegan Paul, 1937). Translation with extensions of Logische Syntax der Sprache (Vienna: Springer 1934).

Meaning and Necessity (Chicago; University of Chicago Press, 1947.)

"Empiricism, Semantics and Ontology" Review Internationale de philosophie (1940) Reprinted in Linsky's Semantics and the Philosophy of Language.

The Philosophy of Rulf Carnap, ed. by P.A. Schilpp (La Salle, Illinois, Open Court, London, Cambridge University Press.

Introduction to Semantics (1942-43)- Harvard University Press.

"Quine on Logical Truth", published in The Philosophy of Rulf Carnap, ed. by Schilpp.

"Testability and Meaning", Philosophy of Science 1936, reprinted in Feigl and Sellars' Readings in Philosophical Analysis.

***

Church, A. - Review of Quine's "Notes on Existence and Necessity"; Journal of Symbolic Logic (1943)

"On Carnap's analysis of statements of assertion and belef"; Analysis (1950).

Review of Quine's "On Frege's Way Out"; Journal of Symbolic Logic (1960)

***

Edwards, Paul - Encyclopedia of Philosophy, Vol.8. Section on Synonymy.

Feigl and Sellars (eds.) Readings in Philosophical Analysis. New York, Appleton - Century - Crofts, 1949.

***

Frege, A. - The Foundation of Arithmetic; J.L. Austin's Translation of Grundlagen der Arithmetik, New York:Philosophical Library, and Oxford; Blackwell, 1950.

"On Sense and Nominatum", translated by H. Feigl from "Ueber sinn und Bedeutung"; published in Feigl and Sellars' Readings in Philosophical Analysis.

***

Grice and Strawson - "In Defence of a Dogma" Philosophical Review 65 (1956)

***

Goodman, N. - "On Likeness of Meaning"; published in Linsky's Semantics and the Philosophy of Language.

***

Gewirth, A. - "The Distiction between Analytic and Synthetic Truths"; Journal of Philosophy (1953.)

***

Herbert, G.H.- "The Analytic and the Synthetic", Symbolic Logic (1959).

***

Hamlyn, D.W. - "Analytic Truths"; Mind (1956).

"On Necessary Truths" Mind (1961).

***

Joseph, H.W.B. - An Introduction to Logic. Oxford University Press.

***

Kneale, Wand M. - The Development of Logic. Oxford University Press (1962).

***

Kneale, W.C.; Britton, K.; Urmson, J.O. - "Are Necessary Truths True by Convention". Proceedings of Aristotelian Society, Supplementary volumes.

***

Kant - Critique of Pure Reason - N. Kemp-Smith's Translation.

***

Kemeny, J.G. - "Review of Quine's "Two Dogmas"; Journal of Symbolic Logic (1952.)

***

Leibniz; G.W. - The Monadology and other Philosophical Writings. Translated with introduction and notes by Robert

Latta. Oxford University Press.

Leibniz's Selections; ed. by Philip P. Wiener

The Philosophy of Leibniz; by Nicholas Rescher. Prentic-Hall, Inc. Englewood Cliffs, New Jersey.

***

Linsky - Semantic and the Philosophy of Language Urbana: University of Illinois, (1952)

***

Liu, Shih-Chao - "On the Analytic and the Synthetic". Philosophical Review, 1956.

***

Lemmon, E.J. - Sentences, Statements and Propositions" in British Analytical Philosophy, by Williams and Montefiore, published in 1960 by Routledge and Kegan Paul Ltd.

***

Lewy, C. - "Logical Necessity", Philosophical Review (1940)

***

Lewis, C.I. - An Analysis of Knowledge and Valuation : La Salle, Ill. Open Court, 1946).

***

Mates, B. - "Synonymity", in Linsky's Semantics and the Philosophy of Language.

"Analytic Sentences", Philosophical Review (1951)

***

Pap, A. - Semantics and Necessary Truth. New Haven:Yale, 1958.

"Indubitable Existential Statements" in Mind, 1946.

"The Different Kinds of A priori". Philosophical Review, 1944.

***

Putnam, H. - "The Analytic and the Synthetic", published in Scientific Explanations,

Space and Time; Minnesota Studies in the Philosophy of Science, vol. III.

***

Peach, B. - "A Nondescriptive Theory of the Analytic". Philosophical Review, 1952.

***

Quine, W.V.O. - From a Logical Point of View. Cambridge, Mass., Harvard, 1953.

Word and Object - Technology Press of Massachusetts. Institute of Technology and John Wiley and Sons, New York and London (1960)

"Mr. Strawson on Logical Theory" . Mind (1953).

"Two Dogmas of Empiricism", From a Logical, essay 2.

"On Carnap's Views on Ontology". Philosophical Studies (1951).

"Truth by Convention", in Philosophical Essays for A.N. Whitehead, ed. by Otis H. Lee; New York (1936), pp 90-124. Reprinted in Feigl and Sellars' Readings in Philosophical Analysis.

"Quantifiers and Propositional Attitudes". Printed in the Journal of Philosophy 53 (1956)

"Carnap on Logical Truth" published in The Philosophy of Rulf Carnap ed. by Schilpp.

"Notes on Existence and Necessity". Journal of Philosophy (1943).

Selected Logic Papers (1966), published by Ranton House, New York and Toronto.

The Ways of Paradox and other Essays (1966)

***

Reid, J.R.-"Analytic Statements in Semiosis", Mind (1943).

***

Russell, Bertrand - The Principles of Mathematics, London 1903.

The Problems of Philosophy. New York (1912)

Introduction to Mathematical Philosophy. New York and London 1919.

An Inquiry into Meaning and Truth. New York : Norton 1940.

A Critical Exposition of the Philosophy of Leibniz. London, George Allen and Unwin Ltd.

***

Robinson, R. - "Necessary Propositions". Mind(1958)

***

Strawson, P.F. - Introduction to Logical Theory. London: Methuen and New York: Wiley (1952)

"Propositions, Concepts and Logical Truth". Philosophical Quarterly (1957).

"Particular and General" Proceedings of Aristotelian Society, Supplementary volumes (1954) pp.233-260.

"Singular Terms and Predications" in Synthese, vol. 19, No. 1/2. December, 1969.

***

Schlick, M. - "The Foundation of Knowledge" printed in Ayer's Logical Positivism, (eds) The Free Press of Glencoe, (1959).

***

Slöman, Aaron-""Necessary", "A priori" and "Analytic"". Analysis, 1965/66.

***

Waismann, F. - "The Analytic/Synthetic" published in Analysis, volumes 10-13 (1949-1953).

***

Wittgenstein, Ludwig - Tractatus Logico-Philosophiscus. (Pears and Guiness' Translation) New York and London, (1922).

***

Walsh, W.H. - "Analytic/Synthetic. Proceedings of Aristotelian Society (1953)

***

White, M. - "The Analytic and the Synthetic: An Untenable Dualism" in Linsky's Semantics and the Philosophy of Language.