

Empiricism and the Analytic-Synthetic Distinction

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Preface

The analytic-synthetic distinction has long been considered a cornerstone of empiricism. The theses that all statements can be sharply divided into analytic and synthetic and that all necessary truths are analytic were among the central doctrines of the logical empiricists between the two world wars. But in the late 1930's some empirically-minded philosophers began to doubt the adequacy of the notion of analyticity itself. These doubts eventually found a striking and provocative expression in three papers which were published around 1950: W. V. Quine's 'Two Dogmas of Empiricism', M. G. White's 'The Analytic and the Synthetic: an Untenable Dualism', and N. Goodman's 'On Likeness of Meaning'.¹ The three papers were the result of joint discussions, and there are many similarities between them. The Quine-White-Goodman attack on analyticity and similar notions sparked off a lively debate, which has now lasted for two decades.²

In the midst of the debate, the situation was summed up by one philosopher as follows.³ The sharp distinction between analytic and synthetic truths is a necessary condition of empiricism as it is usually conceived. There is no sharp distinction between analytic and synthetic truths in natural languages but only in artificial languages. The sharp analytic-synthetic distinction can therefore be maintained only by means of conventions. But there is nothing about conventions in either empiricism or the analytic-synthetic distinction as it is usually conceived. Therefore empiricism has to be reconsidered.

In this paper I shall examine this argument from the analytic-synthetic distinction. The assumption that empiricism presupposes a sharp analytic-synthetic distinction will be examined in Chapter 1. The two following chapters deal with the assumption that there is no sharp distinction between analytic and synthetic statements in natural languages. The charge that the artificial language approach is incompatible with empiricism will be taken up in Chapter 4. The last chapter reviews some recent contributions which seem to me to clarify the situation considerably. Finally, in the Conclusion, I shall try to draw some of the threads together in an evaluation of the argument from the analytic-synthetic distinction and a general assessment of the Quine-White-Goodman attack and its outcome.

The first four chapters of this paper were originally written in 1960-61

and presented at the University of Gothenburg in 1961 in the form of an unpublished fil. lic. thesis. Some aspects of the discussion may seem less interesting and others more important now than they did ten years ago. But the developments of the last decade have not caused me to make any substantial changes except for a few passages in Chapter 3, which have been completely rewritten. Chapters 1–4 will thus give a survey of the first ten years of the debate provoked by the Quine-White-Goodman attack on analyticity, and Chapter 5 will review the development of the last decade.

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T. N.

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1. The Epistemological Setting

1.0. *Aim of the chapter*

In this chapter I shall indicate the role that the analytic-synthetic distinction plays in the theory of knowledge and the consequences of introducing a notion of graded analyticity. Some senses of 'analytic statement' and 'a priori statement' will be disentangled. The nature of rationalism, empiricism, gradualism, genericism and neo-pragmatism will be indicated, and the relations between gradualism on the one hand and empiricism and neo-pragmatism on the other will be explored.

1.1. *The principle of analyticity*

Rationalism in classical epistemology is often vaguely characterized as the view that substantial knowledge about the world can be gained by pure reasoning without the help of empirical premisses. What could be called 'radical empiricism' claims, on the other hand, that only experience can provide us with true knowledge. Empiricism in this uncompromising form is wrecked on the rock of logic and mathematics. Logical and mathematical propositions seem to express absolutely certain knowledge, they are not only true but necessarily true, and so it happens that radical empiricism has attracted only one outstanding philosopher, J. S. Mill, who thought of mathematical propositions as highly general empirical generalizations. Other philosophers usually denominated 'empiricists' have chosen less drastic forms of empiricism. Acknowledging the existence of necessary truths, they have divided true statements into two sharply separated classes which are marked by such labels as 'analytic' and 'synthetic', 'a priori' and 'a posteriori', 'necessary' and 'contingent', and restricted the theory of the experiential basis of all knowledge to the second member of each pair. Empiricists then face the task of working out a satisfactory theory of necessary truth. It was the aim of the recent attack on the analytic-synthetic distinction to show that empiricists have never succeeded in developing such a theory. In particular, Quine, White and Goodman wanted to suggest that the tenet that there is a sharp distinction to be drawn between the two kinds of knowledge has not been substantiated and that an adequate theory of necessary truth is likely to

blur the boundary between them. Following Alan Pasch I shall call the doctrine that there is a sharp distinction between analytic and synthetic truths *the principle of analyticity*.¹ This principle is one of the two theses which according to G. Bergmann are the cornerstones of empiricism and according to Quine are unfounded dogmas.² The other thesis is that every significant statement can be reduced to a phenomenalist equivalent, 'some logical construct upon terms which refer to immediate experience'.³

Before one goes on to a consideration of the consequences of denying the principle of analyticity, it is important to distinguish between some common uses of the term 'analytic'. In its widest use any statement which is true because of its meaning (because of the meanings of the constituent terms) is said to be analytic. In a more narrow sense any statement which is either a truth of logic or else reducible to a truth of logic, e.g. by substituting synonyms for synonyms, is called 'analytic', and in a still narrower sense analytic statements are contrasted with logical statements. In Pap's terminology, statements which are true by virtue of the meanings of the constituent terms are 'broadly analytic', substitution instances of logical truths are 'explicitly analytic', statements which are reducible to explicitly analytic truths are 'implicitly analytic', and statements which are explicitly or implicitly analytic are 'strictly analytic'.⁴ Pap makes a distinction between true statements which contain no descriptive expressions at all which he calls 'logical truths' and substitution instances of such truths which he calls 'explicitly analytic truths'. The distinction is not important for the present purposes, so the terms 'explicitly analytic' and 'logically true' will be used synonymously to refer to both groups of truths. It is perhaps also worth pointing out that the term 'analytic statement' is often used to designate both true and false statements. Throughout this paper, however, I shall deal with analytically true statements only.

Let me give some examples to illustrate: 'p or not p' is a logical truth, and so are substitution instances of the formula, e.g. 'It is raining or it is not raining', 'Either he killed the man or else he did not kill the man'. 'All bachelors are unmarried men' is the standard example of an implicitly analytic statement. If the expression 'unmarried men' is replaced by the synonymous expression 'bachelors', this statement is turned into the explicitly analytic statement, 'All bachelors are bachelors'. The synthetic statement 'All bachelors are wicked men' cannot be transformed into a logical truth in a parallel way. All these analytic statements are both strictly and broadly analytic. As an example of a statement which is presumably broadly analytic but not strictly analytic, I should like to mention the statement 'Nothing can be both red and green all over at the same time for the same observer'.

Corresponding to the different senses of 'analytic statement' there will be different interpretations of the principle of analyticity. 'The principle of broad analyticity' is the principle that there is a sharp distinction between broadly analytic truths and other truths (which can be called 'broadly

synthetic truths'), and similarly, there will be a principle of explicit analyticity, a principle of implicit analyticity, and a principle of strict analyticity.

Quine, White and Goodman deal with implicitly analytic statements in their articles, and they all want to reject the principle of implicit analyticity. Though he does not attack it directly, it is clear that Quine also wants to reject the principle of explicit analyticity.⁵ Quine seems to assume that all broadly analytic statements are strictly analytic, so for him there is no separate principle of broad analyticity to reject; but if there were, it follows from his pragmatism that he would reject it too. In addition, White hints that he has qualms about the logical-non-logical distinction.⁶

1.2. *Gradualism*

Quine, White and Goodman repudiate the principle of analyticity, and so they turn out gradualists rather than genericists. The convenient terms 'gradualism' and 'genericism' are used by A. Gewirth in his study of the controversy over the analytic-synthetic distinction.⁷ But he uses the terms more loosely than I want to do. For Gewirth every philosopher who has denied that there is a sharp distinction between logic and mathematics on the one hand and natural science on the other is a gradualist. But it is quite possible for a philosopher to be a gradualist in this sense and to be a genericist at the same time in the sense of not admitting degrees of analyticity. Many philosophers have held that the analytic-synthetic distinction is not 'sharp', meaning that the same sequence of words can be synthetic on one occasion and analytic on another for the same person, or analytic for one person and synthetic for another at the same time; among these were Schleiermacher, Trendelenburg, and many other nineteenth-century German philosophers.⁸ In England Green and Bradley held the same view. Gewirth calls them 'psychological gradualists' and quotes Bradley's dictum, 'a synthetic statement, so soon it is made, is at once analytic'.⁹ It would seem more apt not to call this view 'gradualism' at all but to speak instead of 'subjectivism' or 'relativism'. For gradualism in this sense does not mean that the same statement can be more or less analytic: either it is analytic for a person P at a time T or it is not. At any rate it is important to distinguish the two kinds of gradualism in order to understand the position of Quine, White and Goodman. Nobody would deny that the same sequence of sounds can be analytic on some occasions and synthetic on others, and Quine, White and Goodman are certainly gradualists in this sense. But they are also gradualists in the sense in which I want to use that term. They suggest that the concept of analytic truth be explicated in such a way as to make it possible for one sentence to be more or less or equally as analytic as another sentence.

We have seen that the position of Quine, White and Goodman differs considerably from at least one of the lines of thought which can be found in psychological gradualists like Bradley. Whether there are other lines of

thought to be found in the idealist tradition which are more similar to the Quinean view is a question which I shall not try to answer here. Gewirth distinguishes between two kinds of idealist gradualists, the psychological gradualists and the logical gradualists.¹⁰ The latter group includes Bosanquet and Joseph. They both reject psychological interpretations of Kant's definition of 'analytic judgment' and try to explicate the analytic-synthetic distinction by means of the distinction between essence and accident, but what they mean by 'essence' and 'accident' remains obscure.¹¹

On the whole it seems that Gewirth makes a too generous application of the label 'gradualist'. This feeling is confirmed by a look at other philosophers whom he counts as gradualists. So far we have briefly considered the views of some gradualists in the idealist tradition. Gewirth mentions Peirce and F. C. S. Schiller as representatives of another main type of gradualism, 'pragmatical gradualism'.¹² But there seem to be no signs of gradualism in Peirce. In the passage to which Gewirth refers Peirce declares that what Kant called an analytic judgment is either no judgment at all because it lacks content, or else it rests on experience, not of the outer world, but of our own imaginations, and is thus synthetic.¹³ This scarcely lends support to the view that Peirce was a gradualist. Elsewhere Peirce draws a clear and sharp distinction between mathematics and other sciences: 'mathematics studies nothing but pure hypotheses, and is the only science which never inquires what the actual facts are.'¹⁴ The views of Schiller, on the other hand, are very close to those of Quine. Schiller rejects the traditional doctrine of the two sources of knowledge. There is no deep chasm between the a priori and the a posteriori, between deductive and inductive reasoning. The two methods of knowing are not independent of each other, and consequently, there are no absolutely necessary a priori truths. The so-called 'necessities of thought' are not 'independent of the process of experience, but are its finest fruits', and 'the fundamental principles of mathematics are assimilated to hypotheses which have been verified, and differ from other hypotheses only in their antiquity and in the amount of verification they have received'.¹⁵ This is a good example of gradualism in my sense of that word.

1.3. *Two qualifications*

I said above that the principle of analyticity is one of the fundamental theses of modern empiricism. I want now to add two qualifications to avoid misunderstanding. The first is that a philosopher may merit the epithet 'empiricist' although he does not stick to the principle in question. 'Empiricism' may be used as a name for a tradition rather than a particular body of doctrines, and in this sense Quine, White and Goodman are certainly empiricists.¹⁶ Secondly, it must be pointed out that many non-empiricists have made sharp distinctions which are similar to the analytic-synthetic distinction. Plato distinguished between the realm of ideas and the realm of things, just

as Hume distinguished between relations of ideas and matters of fact; Leibniz made a distinction between truths of reason and truths of fact; and similar pairs may be found in the Stoics, St. Augustine and the Scholastics.¹⁷ The difference between empiricism and other philosophical views does not lie in the acceptance or rejection of such distinctions, it lies in the use that is made of the distinctions. Plato and Leibniz believed that knowledge about the realm of things can be attained by contemplation of the realm of ideas, by reason alone, and that is what empiricism denies. In the usual Kantian terminology, empiricism holds that there is no synthetic a priori knowledge. This principle is usually considered as *the* fundamental tenet of modern empiricism, and following Hempel and Pasch I shall call it *the principle of empiricism*.¹⁸ This principle will be discussed in the next section, but before going on, I want to point out again that there are philosophers who deny this principle but who are usually counted as empiricists on other grounds.¹⁹

1.4. *The principle of empiricism*

The a priori is a tangled web, and the relations between the a priori-a posteriori distinction and the distinctions between analytic and synthetic, necessary and contingent, verbal and real, essential and accidental, are a complex subject. It will be illuminating to cast a glance at Kant's conception of the a priori to begin with, since the modern use of the expression goes back to him.

Kant distinguished between pure and empirical knowledge. Pure knowledge is such as can be gained independently of experience and all sense-impressions, i.e. that can be known a priori. Empirical knowledge, on the other hand, has its sources a posteriori, in experience.²⁰ In Kant the pair a priori-a posteriori is thus tied up with the doctrine of the two sources of knowledge, reason and experience, which has already been referred to several times, and the terms 'pure knowledge' and 'empirical knowledge' refer to the two kinds of knowledge which derive from these sources. There are two infallible criteria by which pure knowledge can be distinguished from empirical knowledge: (i) pure knowledge is necessary; (ii) pure knowledge is strictly universal, where strict universality is contrasted with empirical universality. Strictly universal judgments do not admit of exceptions, exceptions are not even possible. Impossibility and necessity are two sides of the same coin, and so the two criteria are ultimately identical, as Kant pointed out.

What Kant called 'pure knowledge' is often called 'a priori knowledge'. The Kantian account of the a priori could then be summed up as the view that there are two criteria of apriority: (a) the joint criteria of necessity and universality; (b) the criterion of independence of experience. To this account it ought to be added that the term 'a priori' is often used in other senses nowadays. In particular the a priori is often identified with (c) ab-

solutely certain knowledge (in contrast with irrational belief and probable, inductive knowledge) and with (d) the broadly analytic, i.e. an a priori truth is a statement which is true by virtue of its meaning.²¹

The ambiguities in the notion of a priori and the different interpretations of 'analytic' and 'synthetic' noted earlier (in section 1.1), yield a series of at least *prima facie* different interpretations of the thesis that there is no synthetic a priori:

- (1) No broadly synthetic statement is (a) necessary, (b) strictly universal;
- (2) No broadly synthetic statement can be known independently of experience;
- (3) No broadly synthetic statement is absolutely certain;
- (4) No broadly synthetic statement is true solely because of its meaning;
- (5)–(8): same as (1)–(4) with 'broadly synthetic' replaced by 'explicitly synthetic';
- (9)–(12): same as (1)–(4) with 'broadly synthetic' replaced by 'implicitly synthetic';
- (13)–(16): same as (1)–(4) with 'broadly synthetic' replaced by 'strictly synthetic' (= the conjunction of (5) and (9), (6) and (10), and so on).

Many philosophers would argue that this *embarras de richesse* is purely verbal, and that on closer inspection many of the versions would be found to amount to the same. Fortunately it is not necessary for the present purposes to consider this issue. In order to give the background for an estimation of the epistemological consequences of the rejection of the principle of analyticity, it is more important to appreciate the intentions behind the empiricist principle than to pin down the differences and similarities between the various versions of the principle of empiricism. The principle is, I take it, above all meant to deny the rationalists', idealists', and phenomenologists' claim that there is a place for rational insight, intuition, or *Wesensschau* in philosophy. In view of the intentions behind the empiricist principle one can distinguish between interesting and uninteresting interpretations of the principle. Some examples will help to make clear what I mean here by interesting and uninteresting interpretations.

(i) Version (4) of the principle which was given above is not interesting since it merely expresses the tautology that all and only true statements which are true by virtue of their meaning are true by virtue of their meaning.

(ii) Kant defined 'analytic judgment' for sentences of subject-predicate form only, and if this is taken to imply that all statements which are not of subject-predicate form are synthetic, it follows that, for instance, Kant's famous example ' $5 + 7 = 12$ ' is synthetic. Yet it may plausibly be held that ' $5 + 7 = 12$ ' is a priori in the sense of being necessary, strictly universal, and absolutely certain. The thesis that there are synthetic a priori truths in these senses of 'synthetic' and 'a priori' is not particularly exciting from an em-

piricist point of view – it is compatible with the intentions of empiricism as they were formulated above.

(iii) When a phenomenologist claims, for example, that the statement ‘Nothing can be red and green all over at the same time for the same observer’ is synthetic a priori in the sense that only intuitive insight into essences can reveal its truth, he denies the principle of empiricism in some of its interesting interpretations.²²

The examples have, I hope, made the idea of an interesting version of the principle of empiricism sufficiently clear, so let us now go on to a consideration of the relations between the principle of empiricism and the principle of analyticity.

1.5. *Gradualism and the principle of empiricism*

In this and the next section I shall discuss the epistemological consequences of rejecting the principle of analyticity. I begin with the question whether the principle of empiricism presupposes the principle of analyticity, and go on to a consideration of the connections between gradualism and Quine’s new pragmatism.

In a discussion of the relations between the principle of analyticity and the principle of empiricism, A. Pasch has argued that the principle of analyticity does not imply the principle of empiricism but the principle of empiricism implies the principle of analyticity. I agree with the first part of the thesis, but I do not think that the principle of empiricism presupposes the principle of analyticity in all interesting interpretations of the former. Pasch considers only one formulation of the principle of empiricism, but that is not my main complaint. My main complaint is that his argument misses the point of the principle.

Pasch’s argument goes as follows. ‘Statements which are about experience are synthetic statements; statements which are not are, if true, analytic. Statements which are derived from or validated in terms of experience are a posteriori statements; statements which are not are a priori.’²³ Since it is generally agreed by empiricists and non-empiricists alike that there are no analytic a posteriori truths, the principle of empiricism can be reformulated as the principle that the analytic-synthetic distinction is coextensive with the a priori-a posteriori distinction (in the sense that the analytic and the a priori are coextensive and the synthetic and the a posteriori are coextensive). Now from the supposition that there are statements which are about experience and which are not validated in terms of experience it does not follow that there is no sharp distinction between statements which are about experience and statements which are not. The principle of empiricism is not a necessary condition for the principle of analyticity. But the principle of analyticity is a necessary condition for the principle of empiricism, according to Pasch. (This will be qualified below.) He gives the following argument for his

thesis. Suppose that the principle of analyticity is rejected. Whatever form this rejection may take, it must be granted that there are borderline cases for which one cannot decide whether they are analytic or synthetic. Now if it is true that the analytic-synthetic distinction and the a priori-a posteriori distinction are coextensive, it follows that there are borderline cases for which one cannot decide whether they are a priori or a posteriori, and the vagueness of the two distinctions must be systematically correlated. And if one assumes such a correlation 'one might as well assume the validity of empiricism to begin with and not bother about all these details'.²⁴ At any rate, the principle of empiricism loses its 'pragmatic validity' if one assumes that there is no sharp distinction between analytic and synthetic truths.²⁵

From his explanation of the meaning of 'analytic statement' and 'synthetic statement' it seems that Pasch has the broad interpretation of the analytic-synthetic distinction in mind. A broadly analytic statement is, as was explained in section 2.2 above, a statement which is true solely by virtue of the meanings of the constituent terms, and the force of the qualifying word 'solely' in this connection is often made explicit by the addition of the phrase 'and independently of facts'. Statements which are 'about experience' are thus, I take it, statements which are not true solely by virtue of their meaning, but those the truth-values of which are dependent on facts. I agree with Pasch that it seems plausible to assume that the principle of broad analyticity does not imply the thesis that there are no broadly synthetic statements which are a priori in the sense which Pasch gives to that expression. It also seems plausible to assume that the other versions of the principle of analyticity do not imply any interesting version of the principle of empiricism. (Tautological versions of the principle of empiricism are vacuously implied by the principle of analyticity, but then the tautological versions are not interesting.) Because of the lack of clarity of the terms in the principle of empiricism it does not seem feasible to make more definite assertions than this about the first of Pasch's two theses. So let us now go on to the question whether the principle of empiricism implies the principle of analyticity, or, in other words, whether the principle of analyticity is a necessary condition for the principle of empiricism.

Pasch's argument from the existence of undecidable cases does not seem convincing to me. First it may be noted that the argument is not dependent on whether one adopts a genericist or a gradualist attitude towards the analytic-synthetic distinction. There may be undecidable cases irrespective of whether one chooses an explication which makes analyticity a matter of degree or not. After this minor remark we now turn to the main part of the argument. Pasch seems to assume that the principle of empiricism must be established in the following way. First one classifies all statements into analytic, synthetic and borderline cases and into a priori, a posteriori and borderline cases, and subsequently one scans the lists to see whether the groups of analytic and a priori statements coincide and whether the groups

of a posteriori and synthetic statements coincide. If they do, the principle of empiricism is correct; if not it is wrong. (It has been assumed for the sake of simplicity that there is a finite set of statements.) But to think that this is the way to establish the principle seems to miss the point of the principle. The principle of empiricism commits the philosopher who adheres to it to show that every proposed necessary statement is either analytic and necessary or else synthetic and not necessary (a priori, strictly universal). In particular, it commits the empiricist to hold that every proposed synthetic a priori truth is either not synthetic or else not a priori. If there happens to be a statement which is classified as, say, analytic, but which belongs to the group of cases which are left undecided as far as the a priori-a posteriori distinction is concerned, the empiricist must reclassify this statement, for instance by declaring it a priori. And similarly if there is a clearly a priori statement which seems to be a borderline case as far as the analytic-synthetic distinction is concerned, it is up to the empiricist to show that this statement is analytic. Thus the empiricist who defends the thesis that all and only statements which are true because of their meaning can be verified independently of experience and that the sentence 'Every event has a cause' can be verified independently of experience, has to show that this statement is true by virtue of its meaning if he is to stay an empiricist. If this is the way the empiricist would deal with borderline cases, Pasch's argument from the existence of such cases begins to lose its force. Pasch overlooks the empiricist's reclassification job.

The empiricist's strategy outlined above is not dependent upon any particular interpretation of the principle of empiricism, and so my argument against Pasch applies to other interpretations of the principle as well as to his particular interpretation of it. For example, the philosopher who defends the thesis that all strictly universal statements are broadly analytic would defend this thesis in exactly the same way, if I am right. Let us now see what happens to the principle of empiricism – in any of its interesting versions – when the principle of analyticity is rejected.

Pasch says that the empiricist principle loses its 'pragmatic validity' if the genericist view of the analytic-synthetic distinction is rejected. It does not become clear what it is for a principle to be pragmatically valid – Pasch says merely that a principle which is not pragmatically valid is 'a strange kind of principle' which has lost its 'empirical usefulness'²⁶ – but whatever it means, I think that Pasch is wrong, since one can without contradiction adopt the principle of empiricism and reject the principle of analyticity. For supposing that there is a sharp distinction between the a priori and the a posteriori and no such sharp distinction between the analytic and the synthetic, it follows from the statement 'There are no synthetic a priori truths' that there are no analytic a priori truths either, since the analyticity of a statement is inversely proportional to its syntheticity. Thus the empiricist who rejects the sharp analytic-synthetic distinction is committed to the view that there are no a priori statements at all. Rather than reject the principle

of empiricism he could now reject the sharp distinction between the a priori and the a posteriori. Gradualism in the case of the analytic-synthetic distinction will thus lead to gradualism in the case of the a priori-a posteriori distinction. Perhaps Nelson Goodman was led by this kind of argument to the position he adopts towards the end of *On Likeness of Meaning*, that 'no non-repetitive statement will be analytic . . . will be enough to convince many of us that likewise a non-repetitive statement is never absolutely necessary, but only more or less so'.²⁷ Adherence to the principle of empiricism in conjunction with rejection of the sharp analytic-synthetic distinction can thus lead to the sharp distinction between a priori and a posteriori being discarded, and it is hard to see what is strange about such a position. I conclude that Quine, White and Goodman are not committed to giving up the principle of empiricism because of their attack on the analytic-synthetic distinction. From the passage just cited, it would seem that Goodman does in fact defend some version of the principle of empiricism. Whether Quine takes the same standpoint I do not know. In 'Truth by Convention' (1936) he suggested that a behaviouristic explication of the a priori-a posteriori distinction would make apriority a matter of degree.²⁸ Elsewhere he talks of graded analyticity. If this means that he holds both distinctions to be of degree or that there is only one distinction to be made, Quine's views are certainly compatible with the principle of empiricism. But presumably he would hold that the principle is too obscure to warrant any definite opinions about it.²⁹ White, finally, has made it quite explicit that he does not want to endorse the empiricist principle. Nor does he want to deny it – he is much too impressed with 'the complexity of the doctrinal relations involved' to do either.³⁰

1.6. *Neo-pragmatism*

The element common to the two dogmas of empiricism which Quine wants to dispense with is what can be called 'the statement theory of meaning'.³¹ The thesis that there is a sharp distinction to be made between analytic and synthetic statements presupposes that the meanings of statements can be determined one by one, or – avoiding talk of meanings – that a statement can be said to be significant on its own. Similarly, reductionism, the thesis that every statement can be reduced to an equivalent statement which refers only to direct experience, presupposes that every statement can be taken by itself as a significant unit, which can be shown to be reducible to another significant unit, viz. the immediate experience statement. Both theses are rejected by Quine, and instead of the Lockean term theory of meaning and the Fregean statement theory of meaning he now proposes a theory which takes the whole of knowledge as the unit of significance. According to the resulting theory of knowledge there are no sharp distinctions between ontological questions, questions of meaning and questions of fact. There are only blurred boundaries between logic and mathematics on the one hand

and natural science on the other, and ontological statements differ from descriptive statements, not in kind, but only in the degree of centrality in the system of knowledge. Ontological and logico-mathematical statements are less likely to be revised in the face of recalcitrant experience than factual statements are, but no statement is in principle immune to revision. In Quine's suggestive metaphor, the whole body of knowledge 'is a man-made fabric which impinges on experience only along the edges'.³² Descriptive statements may be viewed as being situated on the periphery of the system of beliefs; they are felt to have a more direct empirical reference than the centrally located statements of logic and ontology, and their truth-values are more likely to be changed in the face of new experience, not because of any inward necessity, but because of our natural tendency to change the system in the most economical way.

Such is in outline the picture of knowledge which has been called 'holistic pragmatism' (as well as 'neo-pragmatism' and 'logical pragmatism').³³ It is holistic because according to it science forms a functional whole, a system of interrelated parts which help to determine each other. It is pragmatic because the system is not uniquely determined by experience – there is, at least in theory, plenty of room for decision in science.

Carnap has suggested that ontological questions are not theoretical questions with theoretical answers but questions which will have to be answered by considerations of the efficiency, fruitfulness and simplicity that result from the introduction of the entities in question.³⁴ It is true that the question 'Are there numbers?' (to take one of Carnap's examples) can be interpreted as an internal question, as a question which can be answered only when the number terminology has been introduced. But the answer to *this* question is analytic and trivial, since it follows from the rules which make up the linguistic framework of numbers. There is, however, another way of interpreting the question which is more interesting from a philosophical point of view, viz. 'Are there numbers prior to the acceptance of the framework of numbers?' Carnap suggests that this is the question philosophers had in mind when they raised the ontological question of the existence of numbers, and he declares that he is going to consider this question as non-cognitive until a clear cognitive interpretation of it has been given.³⁵ Quine agrees with this, with the proviso that the same considerations which apply to ontological statements apply also to scientific hypotheses, and indeed to all statements.³⁶ In this sense he adopts 'a more thorough pragmatism' than Carnap; *all* statements have to be truth-evaluated by considerations of simplicity and utility, that is, by pragmatic considerations.

We have seen that Quine's neo-pragmatism is supported by two main lines of argument, the rejection of the analytic-synthetic distinction and the rejection of reductionism. It is outside the scope of this paper to discuss reductionism, but it is important for the present purposes to see how much the argument from the analytic-synthetic distinction accomplishes by itself.

In the three essays which are the main subject of this paper, Quine, White and Goodman aim at undermining the principle of implicit analyticity (which they seem to identify with the principle of broad and not explicit analyticity), and so neo-pragmatism is supported only to a limited extent by their rejection of the principle of analyticity. In so far as mathematics consists of implicitly analytic statements and science of implicitly synthetic statements, the rejection of the principle of implicit analyticity results in a rapprochement between mathematics and science, but it does not follow from the rejection of this version of the principle of analyticity that there is no sharp difference between logic and science. To show that there is no sharp distinction between logical principles and scientific, synthetic statements one has to show that the principle of explicit analyticity is unfounded. There is no direct attack on this principle in the three essays, but the rejection of the statement theory of significance implies that this version of the principle must be abandoned as well as the other versions.

Nor does the rejection of the principle of implicit analyticity lead to an obliteration of the sharp difference between ontological and factual questions unless one assumes that ontological questions are theoretical questions with theoretical and implicitly analytic answers. Carnap would not accept such an assumption, since he denies that ontological statements are theoretical when interpreted in the more interesting way, and, being non-theoretical, they are neither analytic nor synthetic. Now Quine seems to identify the distinction between internal and external statements³⁷ with the distinction between analytic and synthetic statements, or at least to assume that the analytic-synthetic distinction is a necessary condition for the external-internal distinction: 'Carnap . . . has recognized that he is able to preserve a double standard for ontological questions and scientific hypotheses only by assuming an absolute distinction between the analytic and the synthetic.'³⁸ Elsewhere Quine repeats: 'It is only by assuming the cleavage between analytic and synthetic truths that he (Carnap) is able e.g. to declare the problem of universals to be a matter not of theory but of linguistic decision.'³⁹ This is very puzzling in view of Carnap's opinions which were described a moment ago. Carnap makes a double standard for questions about the existence of abstract entities and ordinary scientific hypotheses by assuming a distinction between non-cognitive, non-theoretical or pragmatic questions and other questions, and it is only answers to questions of the latter kind which can be analytic or synthetic at all. It seems, then, that Quine has misinterpreted Carnap here. (The passage Quine refers to is admittedly not quite clear. After making the distinction between acceptance of a framework and metaphysical doctrines concerning the existence of entities, Carnap goes on to say that Quine does not accept this distinction 'because according to his general conception there are no sharp boundary lines between logical and factual truth, between questions of meaning and questions of fact, between the acceptance of a language structure and the acceptance of an assertion formulated in

the language'.⁴⁰ Presumably Carnap did not want to assert here that the principle of analyticity is a necessary presupposition for the distinction between pragmatic and theoretical questions but rather to indicate the general nature of Quine's views to explain why Quine does not accept the distinction in question: it is incompatible with Quine's thorough pragmatism.)⁴¹

1.7. Recapitulation

In section 1.1 four different senses of the term 'analytic statement' were distinguished:

- (i) a *broadly analytic* statement is a statement which is true solely because of its meaning (because of the meanings of the constituent terms) (and independently of facts);
- (ii) an *explicitly analytic* statement is a statement which is logically true;
- (iii) an *implicitly analytic* statement is a statement which is reducible to a logical truth, e.g. by substituting synonyms for synonyms;
- (iv) a *strictly analytic* statement is a statement which is explicitly or implicitly analytic.

A statement which is not broadly analytic (explicitly analytic, etc.) is broadly synthetic (explicitly synthetic, etc.).

The expression 'the principle of analyticity' was introduced to mean the principle that there is a sharp distinction between analytic and synthetic statements and not a difference of degree. Four versions of the principle can be distinguished, corresponding to the four senses of 'analytic statement': the principle of broad analyticity, the principle of explicit analyticity, etc.

In section 1.2 a distinction was drawn between relativism and gradualism. Relativism is the view that analyticity and syntheticity must be seen in relation to the occasion of utterance of the statements. Gradualism, in the context of the analytic-synthetic distinction, is the view which denies the principle of analyticity. Gradualism is contrasted with genericism.

In section 1.3 I pointed out that 'empiricism' is a vague term and that a philosopher may qualify for the epithet 'empiricist' without endorsing the principle of analyticity. Also, many philosophers have made distinctions similar to the analytic-synthetic distinction without being empiricists. Empiricism is characterized by the use it makes of the distinction between analytic and synthetic statements. 'The principle of empiricism' was introduced as a name for the view that there is no synthetic a priori.

In section 1.4 four senses of the phrase 'a priori' were distinguished. To say that a statement is a priori may mean:

- (i) that it is *necessary* and *strictly universal* in Kant's sense of the terms;
- (ii) that it *can be known independently of experience*;

(iii) that it is *absolutely certain* (and not merely probable or taken for granted);

(iv) that it is *true solely by virtue of its meaning* (by virtue of the meanings of the constituent terms) (and independently of facts).

The different senses of 'analytic', 'synthetic' and 'a priori' give rise to various versions of the principle of empiricism. A distinction was drawn between interpretations of the principle which are interesting from an empiricist point of view and other interpretations.

In section 1.5 it was argued that gradualism is compatible with the principle of empiricism, and in section 1.6 the relations between Quine's theory of knowledge — neo-pragmatism — and gradualism were discussed. It was pointed out that Quine's rejection of the principle of analyticity lends only limited support to neo-pragmatism.

2. The Attack on the Analytic-Synthetic Distinction

2.0. *Aim of the chapter*

In the preface I mentioned an argument which runs as follows. Empiricism presupposes a sharp distinction between analytic and synthetic statements. There is no sharp distinction between analytic and synthetic statements in natural languages but only in artificial languages. But the artificial language approach is incompatible with empiricism. Therefore empiricism has to be abandoned, or at least it has to be modified. The first assumption in this argument was examined in the foregoing chapter, and it was tentatively concluded that empiricism does not necessarily presuppose a sharp distinction between analytic and synthetic truths. I want now to go on to a consideration of the further premisses in the argument from the analytic-synthetic distinction. I begin with a restatement of the critique of the distinction which is found in the three papers by Quine, White and Goodman referred to earlier and a discussion of the demands on satisfactory definitions of 'analytic statement', 'synonymy', and related terms (this chapter). Then I go on to an examination of the analytic-synthetic distinction in natural languages (Chapter 3) and in artificial languages (Chapter 4).

2.1. *The critique of the standard definitions*

Quine considers and dismisses a series of common definitions of 'analytic statement'. I shall give the definitions in the form of biconditionals (Quine's own formulations are more informal) and state the reasons for the dismissals.

(Def. 1) A statement S is analytic if and only if S is true in all possible worlds.

This definition is a mere metaphor which can be expressed literally as follows:

(Def. 2) S is analytic if and only if S could not possibly be false.

The notion of a statement which could not possibly be false is as unclear as the notion of an analytic statement itself, so this definition has small explanatory value. The same holds for:

(Def. 3) S is analytic if and only if the denial of S is self-contradictory.

The following definition is attributed to Kant:

(Def. 4) S is analytic if and only if S attributes to its subject no more than is already conceptually contained in the subject.¹

Quine objects that the notion of containment is a metaphor and that the definition applies only to subject-predicate statements. He goes on to give a formulation which is said to express the intent behind Kant's definition and which avoids the two objections levelled against Def. 4:

(Def. 5) S is analytic if and only if it is true by virtue of its meaning and independently of facts.

Quine construes 'meaning' as referring to some sort of thing, 'obscure intermediate entities'.² There is no need for such entities in semantics, and the theory of meaning is reduced to the theory of synonymy, analyticity and some other notions which can be defined with the help of synonymy and analyticity.³ Given the notions of logical truth and synonymy 'analytic statement' can now be defined thus:

(Def. 6) S is analytic if and only if S is true and can be turned into a logical truth by substituting synonyms for synonyms.

Synonymy turns out, however, to be as elusive a concept as analyticity itself. Quine considers four types of definitions of synonymy: interchangeability in terms of definition (i), of *salva veritate* (ii), of analyticity (iii) and of confirmation (iv).

(i) An expression E_1 is sometimes said to be synonymous with another expression E_2 if E_1 is defined as E_2 . Three sorts of definitions may be distinguished.

(a) *Dictionary definitions* are reports on observed synonymy. They cannot therefore be taken as the basis of synonymy.

(b) Another type of definition is *explication*. An explication of a term changes the meaning of the term, but it is a criterion of adequacy for explications that something of the old meaning be carried over to the new: the result of the explication should be synonymous with the old term in at least some contexts. Synonymy cannot, then, be clarified by a consideration of explication.

(c) *Stipulative definitions* create synonymy relations by *fiat*. This is to Quine the clearest sort of definition, but the problem of characterizing the natural language expressions does not depend on stipulative definitions in the majority of cases. Therefore there is little explanatory value in the following definition of 'analytic statement':

(Def. 7) S is analytic if and only if S is true and can be reduced to a logical truth by definition.

(ii) The so-called '*salva veritate* test of synonymy' runs: two expressions are synonymous if and only if they can be interchanged in all contexts without any change in the truth-value. Two qualifications are necessary, as Quine points out:

(a) The test must be restricted so as not to apply to occurrences within compounds and quotations. 'Unmarried man' cannot replace 'bachelor'

in such contexts as 'Bachelor of Arts' and "'Bachelor" has eight letters' even if the two expressions are admittedly synonymous. Presupposing the (not very clear) notion of 'word', this can be done by treating compounds and quotations as single words and restricting the test to occurrences outside single words.

(b) Interchangeability *salva veritate* is a test of cognitive synonymy and not of what I shall call 'full synonymy'. Quine seems to conceive of cognitive synonymy as full synonymy minus 'psychological associations and poetic quality'.⁴ Cognitive synonymy is vaguely explained as the sort of synonymy which is needed for the definition of 'analytic statement'. Alternatively, two expressions are cognitively synonymous if the corresponding statement 'All and only ... are ——' is analytic.

The question now is: does the *salva veritate* test of interchangeability outside single words give a satisfactory account of cognitive synonymy? The answer to this question depends upon the type of language under consideration. In *intensional languages*, languages which are rich enough to contain, for example, the expression 'necessarily', interchangeability *salva veritate* is a sufficient condition for cognitive synonymy. For consider the obviously true statement:

1) Necessarily all and only bachelors are bachelors.

If one replaces the second expression 'bachelor' by 'unmarried man', one gets the statement:

(2) Necessarily all and only bachelors are unmarried men.

Which is also true. The substitution occurred *salva veritate*. But to say that (2) is true is the same as to say that (3) is analytic:

(3) All and only bachelors are unmarried men.

And if (3) is analytic, 'bachelor' and 'unmarried man' are cognitively synonymous, as stated above. The test works here, but it does not clarify the notion of analyticity since it presupposes the notion of necessity. But necessity presupposes analyticity in its turn, for 'necessarily' may be explained as an expression which yields true statements when and only when it is applied to analytic statements.

The interrelations between necessity and analyticity can also be used for another definition of 'analytic':

(Def. 8) 'S' is analytic in a language L if and only if 'necessarily S' is true in L.

Quine does not mention this definition explicitly. It is of course unsatisfactory for the reasons stated above.

In intensional languages interchangeability *salva veritate* was found to be a sufficient condition for cognitive synonymy, but it is unsatisfactory to appeal to intensional languages when one is to give an account of synonymy which is intended to clarify the notion of analyticity. *Extensional languages* lack such devices as modal adverbs like 'necessarily'. An extensional language is explained by Quine as a language such that any two predicates which apply

to the same objects are interchangeable without change of truth-value. By way of illustration he mentions a language which is truth-functional and which contains expressions of the following four kinds: (i) individual variables, (ii) predicates which take individuals as arguments, (iii) the usual connectives, (iv) quantifiers. Since any two terms with the same extension are replaceable without change of truth-value in such a language, the *salva veritate* test is not a sufficient condition for cognitive synonymy in that type of language. Thus the *salva veritate* approach fails to give an adequate account of cognitive synonymy for both intensional and extensional languages.

(iii) Singular terms can be said to be synonymous if the identity statement which is formed by joining the terms by '=' is analytic; predicates can be said to be synonymous if, when applied to variables, their universally quantified biconditional is analytic; statements can be said to be synonymous if the biconditional which is formed by joining the statements by 'if and only if' is analytic.⁵ In short, two expressions can be said to be synonymous if they are interchangeable *salva analyticitate*. (Thus, if one occurrence of 'A' in the analytic statement 'A=A' can be replaced by 'B' without loss of analyticity, 'A' and 'B' are synonymous.) But such ways of defining 'synonymy' are blind alleys, since we turned to synonymy in order to clarify the notion of analyticity.

(iv) In terms of the verification theory of meaning, two statements could be said to be synonymous if and only if they are verified or confirmed in the same way. But the verification or confirmation theory of meaning presupposes reductionism or the statement theory of meaning, which Quine rejects as unfounded dogmas of empiricism.⁶ Elsewhere, Quine gives another argument for the view that the confirmation theory is a shaky basis for analyticity: the concepts of the confirmation theory are inadequately understood today, and it may turn out that an account of confirmation must ultimately rest on such notions as synonymy and analyticity.⁷ Appeal to the theory of confirmation is, therefore, not satisfactory when one is to clarify the notion of synonymy.

'Analytic statement' could also be defined directly in terms of the confirmation theory:

(Def. 9) S is analytic if and only if S is vacuously confirmed (confirmed 'no matter what').⁸

But to define 'analytic' in these terms is no more satisfactory than to define 'synonymous' in terms of this theory.

And so synonymy remains unclear, and cannot be used to clarify analyticity. So far no adequate definition of 'analytic statement' has been found. Let us now turn to artificial languages to see if they can afford any help. Def. 1 has been explicated by Carnap in terms of state-descriptions:

(Def. 10) S is analytic in a language L if and only if S is true under all state-descriptions in L.

A state-description is a conjunction which contains for every statement

in the language either the statement or its negation. A state-description is thus in an obvious sense a description of a possible world. Quine points out that the definition presupposes that the atomic statements of the language are mutually independent. For suppose that a language contains the two atomic statements 'John is a bachelor' and 'John is married' which are not independent. Then if the conjunction '. . . & John is a bachelor & John is married & . . .' describes a possible world, the statement 'All bachelors are unmarried' turns out to be synthetic, and not analytic as it should be in English. Therefore, Quine argues, Def. 10 is at best an explication of 'logical truth', but not of 'analytic truth'. The natural way of obviating this objection is to lay down some restrictions on permissible state-descriptions, such as defining 'permissible state-description' as 'state-description which is not excluded by the semantical rules of L'. (This suggestion will be considered in Chapter 4 below.) 'Analytic statement' can also be defined directly in terms of semantical rules:

(Def. 11) S is analytic in a language L if and only if S is true by virtue of the semantical rules of L.

To appeal to artificial languages with semantical rules is, according to Quine, 'un feu follet par excellence'.⁹ He takes three types of semantical rules into consideration.

(i) The semantical rules of the language L specify, for example, by recursion, all the analytic statements of L. The analytic statements of L are, then, the statements which fulfil the conditions laid down by rules of the type 'A statement S is analytic if and only if . . .'. But in order to understand what it is that these rules attribute to the statements in question we must first understand the world 'analytic' which is used in the rules. Appeal to semantical rules for an artificial language cannot make us understand the notion of analyticity. And since a definition of 'analytic in L' does not shed any light on the notion of analyticity, one could just as well and less misleadingly replace the phrase 'analytic in L' by some simple symbol, e.g. 'K'. In order to understand the phrase 'analytic in L' we must first understand what it means in general for a statement S to be analytic in a language L where 'S' and 'L' cover all statements and all languages. A definition of 'analytic' for a particular language fails to fulfil this condition of generality.

(ii) The semantical rules are rules of truth. What distinguishes an analytic truth from other truths is, then, the fact that it appears under the heading 'Semantical Rules'. But an appeal to an unexplained notion of semantical rules does not explain what analyticity is, any more than an appeal to an unexplained general notion of analyticity does.

(iii) The semantical rules are rules of translation into ordinary language. An analytic statement in L is, then, a statement which can be translated into an ordinary language statement which is analytic. And so we are back at the starting point, viz. the problem of explaining what it is for a statement in a natural language to be analytic.

The negative upshot of the examination of the usual definitions of 'analytic statement' is that there exists no satisfactory definition of the term. Some definitions were found to be no more than metaphors, and the more promising ones were found to be circular, to rely on notions which stand in the same need of clarification as the notion of analyticity itself or to evade the problem without solving it. From the lack of satisfactory definitions of 'analytic statement' and related notions, Quine tends to draw the radical conclusion that there is no distinction at all between analytic and synthetic statements. 'That there is such a distinction to be drawn at all is an unempirical dogma of empiricists, a metaphysical article of faith.'¹⁰ This radical denial of the analytic-synthetic distinction is opposed to another tendency in 'Two Dogmas of Empiricism', viz. the tendency to hold that the distinction can be maintained as a difference in degree between statements which are more or less readily given up in the face of contradictory experience.¹¹

The gradualist tendency and the opinion that there exists no satisfactory definition of 'analytic statement' are reinforced by the considerations brought forward by White and Goodman. White can be said to discuss three definitions of 'analytic statement': Def. 3 (the definition in terms of self-contradiction), Def. 6 (the synonymy definition), and C. I. Lewis's improvement on Def. 4 (Kant's containment definition).¹² Lewis's definition can be stated roughly as follows:

(Def. 12) S is analytic if and only if S is true by virtue of a relation of inclusion between criteria in mind.

E.g. 'All men are rational animals' is analytic if and only if the criterion in mind of 'man' includes the criterion in mind of 'rational animal'. In order to find out whether there is a relation of inclusion or not one has to make an 'experiment in imagination': if one cannot consistently think of a man that is not a rational animal the inclusion relation holds. White suspects that the criterion of conceivability is likely to be private, intuitive insight, and finds 'this early retreat to intuition' unsatisfactory.¹³ He hints that he finds other difficulties with Lewis's 'intensionalism' as well. He observes that Def. 3 uses a broad notion of self-contradictoriness which depends on the sense of the terms involved, but reference to the sense is not helpful. There are various difficulties connected with behaviouristic criteria of self-contradictoriness in terms of horror or discomfort evoked by self-contradictory statements, but they can perhaps be overcome. Such criteria would make the analytic-synthetic distinction a matter of degree. The view that the distinction is likely to turn out to be of degree rather than of kind is supported by a consideration of the synonymy approach to analyticity. White finds that no satisfactory account of synonymy in natural language exists and adduces partly the same arguments as Quine. Appeal to dictionaries is of no avail. Nor is appeal to rules helpful. White says that he understands fairly well the expressions 'analytic in L_1 ' and 'analytic in L_2 ', where L_1 and L_2 are

artificial languages, and he also understands what it is for something to be a rule in an artificial language. But he cannot understand those who say that users of natural languages behave as if they had made rules for their languages which are like those for L_1 and L_2 , until criteria have been formulated for finding out whether a group of people obey such rules. To say that two expressions are synonymous if there is a rule to the effect that they can replace each other or to say that people behave as if there were such a rule is not enlightening. Moreover, the term 'as if' is in as much need of clarification as the notions of synonymy and analyticity. Another approach to synonymy and analyticity is to say that two expressions E and F are synonymous if the following condition is fulfilled: if we were presented with something which is not an E, we would not call it an F. This condition is not sufficient, however, for it is fulfilled as soon as E and F are coextensive. Besides, little can be gained by appeal to counter-factuals since no adequate analysis of this device has yet been made. White goes on to suggest two criteria of synonymy which both make synonymy a matter of degree. (i) Two expressions E and F are synonymous for a person P if P feels more certain in concluding that something is an F from the fact that it is a G where G is coextensive with F. (ii) E and F are synonymous for P if P immediately withdraws the predicate F as soon as he has learned that something is not an E. By such criteria of synonymy there is only a difference in degree between cointensive and co-extensive predicates and, consequently, only a difference in degree between statements which are analytically true and statements which are (merely) true.

Goodman's critique of traditional accounts of the synonymy relation supplements the discussions of Quine and White. Quine and White were found to reject at least the following definitions or criteria of 'synonymy':

- (i) the definition in terms of the notion of definition;
- (ii) the *salva veritate* test;
- (iii) the definition in terms of analyticity;
- (iv) the definition in terms of the confirmation theory;
- (v) the definition in terms of criteria in mind;
- (vi) the definition in terms of what would be said in certain situations;
- (vii) the definition in terms of rules.

(Most of these definitions or criteria can be construed in various ways, as we have seen.)

Goodman examines briefly five other approaches to the problem of sameness of meaning:¹⁴

- (viii) the Platonic theory: two terms are synonymous if and only if they stand for the same Platonic idea;
- (ix) the image theory: two terms are synonymous if and only if we cannot imagine (have a mental picture of) anything which satisfies one term but not the other;

- (x) the concept theory: two terms are synonymous if and only if we cannot conceive of anything which satisfies one term but not the other;
- (xi) the possibility theory: two terms are synonymous if and only if there is nothing possible which satisfies one term but not the other;
- (xii) the extensional theory: two terms are synonymous if and only if they have the same extension.

All five criteria or 'theories' (this is the word Goodman uses) are found to be inadequate. Sameness of Platonic ideas is not any clearer than sameness of meaning as long as no criterion is supplied for finding out when two terms stand for the same idea. Nor is it clear what we can and what we cannot imagine or conceive. The image theory comes up against a further difficulty with terms to which there is no corresponding image, for example, 'clever' and 'supersonic'. The possibility criterion relies on the notion of possible but not actual things, which belongs to the set of notions which Goodman does not accept without clarification. The extensional criterion is also inadequate since there are non-synonymous expressions with the same extension, e.g. 'centaur' and 'unicorn', which (presumably) have null extension. (By the extension of a term is meant the class of all past, present and future things to which the term applies. Clearly only an omniscient God could know for certain that 'centaur' and 'unicorn' have the same extension, hence the qualifier 'presumably'.)

Goodman's own suggestion is an amended version of the extensional criterion which makes synonymy a notion of degree. (Goodman's criterion will be discussed below in section 3.2.)

It is time to sum up the critique of the traditional explanations of synonymy and analyticity. This can be done very briefly in the form of three theses which have been defended by Quine, White or Goodman:

1. The traditional explanations of synonymy and analyticity are all unsatisfactory.
2. There is no distinction at all to be drawn between analytic and synthetic truths.
3. Synonymy and analyticity in natural languages will turn out to be notions of degree when adequately explicated.

2.2. *Demands on clarifications of intensional terms*

It is not quite clear what Quine demands of a satisfactory elucidation of the notion of analytic truth. Again and again he emphasizes that the notion has to be clarified, but a clarification may take several forms. There are two interpretations of Quine, both of which seem plausible. The first and stronger interpretation of Quine is that he demands a formal definition of 'analytic

statement' which is general in the sense that it defines 'analytic statement' for all languages and which at the same time avoids all suspect notions. 'Analytic' belongs to a family of interdefinable terms which includes such terms as 'synonymous', 'self-contradictory', 'not possibly false', 'necessarily', 'meaning', 'intension' and 'semantical rule'. All these members of the analyticity family — which can also be called 'intensional terms' because of their connections with 'intension' — were rejected as unclear by Quine, White and Goodman along with counter-factuals, possible but not actual things, Platonic ideas, criteria in mind, images and concepts. From the conditions that the definition of 'analytic statement' should have the form 'S is analytic in L if and only if . . .' and that it should avoid suspect notions, it follows, then, that the definition should be non-circular. The second and weaker interpretation of Quine would be that he demands, not a formal definition of 'analytic', but only a criterion which may be used for sorting out analytic statements from among other statements. There is a tendency in Quine which has become more and more strong to demand behaviouristic criteria of synonymy and analyticity. In 'Notes on Existence and Necessity' (1943) he said that the relation of synonymy 'calls for a definition or criterion in psychological and linguistic terms'; in 'Two Dogmas of Empiricism' (1951) he declared that 'the mental or behavioural or cultural factors — whatever they may be' should be taken into account in clarifying analyticity; in *Word and Object* (1960) he asks for 'no more, after all, than a rough characterization in terms of dispositions to verbal behaviour'.¹⁵ Behaviourism, the view that the intensional terms should be replaced by behaviouristic explicata, is thus a dominant feature of Quine's theory of meaning.

White does not demand a definition of 'synonymy' but only a criterion of synonymy which can be used for sorting out synonym pairs from among other pairs of expressions and for distinguishing analytic statements from synthetic statements. Like Quine, he is suspicious of introspective and intuitive methods in semantics, and finds it likely that a suitable criterion will be behaviouristic.

Goodman shares the non-mentalistic, non-intensionalistic attitudes of Quine and White, but shows no signs of behaviourism. A prominent feature of Goodman's paper is its nominalism, the view that one should not allow irreducible references to abstract entities like Platonic ideas, meanings and types. Like Quine (also a nominalist), he does not admit meanings as entities into his ontology, and sets out to give an account of synonymy in terms of inscriptions and extensions avoiding not all, but the more distressing, aspects of mentalism and intensional terminology.¹⁶ White and Goodman do not demand a clarification of 'synonymy' and 'analyticity' for all languages but only for natural languages.

To sum up, there are tendencies in Quine, White and Goodman to demand a definition or criterion of analyticity/synonymy which

- (i) is general;
- (ii) has the form '... if and only if ---';
- (iii) avoids suspect notions;
- (iv) is non-circular;
- (v) is behaviouristic;
- (vi) is nominalistic.

My own views on these demands are briefly these. The first demand, that a definition should be given of the phrase 'S is analytic in L', where S and L cover all statements and languages, seems unduly exacting considering that no such general definition has been given for any semantical term.¹⁷ (ii) and (iv) taken together are also a very stringent demand, so strong that it seems likely that it cannot be met. For suppose that 'analytic' is defined in terms of some predicate F:

(Def.) S is analytic if and only if S is F.

This definition would hardly be regarded as satisfactory if it were possible for 'analytic' and 'F' to apply to different statements, that is, 'analytic' and 'F' have to be cognitively synonymous if the definition is to be satisfactory. But if 'analytic' and 'F' are synonymous, 'F' belongs ipso facto to the analyticity family, and the definition is circular.¹⁸ It seems, then, that formal definitions are bound to remain circular. That does not imply that they are worthless. Circular definitions map out relations within a conceptual family, and formulation of such definitions is likely to enhance our understanding of the terms involved, as Mates has pointed out.¹⁹

In the preceding pages there has been much talk of what is clear and what is not clear. But the distinction between what is clear and what is not clear is itself not quite clear. Nelson Goodman has explicitly refused to try to justify his particular selection of what is not clear. Every philosopher has to decide for himself what to accept as sufficiently clear and what not to accept without clarification. In Goodman's metaphor, every philosopher has to rely on his own 'philosophic conscience'.²⁰ It would be easy, then, to discard the demands listed above as too stringent and declare that the notions of analyticity and synonymy are sufficiently clear. Easy, but not very satisfying. For although one may not sympathize with all the motives behind the Quine-White-Goodman attack on intensional notions, it must be admitted that much of their criticism is justified. Synonymy holds a central place both in philosophic and linguistic semantics (such linguistic notions as 'phoneme' and 'morpheme' are often defined in terms of meaning and synonymy; synonymy is the concern of lexicographers), but little is known about synonymy in view of its importance. And it cannot be denied that introspective methods have been much misused in semantics. Nor can the importance of the pragmatic aspects of intensional notions be denied. No criterion has ever been given for deciding when a statement in use is analytic.

Though Goodman refuses to justify his list of unclear notions, the list does not seem wholly arbitrary. There seem to be two main ideas which provide a rationale for it. The first is non-mentalism, discontent with the use of introspective methods in semantics. The second is a predilection for the framework of modern logic. Counter-factuals, dispositions, intensional notions cannot be accommodated within the extensional languages of formal logic which Quine and Goodman seem to regard as the paradigm of clarity. It is a good thing that analysis using the restricted means of such languages should be pursued, for when reduction to notions within such languages can be accomplished it simplifies matters, and when the programme fails, it has at least heuristic value. Similarly such programmes as nominalism and behaviourism have in my opinion great value in philosophy. But there is one way of using such programmes towards which I do not feel unreservedly sympathetic. When a philosopher finds that the apparatus with which he sets out to investigate some field does not yield the desired results, it often happens that he declares those notions which he has not been able to clarify to be illusory, ungrounded, worthless, and so on. But in such a case it is very likely that the fault lies not in the field which has been investigated but in the apparatus with which the field has been investigated. Thus, if it is found that intensional terms cannot be reduced to behavioural terms, I do not want to conclude that the intensional terminology is 'baseless' and 'empty' as Quine does,²¹ but rather that a more careful analysis has to be made, perhaps within a more powerful framework of analysis. In this spirit I shall now go on to a discussion of the notions of meaning, synonymy and analyticity in natural language.

2.3. *Recapitulation*

Quine, White and Goodman find the usual explanations of analyticity and synonymy unsatisfactory. They reject the following twelve definitions of 'analytic statement':

A statement S is analytic (in a language L) if and only if

- 1) S is true in all possible worlds;
- 2) S could not possibly be false;
- 3) the denial of S is self-contradictory;
- 4) S attributes to its subject no more than is already conceptually contained in the subject;
- 5) S is true by virtue of its meaning and independently of facts;
- 6) S is true and can be turned into a logical truth by substituting synonyms for synonyms;
- 7) S is true and can be reduced to a logical truth by definition;
- 8) 'Necessarily S' is true in L;
- 9) S is vacuously confirmed;

- 10) S is true under all state-descriptions in L;
- 11) S is true by virtue of the semantical rules of L;
- 12) S is true by virtue of a relation of inclusion between criteria in mind.

Most of these definitions can be construed in several ways. Thus, three types of definition and three types of semantical rules were considered, and no less than twelve approaches to synonymy were discussed and rejected by Quine, White and Goodman.

The definitions were found to be unsatisfactory because they were metaphorical (1 and 4) or circular (2, 3, 6, 8, 11) or make use of notions which are as unclear as analyticity itself (5, 9, 12) or evade the problem without solving it (7 and 10).

There is a tendency in Quine to deny that there is any distinction at all to be drawn between analytic and synthetic statements. All three authors tend to think that adequate explications of synonymy and analyticity will make the notions matters of degree.

Between them, Quine, White and Goodman demand a definition or criterion of analyticity and/or synonymy which (i) is general, (ii) has the form '... if and only if — —', (iii) avoids suspect notions, (iv) is non-circular, (v) is behaviouristic, (vi) is nominalistic. My views on these demands can be summarized as follows: (i) and the conjunction of (ii) and (iv) are too stringent demands. Circular definitions are of value because they map out relations within conceptual families and help to enhance our understanding of the terms involved, but carefully worked out criteria and practical procedures are also needed in semantics. Such programmes as behaviourism, nominalism and analysis with the help of extensional languages are of value in philosophy, but dogmatic uses of the programmes should be rejected.

3. Meaning, Synonymy and Analyticity in Natural Languages

3.0. *Aim of the chapter*

Is there a distinction to be drawn between analytic and synthetic statements in natural languages? If so, what is the nature of the distinction? In particular, is it a distinction of kind or of degree? These are the questions which will be raised in this chapter. I shall begin with a consideration of the denial of the existence of the distinction and go on to a critical discussion of Quine's characterizations of analytic and logical truth: an analytic statement is a statement which can be reduced to a logical truth by substituting synonyms for synonyms, and a logical truth is a true statement which remains true under all reinterpretations of its components other than the logical constants. Synonymy, reinterpretations and logical constants will be discussed in turn, and it will be questioned whether all statements which can reasonably be claimed to be true by virtue of their meaning alone are reducible to logical truths.

The relevance of natural languages – i.e. historically given languages which are used in actual speech communities, languages of the type which is studied by linguists – to philosophy is a controversial question which is best discussed in connection with the question of the relevance and clarificatory power of artificial languages, i.e. constructed language systems of the type which is studied by Carnap among others. This question will be postponed until Chapter 4.

3.1. *The existence of the analytic-synthetic distinction*

A radical line of thought to be found in 'Two Dogmas of Empiricism' is that there exists no distinction between analytic and synthetic statements.¹ Many would feel that this is to throw the baby out with the semantical bathwater. In defence of the analytic-synthetic distinction philosophers have appealed to (i) the uniformity in philosophers' application of the distinction; (ii) the ordinary use of terms which are interdefinable with 'analytic', e.g. 'having the same meaning as'; (iii) the peculiarities of 'the analytic attitude'. To this a fourth argument could be added, which rests on the fact that the distinction has been explicitly recognized outside the philosophical

tradition, apparently independently of the philosophical theory of analytic statements (iv).

(i)–(ii). The first two arguments can be dealt with rather briefly. As Grice and Strawson have pointed out, it cannot be denied that there is *some* distinction to be drawn between the statements philosophers usually call ‘analytic’ and the statements they usually call ‘synthetic’. For philosophers manage to divide statements into the two classes with considerable consistency, hesitating over much the same cases, in spite of the fact that there are no closed lists of what to call ‘analytic’ and ‘synthetic’, and this is sufficient for saying that there are two kinds of statements marked by the labels ‘analytic’ and ‘synthetic’.² This argument from the uniformity in philosophers’ use of the words ‘analytic’ and ‘synthetic’ is supported by an argument from the ordinary use of such phrases as ‘has the same meaning as’ and ‘is synonymous with’. For if there is no distinction between analytic and synthetic statements, it follows that there is no distinction between pairs of expressions which are synonymous and pairs which merely have the same extension, the difference between the analytic statement ‘All and only A are B’ and the synthetic statement ‘All and only C are D’ being that A and B have the same meaning, whereas C and D only happen to apply to the same things. But it is paradoxical to deny that there is a difference between the property of having the same meaning and the property of having the same extension, for then it would always be senseless or absurd to say two expressions apply to the same things without being synonymous. And, Grice and Strawson add, it is still more paradoxical to deny that translations can be correct and incorrect, which denial would follow if there were no use for the notion of interlinguistic synonymy.³ In view of these arguments it cannot be denied that some distinction is denoted by the terms ‘analytic’ and ‘synthetic’. Now the Quinean thesis could be reinterpreted to mean that the accounts philosophers have given of the difference between analytic and synthetic statements are mistaken. But then the radical thesis that the analytic-synthetic distinction does not exist has been abandoned in favour of another of the theses to be found in Quine, White and Goodman, viz. that there are no satisfactory explanations of synonymy and analyticity.⁴

What is the nature of the distinction whose existence has just been established? An answer to this question lies in a consideration of the analytic attitude, and we now turn to this subject.

(iii) It is sometimes claimed that there is a felt difference between analytic and synthetic statements. Thus one feels, according to Pap, that the statement ‘Nobody knows what is not the case’ is true by virtue of the very meaning of ‘to know’, and according to Quine ‘sentences like “No unmarried man is married”, “No bachelor is married” and “ $2 + 2 = 4$ ” have a feel that everyone appreciates’.⁵ Now deciding how far people have intuitions about analyticity is an empirical question. The results of one such investigation by Apostel, Mays, Morf and Piaget suggest that the semantical intui-

tions of semantically untrained persons are not very reliable. For example, when 30 subjects were asked to classify 17 sentences as analytic ('énoncés dont on connaît la vérité par la signification même de leurs termes') and synthetic ('énoncés dont on ne peut connaître la vérité qu'en allant voir'), 23 held that 'Une table est une table' and 'Ce qui est rouge, est rouge' are analytic, 5 that they are synthetic, 2 that they are ambiguous and none that they are intermediate cases.⁶ A previous investigation where the subjects were given no instructions to guide the classification gave results which point in the same direction. Contrary to Quine, I do not think that the experiment suggests that there is a difference of degree between intuitively analytic and intuitively synthetic statements⁷ — the only conclusion that can safely be drawn is that reports on analyticity intuitions by semantically untrained persons are not reliable, and this does not say much about the analytic attitude.

It should be noted that the sentences in Apostel's experiment were presented out of context. Apostel and his associates rightly stress this inadequacy and point out that it may have increased the number of intermediate cases. But probably the isolative method also distorted the investigation in other ways. The two sentences mentioned above were not classified as intermediate by anyone, but not everyone considered them analytic. It is somewhat surprising that so few held the sentences to be ambiguous. For there are good reasons for not classifying repetitive sentences like 'Une table est une table' as straightforwardly analytic. Repetitive sentences are often used to make suggestions which are by no means analytically or trivially true. One may say, 'A Nyasa is a Nyasa' to suggest that Nyasas are inefficient, 'A line is a line' to suggest that a line cannot be made to represent anything, and so on. If one wants to, one can say that such repetitive sentences contain ambiguous words or play upon the connotations or suggestions of words, though it seems rather unpalatable to say that 'twenty years' or ' $\sqrt{5}$ ' are ambiguous when they happen to be used in non-trivial repetitive statements, and the connotation view is true only if the term 'connotation' is stretched to include all contextual features which help us to see the point of a sentence.⁸ But clearly this is not the whole story. When we translate a sentence like 'A line is a line' into 'A line cannot be made to represent anything', we lose the persuasive aura of trivial truth which is presumably the reason why the repetitive sentence is used instead of the more explicit equivalent. Ordinary repetitive sentences could be said to be parasitic upon trivial repetitive sentences. But whether this division into primary and secondary or parasitic uses is found convincing or not, it must be admitted that there are two types of uses of repetitive sentences which justify the view that repetitive sentences in natural languages are ambiguous.

The intuitively discernible feel of analytic statements is only one of the factors which help to form the difference between analytic and synthetic

statements in natural language, and it is not the most important of them. Suppose that we meet somebody who defends the thesis that freedom is possible only in Christian countries. No matter what counter-instances we manage to bring up against his thesis and no matter what empirical evidence we adduce, he does not abandon his thesis and succeeds in making distinctions and evasions which somehow make our objections ineffective. In such a case it is very likely that we have come upon a statement towards which the person in point has the analytic attitude. It is clear from his behaviour that empirical considerations are not relevant for the determination of the truth-value of the statement, the person feels absolutely certain that the statement is true, and perhaps he is also aware of a certain analytic feel that the statement has, though it seems to be more usual that such statements as 'Freedom is possible only in Christian countries' and 'Art is significant form' when treated as analytic are not recognized as analytic by the persons who defend the statements. These three features — empirical irrelevance, certainty and the felt quality — may characterize analytic statements, but they are not distinctive features of analyticity. Religious, ethical and metaphysical statements may be held to be true or false irrespective of empirical considerations, they may be felt to be absolutely certain and they may have the same intuited quality as the usually adduced examples of analytic statements, but that does not usually make such statements analytic. An analytic statement is a statement which is true by virtue of its meaning alone, and the distinguishing feature of the analytic attitude is the defence of a statement by having recourse to suitable meanings of the expressions involved.⁹

The mechanism of the analytic attitude can be illustrated with the help of an example which has incidentally been claimed — wrongly, in my opinion — to be a borderline case which is neither clearly analytic nor clearly synthetic:¹⁰

(1) I see with my eyes.

What is the difference between the view that (1) is analytic and the view that it is synthetic? Let us call the two views 'the A-view' and 'the S-view', and let us also talk of 'A-holders' and 'S-holders'. Suppose now that the following happens. We come upon a man who seems to see with his nose. When he turns his nose towards something, he says that he gets the same sense-impressions as when he looks at it with his eyes; he cannot get those sense-impressions when his nose is turned away from the thing, nor when it is completely dark, he cannot 'see' things round corners, and so on. That is, the curious creature says that he gets visual impressions via his nose, and he behaves in a way which casts absolutely no doubt upon what he says. What would the A-holder and the S-holder say in such a case? S-holder: 'He sees with his nose, and so it is false that you can see only with your eyes.' A-holder: 'The man seems to see with his nose, but since you can only see with your eyes, he does not really *see* with his nose.' Or, alternatively, the A-holder could reply: 'The man seems to see with his nose, but then his

nose is a sort of eye after all, for it is impossible to see with anything but eyes.' Which of the two alternatives he chooses will depend upon what he means by 'eye' and 'see'. One can define 'eye' ostensively anatomically and 'see' in terms of the function of the anatomical eye, but one can also start from seeing and define 'eye' as 'sense organ with the help of which we see'. In either case the two terms are interdefinable, and the A-holder's attitude rests on the assumption that the interdefinability must be preserved. The A-holder's moves are often used in arguments in ordinary life to defend statements against counter-instances, and Waismann seems to have overlooked this fact when he classifies (1) and several other statements as 'on the border-line between necessary and contingent, the *a priori* and the empirical', the analytic and the synthetic.¹¹

The A-view does not presuppose that the meanings of the crucial terms have been absolutely fixed in advance for all future uses. (1) does not express a categorical decision about the future use of the words 'see' and 'eye', it only records the decision that if the range of situations to which 'see' is applied is stretched, then the range of situations to which 'eye' is applied will be stretched in the same way, and vice versa. Similarly, to say that 'All and only bachelors are unmarried men' is analytic is to make a conditional assertion about the future use of 'bachelor' and 'unmarried man'; the sense of 'bachelor' will be changed if and only if the sense of 'unmarried man' is changed, and both senses will be changed in the same way.

Consideration of the analytic attitude thus leads to the use of intensional terminology. A statement like 'All bachelors are unmarried men' is true because of the *senses* of the components of the statement; 'I see with my eyes' is true because the crucial terms in the statement are *interdefinable*; if somebody denies an analytic statement, he must use the statement to make some special point or else we do not *understand* what he *intends* — he does not know the correct meaning of the statement, etc. It seems undeniable that such assertions are true on some interpretations of them, and it is the task of semantics to clarify the sense in which the assertions are true. That some analyses, e.g. the Platonic and the image theories of meaning, are unsatisfactory is no reason for rejecting intensional terminology; it is a challenge to provide better analyses.¹²

(iv) The upshot of the discussion of the first three arguments is that there is a distinction to be drawn between analytic and synthetic statements, and that there is such a thing as an analytic attitude. This has also been recognized in linguistics, apparently independently of philosophical theories of analyticity. There is a linguistic tradition which can be called 'the semantic field theory' which has attracted considerable attention lately.¹³ The semantic field theory is an attempt to apply structural considerations in the semantics of natural languages and it may be viewed as a reaction against traditional lexicography. Field theorists have declared that all expressions in a language

belong to systems of expressions which delimit 'fields of meaning' and that it is impossible to explain the meaning of any expression without reference to the place which it occupies in the system it belongs to. Perhaps the most well-known work in the tradition, Jost Trier's treatise on intellectual terms in Middle High German, is marred by an obscure metaphysics where semantic fields are conceived as mosaics consisting of the hypostatized meanings of the terms which delimit the field.¹⁴ One of Trier's critics, Walter Porzig, objected that the intellectual field was determined by extra-linguistic criteria and suggested instead the idea of 'elementary fields of meaning' which are purely linguistic in character.¹⁵ Porzig said that an elementary field of meaning consists of terms which have an 'essential meaning relation' to each other and instanced the relations between 'eye' and 'see', 'foot' and 'walk', 'tongue' and 'lick', 'horse' and 'neigh', and so forth. 'It is immediately clear that we have here a necessary relation between words that is generated solely by the meaning,' he declared, and he went on to give a Kantian account of essential meaning relations in terms of content, apparently without being aware of the affinity with Kant. Porzig gave a lot of examples which consist of expressions which have an elementary meaning relation to each other, e.g. 'Man kann gar nicht anders gehen als mit den Füßen', 'Bellen kann nur ein Hund', 'Greifen kann man nur mit der Hand'. It is obvious that these statements are claimed to be analytic, and it is also obvious from Porzig's article that he claims that the statements are analytic only on some standard interpretations of the essential terms. Consider the last example, 'One can only grasp with the hand'. 'Grasping with the mind' can be explained away as a metaphor, and, as Porzig points out, metaphorical and ironical uses of a word do not provide counter-examples to the thesis that there is an essential meaning relation between the word and some other word. On the contrary, such uses confirm the thesis, for the effect of such uses depends on the existence of some primary use where the analytic relation holds. But still there are exceptions to the statement in question. Apes can grasp things with their feet, and there are animals with prehensile trunks and tails. Now Porzig seems to claim that such uses do not exemplify the primary sense of the word 'grasp', the central or paradigmatical meaning of the word. It may be doubted whether there is some such sense of 'grasp' of which users of English (and similarly users of German) are aware and by virtue of which they would hold the statement 'One can only grasp with the hand' to be analytic, but that is an empirical question which can be decided only by investigation of people's verbal dispositions and semantical intuitions, their *Sprachgefühl*. But I am ahead of myself. I shall return to the subject towards the end of this chapter, but before appealing to such phenomena as *Sprachgefühl* and semantical intuitions, we must examine how far one can get along with the restricted means of the Quine-White-Goodman programme. I shall now turn to a discussion of their approaches to synonymy and analyticity.

3.2. *Synonymy: Goodman's explication*

That two terms are true of the same object is not a sufficient condition for two terms to be synonymous, but, Goodman observes, the extensional criterion of synonymy can be amended by taking compounds of the terms into consideration. If 'bachelor' and 'unmarried man' are synonymous, then it is true not only that 'bachelor' and 'unmarried man' apply to the same things but also that such compounds as 'picture of bachelor', 'description of bachelor' and 'thought of bachelor' apply to the same things as 'picture of unmarried man', 'description of unmarried man' and 'thought of unmarried man'. Goodman calls the extensions of the compounds of a term 'secondary extensions' of the term in contrast to the primary extension of the term which comprises only the things the term itself is true of. Avoiding such terms as 'thought of . . .' for reasons which were stated earlier (in sections 2.1 and 2.2), Goodman restricts himself to terms and compounds which apply to physical things, classes of physical things, classes of classes of such things, etc. Such expressions may be called 'P-terms', and the extension of a P-term may be called a 'P-extension'. Goodman's explication of synonymy — which I shall call 'G-synonymy' — can then be formulated thus:

(Def. 1) Two terms are G-synonymous if and only if they have the same primary and secondary P-extensions.

Is G-synonymy an adequate explication of synonymy? The answer will depend on the demands one puts on explications. Obviously G-synonymy must have something (but not everything) in common with the unexplicated, intuitive notion of synonymy, if it is to be an explication of *synonymy* at all, and it is also obvious that one's judgment of the adequacy of the explication will depend on what one considers to be clear and not clear. Thus an explication has to meet standards of two types in order to be satisfactory: (1) *internal criteria* of clarity and theoretical adequacy and (2) *external criteria* of correspondence with a given explicandum.

(1) The conditions that an explication must fulfil in order to be internally adequate for Goodman have been discussed earlier (in sections 3.1 and 3.2). He demands a nominalistic explication which avoids mentalistic and intensional terms such as 'thought of', 'concept of', 'criteria in mind', etc. Since G-synonymy is defined in terms of physical entities (terms construed as inscriptions or sound sequences) and their extension only, the explication fulfils these criteria of adequacy and is internally satisfactory so far. But there are vaguenesses in the notion of secondary extension which plays such a crucial role in the definition of G-synonymy. The secondary extensions of a term T are the extensions of the compounds of T, but what is a compound of T? Goodman gives only vague explanations to the effect that an expression is a compound of a given term T if it is the result of combining certain words with T or making an addition to T.¹⁶ The intended meaning of 'com-

pound' is more evident from the examples Goodman gives of compounds than from the explanations: 'thought of', 'concept of', 'attribute of', 'meaning of', 'description of', 'picture of', 'diagram of' all give rise to compounds of T when placed before T. These phrases are such that the existence of referents of the compounds consisting of such a phrase and a term T is independent of the existence of referents of T, i.e. the phrases are not relation terms proper.¹⁷ For expressions which consist of a relation term like 'foot of' or 'uncle of' followed by some term, T can be true of something only if the term T is true of something. Nothing can be the foot of a unicorn if there are no unicorns, but there can be pictures of unicorns in spite of the non-existence of such creatures. The intended sense of 'compound' seems to be, then, 'phrase of the form "U of T" where "U" and "T" are terms and "U" is not a relation term'. (Goodman restricts himself to the use of those compounds which are P-terms.) It may be noted that Goodman's term 'compound' differs considerably from the notion of compound known to linguists. Examples of compounds in the linguistic sense of the word are 'blackbird', 'greenhouse', 'altogether', 'nevertheless'. Such compounds are obviously not intended by Goodman to be included in his set of compounds.

The definition that compounds are phrases of the form 'U of T' where U and T are terms and U is not a relation term delimits the set of compounds in a general way, but it is not sufficient to determine the secondary extensions of a term T. The secondary P-extensions of a term T are the extensions of those compounds of T (in the sense of 'compound' just defined) which are P-terms. What is needed in order to get a precise delimitation of the secondary P-extensions of T are, therefore, rules which determine the extensions of every P-compound 'U of T' in an exact way. Many critics have drawn attention to vaguenesses in the notion of description and demanded that rules for determining when a phrase is and is not a description of something should be worked out, and similar rules are needed for all other P-compounds.

Def. 1 of G-synonymy has the consequence that two terms which are not replicas of each other can never be G-synonymous.¹⁸ For it is always possible to make a description 'a T₁ which is not a T₂' which is a T₁-description but not a T₂-description. Therefore every two distinct terms have different secondary P-extensions, and so they are not G-synonymous. In order to disprove the idea that two terms can ever be synonymous (and G-synonymy is the only satisfactory synonymy concept known to Goodman) it is thus by no means necessary to delimit all P-extensions of all terms in an exact way.¹⁹ But Def. 1 can be replaced by another definition which would seem to make G-synonymy a matter of degree:

(Def. 2) Two terms are G-synonymous in so far as, and only in so far as, they have the same primary and secondary P-extensions.

Def. 2 makes it necessary to determine all P-extensions precisely, for

otherwise detailed comparisons between pairs of terms concerning degree of synonymy will not be possible.

Let me begin the discussion of rules for P-compounds by dispelling an ambiguity in the phrase 'picture of'. It is often not difficult to tell whether a picture of the planet Venus is a morning star picture or an evening star picture. The light and the shadows are not the same in the morning as in the evening, the sun is differently situated in relation to well-known buildings, there may be a church tower with a clock somewhere in the picture, and so on. But it may also happen that the only thing which decides whether a Venus picture is a morning star picture or an evening star picture is the intention of the artist. The word 'picture' is sometimes used in such a way that the intentions of the artist are relevant for deciding what the picture is a picture of. But there is also a use of the word which is such that the artist's intentions are irrelevant for the determination of what the picture is a picture of. For this use of the word there must be something *in the picture* which decides whether it is a picture of something x or not. If a German draws a series of car pictures and says that some of them are *Auto* pictures and the rest *Kraftwagen* pictures although there are no differences between the pictures which could be used for dividing them into two sets, one would probably disregard the intentions of the artist and consider all the pictures as pictures of *Autos* as well as of *Kraftwagen* (the two words being synonymous). Goodman, who wants to avoid mentalistic terms, would probably decide for the last use of 'picture of'. There must be, then, something within a picture which shows that it is a picture of x for the picture to be an x picture. Senders' intentions are not relevant for a picture's being or not being a picture of x in this use of 'picture', and similarly titles inscribed on the frame or given in a catalogue would probably not be considered relevant for the picture's being or not being an x picture. To define 'picture', 'description' and other P-compounds precisely would be difficult, but, as Goodman points out, in practice it suffices that there are clear cases and that anomalous and borderline cases can be dealt with by reasonable rules.²⁰ The discussion of pictures has illustrated what type of rules will be needed. As a second example I shall take the notion of description. It is in agreement with ordinary usage to say that any term of the forms 'x', '. . . x', 'x that (who, which) is (are, were, etc.) . . .' is an x description, and I am tempted to say that only such phrases are descriptions of x. This use of the word 'description' makes it easy to decide whether a given expression is or is not an x description. But Goodman wants to use the word in a wider sense, probably because he thinks that the ordinary use of 'description' is wider than is indicated by the rule just given. Goodman wants to say that any phrase of the form 'x which is y' is both an x and a y description, and, further, that 'triangle which is not trilateral' is a triangle description but not a trilateral description, whereas 'triangle which is not a triangle' is not both a triangle description and a not-triangle description.

Further, he wants to say that the last-mentioned description is both a triangle description and a not-triangle description. Rules which cover this usage may be formulated thus: (i) any phrase of the form 'x which is y' is both an x and a y description; (ii) any phrase of the form 'x which is not y' is both an x and a not-y description; (iii) if a description D is a not-y description and 'y' is not identical with 'x', then it also holds that D is not a y description.²¹ Such rules lead to the desired results, but they are complex and there seems to be no reason for adopting them. (Even if they are supported by ordinary usage — which I doubt — they are not sacrosanct.) The simple rule proposed earlier leads to the result that no two different terms are wholly synonymous, since it is always possible to form a description of the form 'x which is (not) y' which is a description of x but not of y, but the same holds for the more complex rules. (Such cases will be excluded on the amended definition of G-synonymy which will be presented shortly.) And neither the simple nor the complex rules seem to exclude synonymy of replicas.

This discussion of pictures and descriptions has illustrated what kind of rules will have to be worked out in order for the notion of G-synonymy to fulfil strict conditions of internal adequacy. But even without explicit rules it seems to me that G-synonymy is considerably clearer than the usual conceptions of synonymy. I have, however, become more doubtful now about the value of shifting the load from meanings to pictures, statues, descriptions and so on. Is picture identity really a clearer notion than meaning identity?

(2) It remains to be seen to what extent G-synonymy fulfils the external conditions on adequacy, and to this question we now turn.

G-synonymy may be held to be inadequate as an explication of the intuitive notion of synonymy (a) because the range of G-synonymy is too limited; (b) because the definition of G-synonymy leads to the paradoxical result that two terms cannot even in theory be wholly synonymous; (c) because this explication misses the nature of synonymy; (d) because it leads to graded analyticity which is counter-intuitive. The four objections will be discussed in turn.

(a) The question which Goodman sets out to answer is, 'Under what circumstances do two names or predicates in an ordinary language have the same meaning?'²² Natural language expressions which are not terms (names or predicates), e.g. conjunctions and adverbs, are thus excluded from consideration. But expressions which are not terms are often said to be synonymous, so G-synonymy is an explication of synonymy only for a limited class of expressions. The definition of G-synonymy is also framed so as to apply only to coextensive terms, and this is a further limitation in comparison with the ordinary use of the term 'synonymy'. Nouns are often listed as synonyms in dictionaries, not because they are true of precisely the same things, but because they are true of similar things. The referents of such synonyms are

species of a common genus. (*Roget's Thesaurus* contains many lists of such synonyms. For instance 'shoe' is said to be synonymous with 'pump', 'sneakers', 'boot', 'slipper', 'moccasin', 'galosh', etc.) Finally, G-synonymy explicates cognitive synonymy and not full synonymy.²³ Two such words as 'negro' and 'nigger' may have practically all secondary P-extensions in common but all the same differ considerably in accompanying associations, feelings and attitudes. G-synonymy is thus an explication of cognitive synonymy of coextensive terms only. Because of these limitations of G-synonymy it is not adequate as an explication of synonymy for all philosophical and linguistic purposes. G-synonymy will have to be supplemented with other explications. But it should be emphasized that G-synonymy explicates a very important part of the intuitive notion of synonymy.

(b) The question remains whether G-synonymy is adequate as an explication of cognitive synonymy of coextensive terms. We have seen that the definitions of G-synonymy lead to the result that no two terms can be totally G-synonymous. But this is counter-intuitive, for though there may happen to be no absolute synonyms in natural language,²⁴ synonymy is usually conceived in such a way that absolute synonymy is not theoretically excluded. Goodman replies that the usual demands on synonymy are incompatible. A definition of synonymy is required which will make some terms wholly synonymous and which will also make synonyms interchangeable in all non-intensional contexts without change of truth-value. But no two terms can replace each other within all compounds, and therefore one of the two demands has to be given up. In his original article Goodman rejected the first demand and construed synonymy as a degree of interreplaceability. I have no serious quarrel with this, but I agree with those who have felt that it would be better to give up the second demand instead.²⁵ This can be done by excluding those compounds which are such that the secondary extensions of any two terms are different, as Goodman pointed out in his reply to the critics of 'On Likeness of Meaning'.²⁶ The remaining compounds may be called 'I-compounds' (to suggest that they are interesting in connection with synonymy). The extensions of I-compounds which are P-terms may be called 'PI-extensions'. The amended definition of G-synonymy can then be stated thus:

(Def. 3) Two terms are G-synonymous in so far as, and only in so far as, they have the same primary extension and the same secondary PI-extensions.

This definition allows for the existence of absolute synonyms and therefore it agrees better with our intuitive idea of synonymy than the earlier definitions of G-synonymy. The demand for interchangeability in all non-intensional contexts may be given up the more readily as there is reason to doubt that this is a common requirement for synonyms. Even if intensional contexts are taken to include not only those contexts in which such phrases as 'necessary', 'possible', 'attribute of' and 'thought of' occur²⁷ but also contexts in which expressions are mentioned rather than used (quotations),

there remain contexts in which synonyms would probably not usually be held to be interchangeable *salva veritate*. For even synonyms would probably not be held to be interchangeable within all compounds.

(c) An objection which has been raised to Goodman's explication is that it somehow misses the nature of synonymy and deals with concomitant properties of synonymy only. G-synonymy is a trick which cannot be taken quite seriously. This type of criticism seems to be based on the conviction that the essential feature of synonymy is not substitutability but identity of meanings construed, for example, as intuited properties of linguistic expressions. Without denying the value of phenomenological investigations, I should like to retort that substitutability is the feature of synonymy which is important for linguistic and epistemological purposes.

(d) The problem about synonymy and analyticity which worried Quine, White and Goodman most was the twin problem of differentiating between terms which are merely coextensive and terms which are cointensive and differentiating between those universally quantified statements which are merely true and those which are analytically true. It seems to me that Goodman's notion of G-synonymy in its amended version gives a solution to this particular problem. G-synonymy gives an effective criterion for differentiating those statements of the form 'All and only A are B' which are analytic from those which are synthetic.

But does this mean that G-synonymy leads to graded analyticity? I was once inclined to think so. If Goodman's explication leads to the result that synonymy is only a matter of degree, then obviously the corresponding concept of analyticity (which could be called 'G-analyticity') will also be a matter of degree. I did not, however, attach too much importance to this, since gradualism does not seem to necessitate rejection of the principle of empiricism (cf. section 1.5 above). Nor would the existence of intermediate cases obliterate the very real differences between those statements which are absolutely analytic and those which are absolutely synthetic. But I now think that this standpoint depends upon a confusion. Goodman's explication of synonymy does not seem to lead to the result that synonymy is somehow a matter of degree. Either two terms are synonymous and have the same extension, and in that case all thoughts and pictures and statues and diagrams of the first thing will also be thoughts and pictures and statues and diagrams of the second thing; or else the two terms are not synonymous, and then no thoughts, pictures, statues or diagrams of the first thing will be thoughts, pictures, statues or diagrams of the second thing. And if G-synonymy is not a comparative concept, then G-analyticity is not a comparative concept. The idea that G-synonymy leads to graded analyticity seems to rest on a confusion between unclear or indeterminable cases and intermediate cases. There are probably many cases where our semantical intuitions are not clear enough for us to decide whether A and B are cointensive or merely coextensive, but this does not show that somehow there

is a continuum between cointensiveness and coextensiveness. My reply to the objection that G-synonymy leads to a counter-intuitive conception of graded analyticity would therefore now be that G-synonymy does not lead to graded analyticity at all.

Goodman's explication of synonymy may be viewed as an elaboration of the *salva veritate* test for a restricted but important class of expressions. The examination of the explication has led to the conclusion that the explication fulfils both internal and external criteria of adequacy to a high degree and that it may be said to have solved the problem about synonymy and analyticity which seems to have bothered Quine, White and Goodman most. The explication will, however, have to be supplemented with accounts of synonymy for other types of expressions. Another restriction of the explication is that it accounts only for cognitive synonymy. This is what is needed for epistemological purposes, but noncognitive aspects are of course important in other fields of inquiry. And finally, the explication rests on the somewhat dubious assumption that the notions of picture identity, description identity and so forth are clearer than the notion of meaning identity itself. Many philosophers might well feel obliged to part company with Goodman at this point.²⁸

3.3. Quine's characterization of logical truth

Many, though perhaps not all, statements which deserve to be called 'analytic' can be reduced to logical truths substituting synonyms for synonyms. The problem of finding a definition of 'analytic statement' can therefore be reduced, partly at least, to the problem of finding adequate definitions of 'synonymy' and 'logical truth'. In the foregoing section, the notion of synonymy was discussed. Now we turn to the other crucial notion in the definition of 'analytic statement' (or, more precisely, 'implicitly analytic statement').²⁹ A promising approach to logical truth in natural language is offered by the characterization made well known by Quine: a logical truth is a true statement which essentially contains only logical constants³⁰ or, in other words, which remains true under all reinterpretations of its components other than the logical constants.³¹ In this section an improvement on Strawson's version of this definition will be presented, and in the next section we shall consider the question: what is a logical constant in natural language?

The definition 'a logical truth is a statement which is true and remains true under all reinterpretations of its components other than the logical constants' presupposes certain conventions about what is to be counted as a reinterpretation. Strawson has discussed those conventions in an article which ends with an amended version of Quine's definition of 'logical truth'.³²

Strawson shows that typographically identical components must be replaced by typographically identical components in the reinterpretations. For consider:

(1) If Socrates is wise, then Socrates is wise.

The substitution of 'Plato is dead' for the first instance of 'Socrates is wise' and 'Russell is dead' for the second instance has perhaps changed the truth-value of (1). But that does not show that (1) is not a logical truth.

Nor is the possible falsity of the following statement a counter-instance to the logicity of (1):

(2) If he (referring to one person) is sick, then he (referring to another person) is sick.

This example shows that referential identities must also be preserved under the reinterpretations. And so must semantical identities. The sentence.

(3) If Russell is sick (= depressed), then Russell is sick (= physically ill).
is not logically true, and the possible falsity of (3) does not have any influence on the logicity of (1).

It would not do to amend the definition of 'logical truth' simply by adding the proviso that typographical, semantical and referential identities must be preserved under the reinterpretations. For then both

(4) If the king is deceased, then the king is dead.
and

(5) If Walter Scott was a snob, then the author of Waverley was a snob.
would be counted as logical truths. But (4) is analytically true but not logically true, and (5) is an empirical truth. And so Strawson is led to the following amendment of Quine's definition:

A statement is a truth of logic if it is true, and remains true under all reinterpretations of the components other than the logical particles, provided that, in any reinterpretation of propositional components (clauses), all those propositional identities which are represented in the original statement by typographically identical clauses are preserved in the reinterpretation, and in any reinterpretation of non-propositional components all those identities of sense and reference which are represented in the original statement by typographically identical predicate expressions and referring expressions are preserved in the reinterpretation.³³

This definition leads to the desired results, but it appears somewhat opaque and queer as it stands. The conditions on typography seem especially capricious in a definition of 'logical truth'. As a first step towards a simplification and amendment of Strawson's definition the word 'typographically' in the definition may be replaced by 'phonemically' which seems to cover what Strawson aims at. For written language is a way of representing spoken language, and two expressions in spoken language are said to be phonemically identical if and only if they are repetitions of each other.³⁴ Phonemical identity does not guarantee synonymy, since there are ambiguous words like 'sick' in statement (3) above, and synonymy does not guarantee phonemical identity, as statement (4) shows.³⁵ Phonemical identity is of course also independent of referential identity, and so it can safely be given the role that typographical identity plays rather unsuccessfully. (After all, many languages are *never* written.) In practice typographical identity can be used as a criterion of

phonemical identity, since our typography is not wholly capricious. But if, for instance, there were a rule to the effect that 'sick' should be written 'sicc' when it appears in the antecedent of a conditional and 'sick' when it appears in the consequent, we would certainly disregard typography and keep to the phonemical representation of the word.

Strawson's definition deals explicitly with propositional identities and identities of predicate expressions and referring expressions. It seems, however, unnecessary to frame the definition in that way, thus presupposing a certain type of analysis of natural language statements. When the definition is generalized, it is necessary to add a further restriction on the reinterpretations, viz. that they must be made without loss of meaningfulness. The possibility of replacing, say, 'wise' in (1) by 'or' must be excluded. I shall call a reinterpretation which preserves the significance of the statement 'a significant reinterpretation'. It also seems unnecessary to say anything about the kind of relation which is thought to hold between phonemical or typographical identity and referential and semantical identity ('representation'). We are then led to the following definition of 'logical truth':

(Def.) A statement is a logical truth if it is true, and remains true under all significant reinterpretations of the components other than the logical particles, provided that all identities which are both semantical and phonemical as well as all identities which are semantical and referential and phonemical in the original statement are preserved in the reinterpretation.

This version of the definition has the merit of bringing out clearly the fact that logical truth is a special case of analytic truth (in the broad sense of analyticity). For 'analytic truth' may be defined in a parallel way by dropping the condition on phonemical identity:

(Def.) A statement is an analytic truth if it is true, and remains true under all significant reinterpretations of the components other than the logical particles, provided that all semantical identities and all identities which are both semantical and referential in the original statement are preserved in the reinterpretation.

This definition of 'analytic truth' leads to correct results when tested on the examples (1)–(5). Statement (5), for example, turns out not to be an analytic truth. For since there is no both semantical and referential identity to be preserved, the following reinterpretation is allowed:

(6) If Plato is dead, then Molotov is dead.

Statement (6) is false if 'if – then' is interpreted as the connective \supset and therefore (5) is not analytically true.

The definition of 'analytic truth' needs an amendment, however, to take care of examples like

(7) All bachelors are unmarried.

There is no meaning identity in (7), only a meaning inclusion. The phrase 'semantical identities' in the definition should therefore be replaced

by 'semantical identities and inclusions'. The resulting definition is, I repeat, intended to stress the similarities between logical truth and analytic truth, but I do not want to claim that it is less objectionable than most of the definitions discussed in section 3.1 above. Talk of semantical identity and semantical inclusion certainly needs an explication.

Why do we speak of logical truths only when the typographical condition is fulfilled? Strawson asks, and answers that the truth of statements like (4) and (5) rests on accidental matters of language and fact, whereas the truth of logical statements depends on a *general* linguistic convention: when two typographically identical expressions occur within the same sentence it is generally assumed that they will have the same sense and reference.³⁶ And what is true of typographically identical expressions is, of course, also true of phonemically identical expressions. Strawson's observation seems correct, but I do not believe that it is the whole story. Especially when 'analytic truth' is defined as above, the typographical or phonemical condition in the definition of 'logical truth' looks odd, and it could justifiably be said that analytic truth is the more general notion. It seems to me that one clue to the peculiar place awarded to logical truths is the fact that logical truths are easier to recognize than other analytic truths and provide an avenue to many other analytic truths. It is generally assumed that phonemically (typographically) identical expressions with the same reference have the same meaning. This general rule for ascription of meaning together with the fact that the notions of referential and phonemic theory are relatively clear in comparison with the notions of semantical theory makes logical truths unusually clear cases of analytic truths. Provided that additional information is available on synonymy relations between natural language expressions, other less clear cases of analyticity can in many cases be reduced to logical truths by means of the definition that an analytic statement can be turned into a logical truth by substituting synonyms for synonyms. The above-mentioned rule for ascription of meaning can perhaps also help to make the notion of logical truth more acceptable to non-intensionalists. For if the rule is correct, semantical identity can be reduced to phonemic and referential identity as far as phonemically identical referring expressions are concerned. Goodman has reduced part of the theory of meaning to the theory of reference. The rule just discussed may be regarded as another reduction of meaning to the presumably clearer terms of referential and in this case also phonemic theory.³⁷ However, the task of clarifying semantical identity between other expressions remains, so it can by no means be claimed that Strawson's objection to Quine's definition of 'logical truth', that it presupposes intensional notions, has been wholly dealt with.³⁸

3.4. *On logical constants in natural language*

One of the philosopher's tasks is to give explications of old terms which are considered unclear. But sometimes it happens that the old term – the explicandum – is so unclear that one does not know where to start. The notion of a logical constant in natural language is a case in point. It is by no means clear what could be meant by the phrase 'logical constant in natural language', and therefore it is unclear what could be meant by the phrase 'logical truth in natural language'. One suggestion would be that the natural language counterparts of logical truths in artificial languages are logical truths. Then there would be no unique set of logical truths in natural language, and there would be no way of characterizing the set of logical truths in a natural language except by comparison with some constructed language system. But this suggestion is not very satisfactory for those who take the view that the notions of logical and analytic truth in artificial languages are intended as explications of some corresponding notions in natural language. It may be felt that the logician's selection of logical constants cannot be wholly conventional and that there must be some reason for our intuitive feeling that the words that are usually counted as logical constants have something in common which distinguishes them from other words. Alan Pasch has put the dilemma thus: 'If I am presented with a list of logical words – words like "or", "and", "all" and "not" – I understand perfectly well why these words are on the list and why words like "green", "jump" and "Indianapolis" are not. However, when the attempt is made to formulate the difference between the two kinds of words, the difference becomes blurred.'³⁹ Is there, then, something in a natural language like English which may explain the intuition about logicity and which warrants a sharp distinction between logical constants and other words? This question is of some importance for the gradualist-genericist issue, for if it can be answered in the affirmative, the principle of explicit analyticity can be maintained; if not, both this principle and the principle of implicit analyticity will fall, and gradualism will have turned out correct as far as at least some natural languages are concerned.⁴⁰

Before considering attempts to explicate the difference between logical constants and other expressions, it will be useful to make a list of the expressions which are usually counted as logical constants. The usual truth-functional connectives 'not', 'and', 'or', 'if then', 'if and only if' and expressions which are interdefinable with those connectives, e.g. 'un-', 'neither-nor' and 'unless', belong to the list, and so do the quantifiers 'all', 'some', 'the' and 'a/an'. The connectives and the quantifiers are the expressions most often mentioned as logical constants. The sign of identity '=' ('is identical with', 'is the same as') and the sign of class membership 'ε' ('is', 'is a member of') are sometimes added to the list along with expressions which are definable exclusively in logical terms. If the logicist thesis is accepted,

the list of logical constants will thus include also the numerals 'one', 'two', 'three', etc. Parentheses and similar devices for grouping are sometimes counted as logical signs though perhaps not as logical constants.⁴¹ Let it finally be noted that logical constants are sometimes contrasted with logical variables which roughly correspond to the pronouns of such a language as English and with descriptive constants which would comprise the rest of the vocabulary of the language. A list of logical constants for English can thus be made by selecting the English equivalents of the logical constants of some of the standard logical calculi, and some would feel that this is all that can be done in order to account for the difference between logical constants and other expressions.⁴² But many philosophers have felt, like Pasch, that logical constants are not just the words one chooses to call 'logical constants' and that there is something which logical constants have in common which provides a rationale for the list.

The usual attempts at drawing the line between logical constants and other expressions are not very satisfactory. Some of them are circular, others are vague or unilluminating and do not warrant a sharp distinction between logical and non-logical expressions. Let us have a brief look at some of these characterizations of logical constants and the criticisms which have been levelled against them.

(i) Logical constants are sometimes said to lack descriptive content. It may be objected that some logical constants seem to have descriptive content, e.g. 'some' and 'all', but the decisive objection is that the term 'descriptive meaning' is so unclear that little can be gained by appealing to it.⁴³

(ii) The last objection applies also to the characterization in terms of independence of meaning which has been proposed by Carnap. Independence of meaning is highly subjective, and it is more or less a matter of convention where to draw the line between logical and non-logical expressions, since independence of meaning is a matter of degree.⁴⁴

(iii) 'Logical constant' may be defined in terms of logical form as a 'purely formal constituent of a statement S'. But what is a 'purely formal constituent' of a statement? (To have recourse to independence of meaning and lack of descriptive content is of little help, as we have already seen.)⁴⁵

(iv) Logical constants can be contrasted with descriptive terms and a term T could be said to occur as a descriptive term in an argument A if A is valid and would remain valid if any other syntactically admissible term were substituted for T in all its occurrences (and similarly for invalid arguments).⁴⁶ But then one faces the task of characterizing valid inference without having recourse to the notion of logical constant, and this has proved difficult. Little seems to be gained, therefore, by reducing the problem of logicity to the problem of validity of inferences.

(v) A logical constant may be said to be an expression which cannot be substituted for a variable. But if it were asked why connective variables are not allowed, the answer would probably be that connectives are not de-

scriptive terms, and so we are back at the obscure notion of descriptive meaning.⁴⁷

(vi) Reichenbach has suggested that a logical sign should be defined as an 'indispensable, merely expressive sign'. A merely expressive sign is a sign which has no denotative meaning component, and a sign is denotative 'when it stands in the place of an argument variable, a functional variable, or a propositional variable'. An expressive sign is indispensable when its elimination would lead to the introduction of another expressive sign.⁴⁸ It may be objected that the explication does not apply directly to natural language and that whether a sign is indispensable or not depends on the purpose one has in mind.⁴⁹

(vii) Logical constants can be characterized in terms of their universality as 'those terms which are indispensable for logical discourse about *any* subject matter'.⁵⁰ Pap objects that 'or', for example, is not indispensable since it can be replaced by 'not (neither-nor)'. This objection can be met by amending the characterization to include those terms which belong to some family of interdefinable terms some members of which are needed for logical discourse about any subject matter. A more serious objection would be that the universality criterion is too vague as it stands to be able to illuminate the notion of logical truth.

There seems, then, to exist no satisfactory characterization of logical constants in natural language. Some of the characterizations have seemed to some philosophers to lend support to the gradualist thesis that the distinction between logical and non-logical constants in natural language and thus also the distinction between logical truth and factual truth is a distinction of degree.⁵¹ But the terms involved seem to me to be so unclear that it is difficult to take a stand on the gradualist-genericist issue until the notion of logical constant in natural language has been given a more definite meaning. The characterizations which were mentioned above give clues for further clarification of the notion of logical constant. Particularly the last suggestion, to the effect that logical constants are needed for discourse about any subject matter, seems to me to be worth pursuing.

Let me begin with a linguistic observation which may help to account for some of the felt differences between logical constants and other expressions: all the English words which Pasch intuitively grouped together as logical constants belong to a class of words which C.C. Fries has called 'function words'.⁵² The class of function words comprises those words which do not belong to any of the four big word classes which Fries finds in English and which roughly correspond to the traditional classes, noun, verb, adjective and adverb. Out of a thousand different words (types, not tokens), 93% were found to belong to these four classes in the material investigated by Fries, and the remainder were scattered over fifteen groups which together included 154 items (types). Most of the words usually adduced as examples of logical constants ('all', 'some', 'no', 'the', 'a/an', 'not', 'and', 'either-

or', 'if-then', etc.) are function words, but so are pronouns, numerals, adverbs like 'really', 'rather', 'even', 'just', auxiliary verbs, prepositions and some other words like 'oh', 'well', 'please', 'look'. 'Is' ('is a member of', 'is identical with') is, however, not included among the function words in Fries's investigation. The class of function words is wider than the class of logical constants (and variables), and so one would need some criterion which could be used to make further divisions within the set of function words.

Traditionally word classes and parts of speech have been distinguished on both semantical and formal grounds. A 'noun' is traditionally explained as 'the name of a person, place or thing', and 'adjective' is said to be 'a word which modifies a noun or pronoun', etc. But 'red' is classified as a noun in 'This red is the shade I want', and 'there' is not always counted as an adjective in the sentence 'Some of the officers there are my friends'.⁵³ As an alternative to the traditional criteria, which do not lead to unequivocal results, it has been suggested that word classes — or more generally, 'position classes' — should be set up on the basis of what linguistic contexts the words or expressions can occur in. Linguistic expressions which occur in identical or similar environments and which therefore have the same or a similar 'distribution' may be said to belong to the same position class.⁵⁴ Now it is obvious that the number of position classes one sets up for a given language will depend upon how many and which environments one requires to be identical or similar in order for two expressions to belong to the same position class. 'John' may be counted as the sole member of a position class whose members occur in the environment '—— the Baptist'. In practice, however, there is limited room for disagreement on which position classes to set up. The linguist will choose those classes which he finds most revealing, that is, which lead to the best grammar and account for the native speakers' intuitions in the best way.

It may be noted that Fries's class of function words is a residual class where all those items are thrown in which do not belong to any of the other word classes. It might, therefore, perhaps be expected that further distributional studies will be able to give a rationale for dividing the class of function words into sub-categories in such a way that one of the sub-categories will comprise just those words which are intuitively felt to be logical words. In the meantime, one could distinguish between those function words which play an essential role in cognitive discourse and those which do not. Such words as 'oh' and 'well' would belong to the latter class. The remaining class of function words could then be divided into variables (pronouns) and constants. On this suggestion, a logical constant in natural language would be an essential function word which is not a variable. This would seem to be at least an approximation of what is usually intended by the term 'logical constant', which could be further refined if necessary.

It might be added that the class of function words ought to be widened to include parts of words which have a function similar to function words, e.g.

morphemes like 'un-' and 'in-', inflectional endings, etc. The resulting class might be referred to as 'function expressions'. Logical terms (constants and variables) could then be characterized as essential function expressions.

The function expressions of English and other natural languages are generally members of position classes which are small and closed. The commonly recognized large position classes are productive in the sense that new members are continually being added to them, but the sub-categories of function expressions are likely to contain the same few members over long stretches of time.⁵⁵ Such closed classes have the distributional feature of occurring in many environments; they may be said to have unusually rich distributions. Since there are few function expressions, this means that most of them are bound to appear very often. These features may be used to give a formal definition of the term 'function expression' on the following lines:

(Def.) An expression E in a language L is a function expression if and only if E belongs to a position class P such that (i) P is highly closed, (ii) P is small, (iii) most members of P have a rich distribution, (iv) most members of P occur frequently.

None of the conditions (i)–(iv) draws a sharp boundary between function expressions and other linguistic expressions when taken by itself, but taken together they would seem to delimit a class of expressions which differ considerably from other expressions. Now, if logical constants are one type of function expression, this would seem to indicate that the distinction between logical constants and other expressions in English and other natural languages is a fairly sharp one. It would seem, therefore, that these distributional considerations support the genericist standpoint rather than the gradualist view.

To the distributional properties of rich distribution and frequent occurrence corresponds the semantical feature of logical constants that they can be used for discourse 'about any subject matter', which we considered before (p. 51). They are highly 'topic-neutral', to use Quinton's term.⁵⁶ Quinton proposes that logical terms are 'purely syntactical', that their function is 'to arrange or organise discourse, not to refer to anything in the extra-linguistic world', and that logical terms may be defined as terms whose meaning is 'wholly specified by implicit definitions', in contrast to non-logical terms which are introduced by some kind of ostension.⁵⁷ It is not clear whether definability by implicit definition alone really fits the set of terms we want to include among logical constants,⁵⁸ and the phrase 'to arrange or organise discourse' is so vague that, for example, the function words 'oh' and 'well' might well be said to have that function. Suppose, however, that all and only logical terms are definable solely with the help of implicit definitions. Then one could still ask: what is it about such terms that accounts for the quite special place that we tend to accord to them in our conceptual apparatus? What is it about topic-neutral terms that gives them their special importance? Why should non-descriptive, purely syntactical terms be con-

sidered to have a privileged position? These questions lead us back to the starting point for this discussion: logical constants belong to that core of language which is needed for discourse about any subject matter. The essential point is, then, not that a certain set of terms *be* definable in a certain way (viz. non-ostensively, by implicit definition), but that it is *necessary* to have a set of terms that are definable in this way. In order to be able to speak meaningfully at all, we must have a linguistic framework, and logical constants belong to that framework. The topic-neutrality, discourse-organizing function, lack of extra-linguistic relevance, and definability by implicit definition alone which characterize logical constants can be seen as so many aspects of the transcendental character of logical constants.⁵⁹ To have a set of expressions of that kind is a necessary presupposition of cognitive discourse; it is a *Bedingung der Möglichkeit* of linguistic communication. It would seem, therefore, that analyses of the necessary conditions of linguistic communication will help to shed more light on the nature of logical constants.

At this point we have to break off the discussion. As to the genericist-gradualist issue, it would seem that the available evidence, such as it is, tends to support the genericist position rather than the gradualist one. The conditions for the possibility of linguistic communication may not form a fixed set, but there seems to be no reason for thinking that in some way there is a difference of grade between the conditions of discourse and discourse itself. In so far as logical constants belong to the realm of transcendental conditions of discourse, there would seem to be a sharp difference between logical constants and non-logical, descriptive constants.

3.5. *The limitations of strict analyticity*

Quine's favourite definition of 'analytic statement' is that an analytic statement is a statement which is true and which is reducible to a logical truth by interchanging synonyms. The standard examples of analytic statements are statements like 'A bachelor is an unmarried man', 'No spinsters are married' and 'All spinsters are unmarried' which are reducible to tautologies by interchanging synonymous terms. Statements like 'If you do anything reluctantly, then you are disinclined to do it' and 'If you love somebody, then somebody is loved by you', the truth of which depends on synonymy relations between non-substantive expressions and on constructional synonymy, can be accounted for by allowing for synonymy of expressions longer than terms (clauses and statements). But there remain several types of statements which can reasonably be claimed to be true by virtue of their meaning alone but which do not seem to be reducible to logical truths in the Quinean way. In the terminology of Chapter 1, strict analyticity does not seem to exhaust the range of broad analyticity. To those statements, which are probably broadly but not strictly analytic, belong (i) what Leibniz called 'disparates', e.g. 'Heat is not the same thing as colour', 'Red is not

blue', 'A man is not a horse';⁶⁰ (ii) statements the truth of which depends on the structural properties of some predicate, e.g. 'If A is longer than B and B is longer than C, then A is longer than C'; (iii) negations of category mistake statements, e.g. ' $\sqrt{7}$ is not green', 'You cannot make it a practice to believe seven new things every morning', 'Recognition is not a process'; (iv) statements with ostensive predicates like 'Nothing can be red and green all over at the same time for the same observer'; and (v) such statements as 'There are red surfaces' and 'There is at least one rod which is exactly one metre long' which have been claimed to be indubitable existential statements.⁶¹

Here I shall discuss only one example to make good the claim that there are broadly analytic statements which are not strictly analytic, and I select for discussion the statement

(1) Nothing can be red and green all over at the same time for the same observer.

Similar considerations apply, however, to other statements which contain ostensibly defined expressions in non-vacuous positions. I shall try to show that it is reasonable to regard statement (1) as true *ex vi terminorum* and that the difference between a statement like (1) and other analytic statements like the bachelor example depends on the peculiarities of ostensibly defined expressions.⁶²

What would it be like to defend the view that (1) is analytic and what would it be like to hold that it is synthetic? Let us consider an odd case as we did earlier in the discussion of the statement 'I see with my eyes', and see what A-holders and S-holders would say.⁶³ Imagine, then, a world in which people get sense impressions which are rather like our visual impressions but which differ from our ordinary visual impressions in one respect: there are objects in that world which are such that they cause two distinct types of impressions at the same time and those impressions are considered to originate from the same surface.⁶⁴ When people in that world look at some of those things they see that the things are both what they call 'red' and what they call 'green' all over. In such a case the S-holder would say something like this: 'You see that there are things which are both red and green all over at the same time for the same observer; so sentence (1) is false after all.' The A-holder would retort: 'Well, the beings you imagine certainly get in compatible sense impressions from the same surface, but since nothing can be red and green all over, what they see is not really red and green.' The A-holder would thus take refuge in one of the typical analytical moves, precisely as he did in the story of the nose man. In this case he will have only one move to make, since statement (1) does not contain two terms which are such that one of the terms can be stretched if and only if the other is stretched. The statement "'I see with my eyes" is analytic' makes a conditional assertion about the use of the crucial expressions, the statement '(1) is analytic' makes a categorical assertion about one feature of the meanings of the essential terms.

The disagreement between the A-holder and the S-holder concerns the meaning of 'red' and 'green': is the incompatibility between red and green essential to the meaning of 'red' and 'green' or not? The disagreement over (1) is thus a purely semantical issue. It is of some importance to note this, since it has sometimes been maintained that the problem which (1) gives rise to is at least partly phenomenological, physiological or physical. To get an answer to the question whether speakers of English are usually A-holders or S-holders in the case of (1) we will thus have to discuss the question: what is the meaning of the colour predicates 'red' and 'green'? The best way of explaining the meaning of colour words is to point at things which have the colour in question. The clue to the status of statement (1) seems to lie, then, in the nature of ostensive definition.

The S-view rests on a distinction between meaning and collateral information in the case of colour words. 'That colours are incompatible is an accidental fact and no part of the meanings of colour words. All red things in our world happen to have the accompanying characteristic of being not-green, but being not-green is not one of the defining characteristics of red things.' The distinction is, however, a peculiar one to draw in the case of colour words and other ostensive terms. On the S-view one can know what 'red' and 'green' mean without knowing that red and green are incompatible properties. But is it possible to learn first what 'red' and 'green' mean and then go on to learn that the properties those words designate happen to be incompatible? Consider the following case. You want a child to learn the colour words, and you give him a pack of cards with different colours. One card is red all over, one is green all over, etc. The child is then trained to say 'red' when the red card turns up, 'green' when the green card turns up, etc. The child will also have to learn to classify the cards into red cards and other cards, into green cards and other cards, etc., and he will have to learn that every card is either red or not-red, either green or not-green, etc., for such is the pack. And you would not be satisfied that the child has learned the ordinary meaning of 'red' and 'green' if the child said, 'I can think of cards which are both red and green all over at the same time, though there are no such cards in this pack'. Even if the child were a very clever Smartian child that could develop its thesis in a satisfactory way, you would have to point out to it that you have explained the words 'red' and 'green' by reference to the cards in this pack, so it is impossible for anything to be red or green and yet have other colour properties than the cards in the given pack have. 'Red is the colour of such cards as this,' you say, and show him the red card, 'and this card is red all over and has no other colour all over, so it is impossible for any card to be red all over and at the same time be, for instance, green all over in the sense in which I have used the word "red".' Now it seems that colour words are usually learned in ways similar to this card-pack game, and their meaning is explained by reference to the purely visual properties things of various sorts happen to have in our world. And since

things in our world happen to be such that their colours are incompatible, it seems natural to say that the incompatibility forms part of the meaning of colour words. Ostensive definitions of colour words consist of pointing, perhaps accompanied by some such phrase as 'like this from the colour point of view'. Why, then, should one of the colour features of the 'this' be sorted out and labelled 'accidental', 'empirical', 'merely factual', 'collateral'?

Quine has argued that the distinction between meaning and collateral information can never be drawn in a satisfactory way. 'The distinction is illusory', according to him.⁶⁵ But it seems easy to draw the distinction in the case Quine discusses. Suppose that there is a certain type of fly which always accompanies rabbits in certain districts. How should one, then, decide whether the native word 'Gavagai' denotes rabbits or rabbit-flies or both? It would not be sufficient to observe actual, unprompted uses of the word since all rabbit situations will also be rabbit-fly situations and conversely. But one can investigate the meaning of the word by making some simple experiments. One presents a rabbit in isolation in a cage and sees what the native says, one holds up a rabbit-fly in a glass and notices the verbal reaction of the native, one asks the native to draw a 'Gavagai' and to explain what the word means, and so on. But in the case of the colour words there seems to be no way of drawing the distinction rationally. Every instance one can actually produce of red surfaces will also be instances of not-green surfaces, and every defining instance of red will be incompatible with, for example, green instances. How should the child that has learned the sound sequences 'red' and 'green' decide whether instances of redness are supposed to exemplify the expression 'red' or the expression 'red and not-green'? Similar considerations apply to 'red pictures' and other such compounds. In the terminology of section 3.2, the expressions 'red' and 'red and not-green' have the same primary extension and also the same secondary PI-extensions, and thus they are G-synonymous. It seems natural, therefore, to count incompatibility of colours as part of the meaning of colour words and to regard the statement 'Nothing can be red and green all over' as analytic. The natural course to take in such a case as Smart has presented is to say that 'red' and 'green' are used in new senses when applied to his world. The defender of the view that the statement about red and green is synthetic invites the charge of gratuitousness.

Two remarks remain to be made. The first is that my solution of the semantical problem of incompatibilities of colours develops an old idea which has been hinted at in several articles, for example, by D. F. Pears and Hans Hahn.⁶⁶ (My arguments, incidentally, seem to be particularly close to the standpoint suggested in a brief passage of Hahn's.⁶⁷) My second remark concerns the conditions which must be fulfilled in order that the statement about red and green should be recognized as analytic. If the argument from the openness of ostensive definitions is right, learning to distinguish

between red and not-red things involves learning that nothing is both red and not-red all over. The child that knows what 'red' means will therefore know that a surface that is red all over has no other colour all over, provided that it knows what 'colour' means. But the child need not know that a red surface cannot be green all over in order to know the meaning of the word 'red'. That is, it is not sufficient to know the meaning of 'red' in order to grasp the meaning and truth of (1), one must also know something about the meaning of 'green' as well as the other words in the statement. Now if a clever child knows the meaning of 'red' and knows what a colour is and further knows that green is a colour, perhaps without having seen anything green, it will see that (1) is analytic. And, alternatively, if the child knows what red is and what green is, perhaps without knowing what colour in general is, he will understand that statement (1) is true by virtue of its meaning. For it seems correct to say that though a person may know the meaning of 'red' without knowing the meaning of 'green', it is impossible to know the meaning of both 'red' and 'green' without knowing that green things are not-red and red things are not-green. Colours form a system, and learning colour words involves learning to see the relations within the system. But it is not necessary to learn to see all relations within the system in order to learn the meaning of one of the terms which belong to the system.⁶⁸

3.6. *Concluding remarks*

I shall first summarize the results on gradualism and then make some comments on methods in semantics.

(a) Is there a sharp distinction between analytic and synthetic statements in English? We have found that there are reasons for thinking that the distinction between logical constants and other expressions in English is a sharp distinction. If 'logical truth' is defined in terms of logical constants, it would therefore seem that the distinction between logical and non-logical truths in English is a sharp one. (In other words, there is a sharp distinction between explicitly analytic truths and other truths in English.) We have also found that Goodman's explication of synonymy does not make synonymy a matter of degree. If one accepts this explication of synonymy and defines 'analyticity' in terms of reducibility to logical truth by replacement of synonyms, as Quine proposes, then there will be a sharp distinction between analytic statements in this sense and other statements. (In other words, there is a sharp distinction between implicitly analytic truths and other truths in English.) The principle of strict analyticity does, therefore, receive support from the foregoing analyses. The evidence is against the gradualist position.

(b) Goodman's explication of synonymy will have to be supplemented with further accounts of synonymy in natural language, and the synonymy approach to analyticity does not exhaust the range of analytic statements in

natural language. Another and perhaps even more serious limitation of the present discussion is that nothing has been said about the pragmatic aspects of analyticity. A language may be studied from a syntactical point of view in abstraction from the meaning of the expressions and the users of the expressions; it may be studied from a semantical point of view in abstraction from the language users; and it may be studied from a pragmatological point of view, taking both the expressions and their interrelations with each other, the referents of the expressions and the users of the expressions into account.⁶⁹ The division into syntax, semantics and pragmatics has proved convenient for many purposes, but ultimately it is not possible to abstract from the pragmatic aspects when the analytic-synthetic distinction is applied to a language in use like English. English consists of sentences in use, and it will be necessary to take uses into account in order to decide which sentences in use are analytic and which are synthetic. Ironical and metaphorical uses must be sorted out, and some method must be given for distinguishing such parasitical uses of repetitive sentences as were mentioned earlier in section 3.1 and really analytic uses. Quine's and White's behaviouristic substitutes for the intensional notions are much too crude to accomplish this. To give an illustration, the behaviouristic notion of analyticity which Quine proposes in *Word and Object* does not even differentiate between analytic statements on the one hand and firmly believed trivialities on the other hand. ('I call a sentence *stimulus-analytic* for a subject,' writes Quine, 'if he would assent to it, or nothing, after every stimulation' (*Word and Object*, p. 55). But not only sentences like 'No spinsters are married' and 'All bachelors are unmarried men' could be assented to after every stimulation but also sentences like 'I am here now', 'The world has existed for more than five minutes', and 'The distance between London and San Francisco is greater than three miles'.)

It is perhaps unnecessary to emphasize again that I do not share the optimism of those philosophers who think that meaning investigations can profitably be conducted by reference to unguided semantical intuitions. I am much too impressed with the vicissitudes of semantical revelation. But the alternative to semantical revelation would not seem to be behaviourism. The alternative to undisciplined semantical intuition is disciplined semantical intuition. To illustrate what I have in mind I should like to refer to the work of J. L. Austin in introspective semantics and A. Naess in descriptive semantics.

3.7. *Recapitulation*

A preliminary description of the analytic attitude was given in section 3.1, and it was argued that there is a distinction to be drawn between analytic and synthetic statements in natural languages.

Quine's characterizations of analytic and logical truth were examined in the following sections (3.2–3.5). According to Quine an analytic statement is a

true statement which is reducible to a logical truth by substituting synonyms for synonyms, and a logical truth is a true statement which remains true under all reinterpretations of the constituents other than the logical constants. Synonymy, reinterpretations and logical constants were discussed in turn, and the exhaustiveness of the Quinean definition of analytic truth was questioned.

In section 3.2 Goodman's explication of synonymy was restated and discussed. The explication was found to be highly satisfactory as an account of cognitive synonymy of coextensive terms, but it will have to be supplemented with accounts of synonymy of other types of expressions and with a theory of non-cognitive aspects of synonymy.

In section 3.3 the conventions governing permissible reinterpretations were discussed. A simplification of Strawson's results was proposed as well as a definition of 'analytic statement' which stresses the parallels between logical and analytic truth. A rule was proposed to the effect that phonemically identical expressions with the same reference have the same meaning, and it was suggested that this rule might help to make the notion of logical truth more acceptable to non-intensionalists.

In section 3.4 it was argued that the notion of logical constant in natural language is very unclear. Attention was drawn to certain linguistic properties of logical constants in English, and it was suggested that the peculiarity of logical constants is that they belong to the transcendental framework presupposed by all meaningful discourse. The transcendental character of logical constants as well as their linguistic properties suggests that there is a sharp boundary between logical constants and other expressions, and not a difference of degree.

In section 3.5 it was argued that there are statements which can plausibly be held to be true by virtue of their meaning alone but which are not reducible to logical truths by interchanging synonyms. The statement that nothing can be both red and green all over was taken as an example, and its analyticity was defended by an argument from the openness of ostensive definitions.

The implications for the gradualist-genericist issue were summarized in section 3.6. The available evidence supports the principle of strict analyticity. The foregoing analyses therefore support the genericist rather than the gradualist position. Finally, the limitations of behaviourist approaches to semantics were noted.

4. The Artificial Language Approach

4.0. *Aim of the chapter*

In this chapter I shall first comment briefly on the distinction between artificial and natural languages and then consider some objections to the artificial language approach, including the objections that this approach lacks explanatory value and that it is incompatible with an empiricist outlook.

4.1. *Natural and artificial languages*

The usual examples of so-called 'artificial', 'symbolic' or 'formalized' languages differ in several respects from 'natural' languages like English, Chinese and Swahili.¹ Natural languages are historically given and there are no explicit rules laid down which governed their use from the start. They change continually – diachronically English is a series of overlapping language systems, and synchronically it is a family of related languages (dialects) rather than a single language system. (The different states and dialects belong to the same language only in the sense that adjacent states and dialects are mutually understandable.) Expressions in natural languages are often vague, ambiguous and emotively loaded, and they are used for all sorts of purposes. They are sometimes used metaphorically or ironically or put to other secondary uses which depend for their effect on the existence of some primary use. The result of all this is that natural languages are very complex. Formalized languages, on the other hand, are very simple. They are intended to be used only for cognitive purposes if they are intended to be used at all and not designed only as illustrative models, and such complications as secondary uses, vagueness and ambiguity are not permitted in such languages. There are explicit rules which determine in an exact way which expressions belong to the language (formation rules), what they mean (designation rules) and when they are true or false (rules of truth), and there is only one such set for each language and not a series of similar sets. The artificial languages described in the literature are usually intended to serve very specific purposes and therefore they have specialized and restricted vocabularies.

Because of the differences between artificial and natural languages they present very different problems, and it is advisable to follow Carnap's lead

and divide the study of language – ‘semiotics’ in Carnap’s terminology – into two main parts: *descriptive semiotics* which investigates natural languages and *constructive semiotics* which investigates artificial languages.² The division of semiotics into syntax, semantics and pragmatics which was mentioned earlier (in section 3.6) will be similarly bifurcated: descriptive syntax will be distinguished from constructive syntax, and descriptive semantics and descriptive pragmatics will be contrasted with constructive semantics and constructive pragmatics.³ The terms ‘constructive’ and ‘descriptive’ are intended to emphasize an important difference between artificial and natural languages: explicit rules are stipulated for artificial languages, whereas rules for natural languages have to be found out. Students of artificial languages, make up rules for their languages, and there is no question of the rules being right or wrong (unless ‘right’ is taken to mean ‘suitable for the purpose in hand’). Students of natural languages do not invent rules, they discover them, and the rules are correct or incorrect as descriptions of the language in question. The other differences between the usual types of artificial language and natural language seem more or less unimportant in comparison with this difference. The artificial languages one encounters in the logical literature today are simple, but there is no reason why more complex languages should not be constructed in the future in order to illuminate aspects of language other than those which have interested students of artificial languages to now.⁴

4.2. *Some objections to the artificial language approach*

One of Carnap’s explications of logical truth is formulated in terms of state-descriptions:⁵

(Def. 1) A statement S in a language L is logically true if and only if S holds in all state-descriptions in L .

The definition presupposes that the vocabulary of L has been specified, that formation rules are given for L and that semantical rules are laid down which determine for every statement whether or not it holds in a given state-description. The semantical rules are of the following kind:⁶

(SR₁) An atomic statement holds in a given state-description if and only if it belongs to it;

(SR₂) $\neg S$ holds in a given state-description if and only if S does not hold in it;

(SR₃) S_1, S_2 holds in a given state-description if and only if both S_1 and S_2 hold in it;

and so on for other types of compound statements.

As we saw earlier (in section 2.1), Quine has objected that Def. 1 is not a definition of ‘analytic truth’ (except in the narrow sense of explicitly analytic truth) and that some amendment is needed to account for analytic truths which are not logical truths. This can be done by laying down

restrictions on permissible state-descriptions with the help of *meaning postulates*. Meaning postulates are rules which state as much of the meaning of the predicates concerned as is essential for analyticity, i.e. they are rules which state that relations of incompatibility and logical implication hold between the predicates. Thus if B and M are predicates in L corresponding to the English words 'bachelor' and 'married', a meaning postulate can be laid down which states the incompatibility of B and M:

$$(MP_1) (x) (Bx \quad - Mx).$$

The notion of analytic truth can now be defined as follows:

(Def. 2) S is analytic in L if and only if S holds in all permissible state-descriptions, i.e. in every state-description which is not excluded by any meaning postulate.

The notion of analyticity defined by Def. 2 is broader than the notion of strict analyticity, since meaning postulates can be laid down for 'structural properties' like transitivity and irreflexivity, e.g. the following two for the predicate W corresponding to the English phrase 'warmer than':

$$(MP_2) (x) (y) (z) (Wxy.Wyz. \supset .Wxz)$$

$$(MP_3) (x) - (Wxx).$$

Most, perhaps all, broadly analytic statements can thus be accounted for by the device of meaning postulates. (Def. 1 defines the notion of logical truth or explicit analyticity, Def. 2 defines broad analyticity. Parallel definitions can be given for implicit and strict analyticity by imposing restrictions on the type of meaning postulates involved.)⁸

The introduction of meaning postulates solves one of the difficulties which Quine found with Carnap's explications of semantical notions. The criticism that such explications as Def. 1 and Def. 2 of this section are not general in the sense of ranging over all languages has already been dismissed as unduly strong,⁹ but several objections to explications of semantical notions for artificial languages remain to be discussed. The objections I am going to consider are of two kinds, (i) claims that such explications lack explanatory value, and (ii) claims that the artificial language approach commits one to a non-empirical view of knowledge.

(i) Explications of analytic truth in terms of, for example, meaning postulates may be held to be unable to give the kind of understanding of analyticity for the sake of which the clarificatory task was undertaken, since they use notions which are as incomprehensible as the notion of analyticity itself.¹⁰ The obvious counter-objection is that explication does not aim at giving understanding of a previously totally incomprehensible notion but at sharpening the meaning of a given unclear notion of which we have some understanding. For instance, an explication of analyticity eliminates some of the vagueness and ambiguity of the traditional idea of analytic truth for some contexts, and it states the relations between the given notion and related

notions explicitly. An explication of 'analytic truth' for some language L_1 must preserve the relations within the analyticity family, and for this reason one can justifiably call the new notion 'analytic in L_1 ' instead of inventing some new designation like 'K', as Quine has claimed that one should do.¹¹ But the counter-objection paves the way for another criticism of such explications as Carnap proposes in 'Meaning Postulates'. That such explications cannot give us understanding of a previously unknown notion but only of notions of which we have already some understanding means that the explications are incomplete: they presuppose some aspects of the notions concerned which remain unchanged and unstated under the explications, while other aspects of the notions are sharpened. What is left out is the pragmatic aspects of the intensional notions, that is, all reference to language users. We are thus once more led to the conclusion that investigations of the pragmatic aspects of language are needed in order to give a full analysis of intensional terminology.¹² This conclusion is reinforced if criteria of adequacy for explications are taken into account. In order to be adequate an explication must fulfil internal criteria of clarity as well as external criteria of correspondence with some given explicandum. It would seem, then, that investigations of explicanda will help to give the basis for proper verdicts on the adequacy of explications as well as to suggest amendments of the explicata. One reason why descriptive semiotics may be philosophically relevant seems to be that investigations in this field may suggest new developments within constructive semiotics.

In a critical examination of Carnap's views on logical and analytic truth, Quine has suggested that the belief in meaning postulates depends on a series of misevaluations of the role of postulates and the nature of postulation.¹³ Whether or not Quine's diagnosis is correct, there seems to be no reason why a satisfactory account of intensional notions should not be given in due time. (It must be admitted that existing accounts are at least incomplete.) The situation may be illuminated by a comparison with the parallel case of stipulative definition. Inconsistently enough, Quine once considered that synonymy created by stipulation is clearer than other types of synonymy, but it was soon pointed out that our understanding of stipulative synonymy depends on our previous familiarity with non-stipulated synonymy relations.¹⁴ Similarly understanding of analyticity by stipulation rests on previous acquaintance with non-stipulative analyticity, i.e. on acquaintance with the usual type of analytic statements in natural languages.

(ii) The claim that the artificial language approach is incompatible with empiricism¹⁵ is another matter. This is not a general objection to all sorts of explications within the context of an artificial language but an objection to the particular languages which have been adopted by some reconstructionist philosophers, notably G. Bergmann. Philosophy is, according to Bergmann, the simultaneous solution of all traditional philosophical problems within the context of an ideal language, and the only likely candidate for the ideal

language is some amended version of *Principia Mathematica*.¹⁶ The ideal language is thus presumably an extensional language, and so the ideal language philosopher faces the well-known difficulties of extensionalism (the problems of analysing causal necessity, disposition predicates, counter-factuals and so on, within an extensional framework). This is one of the objections which have been raised against Bergmann's epistemology by A. Pasch.¹⁷ The other objections have to do with Bergmann's selection of descriptive constants for the ideal language. As a phenomenalist, Bergmann admits as descriptive constants only terms which refer directly to sense-data or which can be shown to be equivalent to some logical construct of sense-data. Now if the existence of sense-data is thought to be a psychological question, it may be argued that sense-data psychology is a very questionable piece of psychology, and it is not in accord with empiricist principles to rely on scientific hypotheses which are not well established. And if it be held that sense-data have some kind of non-empirical, epistemological existence, it may be objected that sense-data are considered to be the objects of direct experience, and it would be strange for an empiricist to hold that we directly experience some sort of empirically non-existent objects.¹⁸ It may also be argued that phenomenism does not give an adequate view of the nature of philosophy, science and mathematics, but enough has perhaps been said to show that the objections we are considering now are not of the same kind as the general objections to all artificial languages which were considered above. The present objections attack phenomenism and extensionalism rather than artificial languages as such. But artificial languages as such do not commit one to any particular position in epistemology.

4.3. Recapitulation

Some differences between natural languages and the artificial or formalized languages common in logical literature today were listed in section 4.1. The most important difference was found to depend on the difference between making a rule and finding a rule, and accordingly a distinction was drawn between constructive and descriptive studies of language.

In section 4.2 Carnap's explications of logical truth and analytic truth in terms of state-descriptions and meaning postulates were stated, and some objections to this kind of explication were considered. Quine's objection that explications within the context of artificial languages lack explanatory value misses the point of such explications but draws attention to their incompleteness: they will have to be supplemented with accounts of the pragmatic aspects of intensional notions. The objection that the artificial language approach is incompatible with empiricism was found to be an objection not to the artificial language approach as such, but to particular features of some languages which have been adopted by some reconstructionists.

5. Logic, Linguistics and Philosophy

5.0. *Aim of the chapter*

'The grand debate' on the analytic-synthetic distinction which was initiated by Quine, White and Goodman around 1950 may be said to belong to the 1950's.¹ But a number of important contributions to the debate have also appeared in the last decade (e.g. the proceedings of a Salzburg seminar on 'analyticity and the foundations of science' which took place in 1964; papers by Hackett, Kemeny, Putnam, Quinton, Stenius and others; book-length contributions by Delius and Katz; and the Schilpp volume on the philosophy of Rudolf Carnap).² In this chapter I shall review three constructive contributions which appeared in the mid-sixties and which seem to me to shed considerable light on the Quine-White-Goodman controversy. The three contributions are of rather different character: one is an attempt to analyse analyticity in linguistic terms (Katz); the second is a monograph on one particular type of statement whose logical status has been discussed since the beginning of this century, viz. ostensive truths (Delius); and the third is an analysis of analyticity from a logician's point of view (Hintikka).³

5.1. *Katz's theory of analyticity*

The philosophy of language of the logical empiricists had the virtue of being systematic and theoretically oriented, according to Katz, but it lacked empirical controls. The philosophy of language of the ordinary language philosophers, on the other hand, took full account of empirical semantical facts but contained no systematic theory of language.⁴ Katz's own theory is designed to combine the virtues of the approaches of logical empiricism and ordinary language philosophy while avoiding their faults. The solution, as he sees it, lies in the direction of a general theory of language ranging over all natural languages. One part of this general theory of language is a semantical theory intended to account for those aspects of linguistic ability which cannot be handled within the framework of syntax and phonology. The semantic theory developed by Katz (and Fodor) contains amongst other things an explication of analyticity, which Katz hopefully presents as a 'solution to Quine's problem'.⁵ In other words, he claims to have found a criterion of analyticity which meets Quine's demands.

Katz's definition of analyticity, which I shall refer to as 'K-analyticity', is an explication of the Kantian idea of vacuous predication: a subject-predicate statement is analytically true if the predicate concept is included in the conceptual complex expressed by the subject of the statement. The explication is developed in the following way.⁶ The grammar (syntax) of the language we are dealing with enables us to specify the grammatical structure of any well-formed sentence in the language. The dictionary specifies the meanings of the words in the language. A system of special rules ('projection rules') enables us to compute the meaning of any meaningful combination of words in the language. In order for the machinery of projection rules to work, the entries in the dictionary must be given in some standard form. Katz proposes the following standard form for dictionary entries: (1) the phonological (or orthographical) representation of the word; (2) a set of 'syntactic markers' specifying the syntactic properties of the words; (3) a set of 'lexical readings' or 'semantic markers' specifying the meanings of the words; and (4) 'selection restrictions' specifying the conditions under which given readings can combine with other readings to form derived readings. Each lexical reading is supposed to provide a breakdown of the meaning in question into its atomic components. A dictionary entry for the word 'bachelor', for instance, should specify the syntactic properties of the word (that it is a noun, of a certain kind), give breakdowns for the different meanings of 'bachelor' and state the restrictions on possible combinations. As an example, Katz proposes the following lexical readings for the word 'bachelor':

- (i) (Physical object), (Living), (Human), (Male), (Adult), (Never married).
- (ii) (Physical object), (Living), (Human), (Young), (Knight), (Serving under the standard of another).
- (iii) (Physical object), (Living), (Human), (Having the academic degree for the completion of the first four years of college).
- (iv) (Physical object), (Living), (Animal), (Male), (Seal), (Without a mate at breeding time).

K-analyticity can then be defined in following way for declarative copula sentences:⁷

(Def.) S is K-analytic on the reading $R_{1,2}$ if and only if every non-complex semantic marker in R_2 also occurs in R_1 ; for any complex semantic marker $((M_1) \cup (M_2) \cup \dots \cup (M_n))$ in R_2 , there is an (M_i) , $1 \leq i \leq n$, in R_1 ; and the reading R_1 does not contain any anonymous semantic markers;

where

R_1 = a reading for the subject of S;

R_2 = a reading for the predicate of S;

$R_{1,2}$ = the reading for the whole sentence S which results from the combination of R_1 and R_2 .

(The clause on antonymous markers is intended to rule out cases like ‘A female king is male’, which would be both analytic and contradictory on Katz’s definitions of these terms if the restriction were to be dropped. Such cases are classified as ‘indeterminable’ on Katz’s theory.)

This definition defines the notion of *analyticity on a reading*. A sentence may then be defined as *fully K-analytic* if (and only if) it is analytic on all readings.

Other semantical notions like syntheticity, contradiction, semantic anomaly and synonymy can be similarly defined. Two constituents are *K-synonymous on a reading* if and only if the set of readings assigned to the constituents have at least one member in common; they are *fully K-synonymous* if and only if the sets of readings assigned to them are identical; and so on.⁸ Given appropriate dictionary entries for ‘bachelor’ and ‘unmarried’, it is easy to see that ‘All bachelors are unmarried’ should turn out K-analytic on some but not all readings of that sentence. ‘All bachelors are unmarried’ is not fully K-analytic, which is clearly in agreement with our semantical intuitions.

The machinery described so far could then be developed further to account for the analyticity of such sentences as ‘A man who is a bachelor is an unmarried man’ and ‘The sweating man sweats sometimes’.⁹

This brief description of K-analyticity will, I hope, suffice to give an indication of the nature of Katz’s approach to the problem of analyticity. For further details, the reader is referred to the original publications.

Let us now turn to the question whether K-analyticity is a satisfactory solution to Quine’s problem about analyticity and, more generally, whether it is an adequate explication of the traditional notion of analyticity.

Earlier we found that Quine, White and Goodman tended to demand a definition of ‘analyticity’ which is general in the sense of ranging over all natural languages, has the form ‘. . . if and only if — —’, avoids suspect notions and is non-circular. They also tended to ask for behaviouristic and nominalistic definitions. (See section 2.2.) The definition of K-analyticity no doubt goes a long way to meet these demands. The definition of K-analyticity is part of a theory of language which aspires to account for all natural languages. The definition states both necessary and sufficient conditions for being K-analytic, and so it has the required form (‘. . . if and only if — —’). It also breaks out of the narrow family of interdefinable semantical notions — analyticity, synonymy, contradiction, definition, etc. — which Quine, White and Goodman found suspect, relying instead on such notions as lexical reading, selection restriction, projection rule and the whole assembly of syntactical constructs. And this kind of non-circularity is, as we found before (section 2.2), the only kind of non-circularity one can reasonably ask for. Finally, the demands for behaviouristic and nominalistic explications, which may reasonably be expected to be of heuristic value for the empiricist task of reconstructing our everyday and scientific knowledge, would simply

make linguistics as an empirical science impossible, and may therefore be discarded as unduly strong in the present context.

It is obvious that K-analyticity has many advantages which many other definitions of analyticity sadly lack. But to get a clearer picture of the adequacy of K-analyticity as an explication of the traditional concept of analyticity, we must go further. K-analyticity derives its strong points and its weak points from the same feature, viz. the way in which it is embedded in a general theory of language. It is, for instance, this feature which accounts for the fact that K-analyticity manages to avoid the crude circularity as well as the aura of ad hoc-ness with which so many explications of semantical notions are afflicted. But this also means that the adequacy of K-analyticity becomes closely linked to the adequacy of the general theory of language of which it is a part. K-analyticity will partake of whatever weaknesses the general theory of language happens to have, and it will ultimately have to be judged in relation to the general aims and achievements of the empirical science of linguistics.

What, then, are the general aims of linguistics and how far have these aims been reached at the present stage of research? Following Chomsky, Katz sees the aim of a *description of a particular language* as an explication of the linguistic competence that fluent speakers of the language have and which enables them to construct and understand sentences which they have never encountered before. In doing this, linguistic descriptions should also account for native speakers' intuitions about their language. This applies also to semantics: 'In general, a semantic component for a given language is under the empirical constraint to predict the semantic properties of sentences in each case where the speakers of the language have strong, clear-cut intuitions about the semantic properties and relations of those sentences.'¹⁰ The *theory of language*, on the other hand, is a complement to descriptions of particular languages which tries to formulate what is common to all natural languages and provides a model for descriptions of particular languages.¹¹

The theory of language in the sense of the study of universals of language is still in its infancy. The semantical theory suggested by Katz and Fodor is based primarily on studies of English, and its applicability to other languages is an open question, as they pointed out when they first presented the theory.¹² And generally speaking the Katz-Fodor theory must be said to be of a highly programmatic character. A number of objections have been raised to the details of the Katz-Fodor theory, for example, to the sharp distinction between syntax and semantics which the theory assumes.¹³ In the present context, the absence of an account of what it is that semantical markers and lexical readings stand for is noteworthy. Semantical markers and lexical readings obviously stand for meanings or concepts or ideas in some sense which remains to be explicated. But this means that the notion of K-analyticity relies on precisely those terms which Quine, White and Goodman found intolerably unclear. It is also an open question how far meanings can be analysed along

the lines suggested by Katz and Fodor. The word 'bachelor' is an ideal case for their purposes; it is a word whose meaning can be exhaustively specified by some simple breakdown into conceptual components. The meaning of the word is closed and fixed. But many terms in science, law and morals, for instance, are characterized by their semantical openness ('open texture'). (Consider such cases as 'kinetic energy', 'dangerous article' and 'dignity'.)¹⁴ In the circumstances, it would seem apt to characterize Katz's theory of analyticity as a promising sketch rather than a solution to the problem of differentiating between analytic and synthetic statements in natural language.¹⁵

We have seen that the notion of K-analyticity is part of a theory which is intended to account for the linguistic abilities and intuitions of native speakers of natural languages, including their semantic abilities and intuitions. The linguistic relevance of K-analyticity is therefore beyond dispute, but one may well wonder about its relevance to philosophy. Philosophical discussions of analyticity have no doubt often had a linguistic side, and the particular case that Katz uses to illustrate his theory — 'All bachelors are unmarried men' — is indeed *the* standard example of analytic truth in recent philosophy. Now, in so far as analyticity has a linguistic side, it should of course be handled linguistically, and Katz indicates one way of doing this. In spite of the fact that the linguistic side of analyticity has been prominent in recent philosophy, it would, however, seem historically incorrect to elevate this aspect to the status of the only or even the most important side of the philosophical notion of analyticity. Quine's main concern was not with semantics for its own sake; his interest in the analytic-synthetic distinction derived from its epistemological significance. It may be observed that Katz's theory sketch does not seem to shed any light on the epistemological problem that concerned Quine, White and Goodman, viz. the question whether there is a sharp difference between analytic and synthetic truths in a natural language like English or whether there is only a difference of degree. Nor does Katz consider the question how far the system of constructs and procedures which he proposes can be accommodated within an empiricist framework. It seems clear that on the whole the intentions of the linguists who account for the linguistic abilities and intuitions of fluent speakers of natural languages do not coincide with the intentions of the philosophers who have been concerned with analyticity. We shall return to this issue towards the end of the chapter (section 5.3).

5.2. *Ostensive truth*

Delius presents empiricists with the following dilemma. Empiricists want to divide true statements into two mutually exclusive classes, the analytic and the synthetic, which together exhaust the set of true statements. But on the usual definitions of the terms 'analytic' and 'synthetic', the classes of ana-

lytic and synthetic statements are not mutually exclusive, and specifications of the terms are likely to lead to the result that the analytic-synthetic distinction will no longer be exhaustive. From this he concludes that it is necessary to work out some more satisfactory classification of statements than the usual division into analytic and synthetic. The same applies, according to Delius, to the a priori-a posteriori distinction.¹⁶

These claims are supported by a detailed examination of such statements as 'All coloured things are extended', 'All red things are coloured' and 'If A is red, then it is not green'. The peculiarity of such statements is that they contain essential occurrences of words which can only be defined ostensively (cf. section 3.5 above). They can therefore be referred to as 'ostensive truths'. The peculiarities of ostensive truths constituted one of the main sources of the phenomenological doctrine that there exists a particular domain of essences which it is the task of philosophy to investigate through the method of phenomenological insight or *Wesensschau*. The logical empiricists, on the other hand, vehemently denied the existence of such essences and used the doctrine that all truths are either analytic and a priori or else synthetic and a posteriori against the phenomenologists' claim that ostensive truths represent a third alternative, viz. so-called material a priori truths.¹⁷

Delius argues that both phenomenologists and logical empiricists went wrong about the nature of ostensive truth because of their assumption that all statements are either analytic or synthetic (but not both) and either a priori or a posteriori (but not both). This assumption is untenable, according to Delius, because ostensive truths can be shown to be both analytic and synthetic at the same time, or, alternatively, to be neither analytic nor synthetic; and similarly for the a priori-a posteriori distinction. The statement 'Everything which has colour has extension' may reasonably be held to be analytic because one can know the truth of the statement solely on the basis of the meanings of the words and constructions in it (cf. my similar argument in section 3.5 above). But it is also reasonable to regard it as synthetic, writes Delius, 'because one can only see its truth on the basis of acquaintance with non-linguistic, perceptual data'.¹⁸ The statement is thus both analytic and synthetic at the same time. But if one accepts that an analytic statement is not synthetic and that a synthetic statement is not analytic, then the statement may also be said to be neither analytic nor synthetic.

It is tempting to object to the details of this argument. One could, for example, put forward more careful definitions of 'analytic' and 'synthetic' which would avoid the paradoxical conclusion that Delius draws. But such terminological moves would miss the point of the argument, which is to draw attention to the fact that ostensive truths differ significantly both from the statements which are usually adduced as examples of analytic truths and from the statements which are usually adduced as examples of synthetic truths. Any terminology which assimilates ostensive truths to ordinary

analytic truths or to ordinary synthetic truths would therefore be misleading. Assimilating them into ordinary synthetic statements would be to underplay the fact that in a way ostensive truths are true because of their meaning; assimilating them into ordinary analytic truths would be to underplay the fact that they are not true because of their meaning in exactly the same way as other analytic truths. It is therefore immaterial whether one prefers to call ostensive truths like 'All coloured things are extended' analytic in a special sense of the word 'analytic', as Delius first did, or whether one prefers to classify them as a special kind of truth which falls outside the analytic-synthetic distinction, as he did in his second publication. The important thing is to pinpoint the peculiarities of the statements in question.

Delius's starting point is the observation that such terms as 'red', 'coloured' and 'extended' can only be defined ostensively. Now what ostensive definitions accomplish is that they draw attention to correlations between words and non-linguistic 'perceptual contents'. If one defines 'meaning' in such a way that one knows the meaning of a word when one knows what perceptual contents the word is used to refer to, then the meaning of 'coloured', for instance, must be the contents designated by that word. But it is a fact that the contents that are designated by the word 'coloured' have extension; colour contents are 'given to us' in a certain way, viz. as spatially extended. It is also a fact that such words as 'coloured' and 'extended' are used to designate certain types of contents as well as the way in which those contents are given to us. The necessity expressed by the statement 'All coloured things are extended' is a *linguistic* necessity, since it can only be formulated or thought linguistically; it would not arise for a creature without language.¹⁹ It is statements of this kind that Delius refers to as 'materially analytic' statements²⁰ ('analytic' because they are true because of their meaning, 'material' in contrast to the 'formal' analyticity of logical truths and statements which are reducible to logical truths with the help of substitution rules) or, alternatively, as 'ostensive truths'.²¹ (J. L. Austin once proposed the term 'ostensively analytic' for a similar type of statement,²² and Delius notes towards the end of his book that this might have been a better term.)²³

Delius's term 'formally analytic' corresponds to our term 'strictly analytic', and his term 'materially analytic' corresponds to our 'broadly but not strictly analytic' (cf. sections 1.1 and 3.5 above). In the terminology of this paper, Delius may therefore be said to have argued the view that strict analyticity does not exhaust the range of broad analyticity.

Delius observes that Quine and White limited their efforts to a 'critique of the common use of the traditional terms 'analytic'-synthetic' and 'a priori'-a posteriori' without attempting to give a 'systematic revision and extension of the classifications in question',²⁴ and proposes to do precisely what Quine and White did not do. Having established that ostensive truths are broadly but not strictly analytic, he accordingly sets out to divide the set

of materially analytic truths into sub-categories. I shall conclude my discussion of Delius's work on ostensive truth with some critical comments on the sub-categories that he proposes.

Delius suggests that 'All coloured things are extended', 'All red things are coloured' and 'If A is red, then it is not green' illustrate three different types of materially analytic statements, which he refers to as 'real analytic', 'nominal analytic' and 'not-intensionally analytic'. The real analytic and the nominal analytic are two types of 'intensionally analytic' statements.²⁵ The reason for this sub-categorization is the differences that Delius sees between the relations of the key terms of the three statements: 'red' is not related to 'coloured' in the same way as 'coloured' is related to 'extended', and the relation between 'red' and 'not green' is different from the first two relations. The words 'coloured' and 'extended' belong to the 'intension' of the word 'red', according to Delius, where the 'intension' of a word *f* in a language *N* is defined as 'the class of those verbal signs of which it holds good that, in accordance with the designation rules of *N*, they can be applied to that or something of that which *f* designates and necessarily connotes'.²⁶ The expression 'necessarily connotes' is defined in such a way that a perceptual content is said to be necessarily connoted by *f* if its absence disqualifies a given perceptual situation (*Bestand*) from being an ostensive definiens of *f*.²⁷ But the term 'not green' does not belong to the intension of 'red', according to Delius, and therefore it would be appropriate to call 'All coloured things are extended' and 'All red things are coloured' intensionally true, whereas 'If A is red, then it is not green' should be classified as not-intensionally true. I agree that it seems correct to say that 'coloured' and 'extended' do belong to the intension of 'red', in the given sense, since colour and extension cannot be removed from a red situation without making the situation unsuitable for an ostensive definition of 'red', but surely exactly the same applies to 'not green'. If the situation did not include the feature of not being green, then the situation would presumably include either the feature greenness or else the feature colourlessness, and in neither case could the situation be used to define 'red' ostensively.²⁸ It seems, therefore, that statements of colour incompatibility like 'If A is red, then it is not green' should also be classified as intensionally true in Delius's terminology. This leaves it an open question whether the set of not-intensional material analytic truths is empty or not.

The distinction between real analytic and nominal analytic statements hinges on a distinction between the intension of a term and its connotation. The 'connotation' of a term, in Delius's special sense of the word, is roughly that sub-set of the intension of the term which consists of words which are names of higher classes.²⁹ (An example: 'plant' designates a higher class than the class of flowers, and so it belongs to the connotation of the word 'flower'.) A real analytic statement is then defined as a statement where the predicate term belongs not only to the intension but also to the connotation

of the subject term, and a nominal analytic statement is defined as a statement where the predicate belongs to the intension but not to the connotation of the subject.³⁰ Whether 'All coloured things are extended' is real analytic depends, then, upon whether 'extended' belongs to the connotation of 'coloured' or not. According to Delius, it does. But 'coloured' belongs only to the intension (and not to the connotation) of 'red'; 'All red things are coloured' is therefore not real analytic but nominal analytic. The reason for differentiating in this way between 'coloured' and 'extended' that Delius gives is that 'extended' designates something 'in' or 'about' ('an') the situation referred to by 'coloured', whereas 'coloured' designates the very thing that, for example 'red' is used to designate.³¹ The point that Delius is trying to make here does perhaps not emerge as clearly as one could have wished. It might have been more rewarding to have introduced a concept 'dimension' which would have enabled one to say that red and coloured belong to the same dimension and that coloured and extended belong to different dimensions. This would, by the way, have provided a rationale for assigning 'If a is red, then it is not green' to the same category as 'All red things are coloured'; they would both turn out nominally analytic on this suggestion.

Finally, it should be noted that the conceptual apparatus which Delius introduces – intension, connotation, real analytic, nominal analytic and so on – is ad hoc in the sense that it is constructed in order to cater for a few selected examples. Whether the suggested concepts will have any wider applicability can only be decided through further research. There would seem to be many broadly but not strictly analytic statements which remain to be explored. Such typically phenomenological and existential statements as 'Jede Wahrnehmung ist in sich Wahrnehmung von etwas' (Husserl) and 'Dasein ist In-der-Welt-Sein' (Heidegger) will perhaps turn out to belong to yet another category of the materially analytic, as Delius suggests.³²

5.3. *Back to Kant*

Throughout this paper we have assumed that 'analyticity' in its widest sense is equivalent to 'truth by virtue of meaning alone'. The reason for this assumption is simply that this is the way the notion of analyticity has been taken in recent philosophy. There are, however, reasons for doubting that this modern conception of analyticity can really serve the purposes for which Kant used the notion of analyticity, as J. Hintikka has shown in a series of papers.³³

Hintikka maintains that the modern approach to analyticity as conceptual truth or truth by meaning is misguided. In particular, he thinks that Quine's characterization of analyticity as reducibility to logical truth by the substitution of synonyms for synonyms is 'seriously mistaken'.³⁴ By going back to Kant's use of the notion of analyticity in his philosophy of mathematics, Hintikka tries to show that the modern approach has overemphasized one or

two of the less important aspects of the Kantian notion, overlooked the more important aspects of it and neglected to analyse the relations between the different aspects of analyticity.

Hintikka starts with the observation that analytic truths are truths that can be established solely by means of analysis. Applying this to a step in an argument, he arrives at the following basic sense of analyticity.³⁵

(o) An argument step is analytic if and only if the conclusion is obtained by merely analysing what the premisses give us.

Different senses of 'analyticity' may then be had by explicating the vague phrase 'what the premisses of an argument give us'. Hintikka proposes four main directions of explication.³⁶

(a) The premisses of an argument may be thought to give us some inter-related ideas or concepts. This leads to the idea of analyticity as conceptual truth:

(1) A sentence is analytically true if and only if its truth can be established solely by means of conceptual analysis.

Variations on this theme include *inter alia* the idea that analytic truths are based solely on the definitions or meanings of the terms they contain (which I have referred to as 'broad analyticity' throughout this paper), the idea that analytic truths are those truths that can be proved solely by means of general logical laws and definitions (Frege) and Quine's favourite definition in terms of reducibility to logical truth by the substitution of synonyms ('implicit analyticity' and 'strict analyticity'; cf. section 1.1 above). A number of objections can be raised against definitions of analyticity of type (1), according to Hintikka. First, he notes that such definitions deviate from the classical use of the term 'analytic', for instance, in Kant's philosophy. Kant maintained that judgements where the concepts require us to 'join in thought a certain predicate to a given subject' may be synthetic, which indicates that he did not identify analyticity with conceptual truth.³⁷ Secondly, definitions of this type depend on the assumption that propositions are 'bunches of concepts', which is 'perhaps not so much wrong as oversimplified'.³⁸ Thirdly, it may be objected against Frege's and Quine's definitions that for instance the laws of deontic and epistemic logic, which can be held to be true by virtue of the meanings of such terms as 'knows that', 'believes that', 'ought to', 'is permitted to', cannot be reduced to logical truths with the help of definitions or by the replacement of synonyms. (Broad analyticity is a wider concept than strict analyticity; cf. sections 3.5 and 5.2 for another type of illustration of the same point.)

(b) The second direction in which analyticity may be explicated develops the idea that the conclusion of a valid argument is somehow 'contained in' the premisses. If this metaphor is replaced by a technically defined term 'sub-sentence', the definition can be formulated as follows:

(2) An argument step is analytic if and only if the conclusion is a sub-sentence of one of the premisses.

A proof of a sentence may then be said to be analytic if and only if all the sentences which occur as intermediate stages of the proof are sub-sentences of either the conclusion or the premisses of the proof (sense (2')).

(c) The third group of definitions elaborates the point that an argument step is analytic if it does not take any new individuals into consideration:

(3) An argument step is analytic if and only if it does not introduce new individuals into the discussion.

In Kant's philosophy of mathematics, sense (3) is the dominant aspect of analyticity, according to the interpretation suggested by Hintikka. Kant emphasized that pure analysis does not enable us to establish the existence of new individuals:

(3') An analytic step of argument cannot carry us from the existence of an individual to the existence of a different individual.

(d) The fourth type of definition of analyticity explicates what it means to say that the conclusion of a valid argument 'adds nothing new' to our knowledge:

(4) An argument step is analytic if and only if the information contained in the conclusion is no greater than the information contained in the premisses.

The importance of distinguishing clearly between at least these different senses of analyticity is obvious, since the same argument or argument step may be analytic in some senses but not in other senses. All quantificational proofs are analytic in sense (2'), but not all logical truths of quantificational theory are analytic in sense (3), to take Hintikka's example. The main interest of Hintikka's analysis of analyticity (which has only been outlined here) in the present context lies in the light it sheds on the Quine-White-Goodman controversy. 'The current notion of analyticity' is a compound of the first and fourth senses, according to Hintikka, and it is obviously the first sense which has dominated the Quine-White-Goodman debate. But if Hintikka is right, the intentions of traditional philosophers like Locke and Kant 'are not very well served by an explication of the notion of analyticity along the lines of sense 1'.³⁹ Kant's notion of analyticity, for instance, was rather a mixture of the third and fourth senses of analyticity.⁴⁰

Hintikka's series of papers is probably the most serious challenge to the Quine-White-Goodman approach to analyticity that has appeared so far. Against the background of his analysis of analyticity, the relations between the linguistic and philosophical aspects of the analyticity cluster begin to emerge more clearly. Katz's theory of analyticity develops one aspect of the linguistic side of the cluster, and Hintikka seems to me to show convincingly

how little an explication on such lines can contribute to the philosophy of logic and mathematics. But it is hardly to be expected that any particular direction of explication of the notion of analyticity will be able to do justice to all the different intentions of the philosophers who have employed the analytic-synthetic distinction. Hintikka's favourite lines of explication would seem to be of little relevance for the controversy between phenomenologists and analytical empiricists over the nature of ostensive truth which we considered in the foregoing section. It would seem safe, therefore, to conclude that a number of different explications – and probably more than those which have figured explicitly in the discussion so far – will be needed to handle the range of problems for which the notion of analyticity has been found relevant.

5.4. *Recapitulation*

Katz's explication of analyticity was examined in section 5.1. The explication was found to represent a promising line of development in linguistics, but in its present shape it can hardly be considered as a solution to Quine's problem. The explication does not seem to shed any light on the gradualist-genericist issue, and its relevance to epistemology and philosophy of science seems marginal.

Delius's claim that the analytic-synthetic distinction is not exhaustive was considered in section 5.2. His claim was found to be partly a terminological issue. The important point which emerges from Delius's study of ostensive truth is the need for detailed analyses and comparisons of different types of broadly analytic statements.

Hintikka's analysis of four main senses of analyticity was briefly reviewed in section 5.3. His investigations throw considerable suspicion on the relevance of the Quine-White-Goodman approach to analyticity for the philosophy of logic and mathematics. It was concluded that a number of different concepts of analyticity will be needed to clarify the problems in philosophy and linguistics for which the notion of analyticity is relevant.

Conclusion

The Quine-White-Goodman attack on analyticity and the contributions prompted by that attack have done much to clarify the cluster of problems associated with the notion of analyticity. The following points seem to me to emerge from the controversy with some degree of clarity.

(1) The two theses originally suggested by Quine, viz. that there is no distinction to be drawn between analytic and synthetic in natural language and that, if there is such a distinction, then it is a distinction of degree rather than of kind, have not been vindicated. The debate has shown, as clearly as one can reasonably demand, that there is not only one but many distinctions to draw between the analytic and the synthetic, and the available evidence suggests that these distinctions are sharp distinctions. Quine's favourite definition of analyticity relies on the notions of synonymy and logical constant. It seems possible and natural to delimit the notion of logical constant in natural language in such a way that the difference between logical and descriptive constants turns out to be a sharp distinction, and the idea of graded synonymy would seem to lose its attraction when it is distinguished clearly from indeterminateness or vagueness. Unclear cases apart, the strict analytic-synthetic distinction seems, therefore, to mark a difference in kind rather than in degree. And no evidence has been forthcoming for the view that broadly but not strictly analytic statements differ only in degree from synthetic statements.

(2) There may be good reasons for reconsidering empiricism, but the argument from the analytic-synthetic distinction does not seem to be one of them. The weight of evidence is against the premisses of that argument. The sharp distinction between analytic and synthetic truths does not seem to be a necessary presupposition for empiricism; the gradualist thesis that there is no sharp analytic-synthetic distinction in natural language does not seem tenable; and the artificial language approach does not seem incompatible with empiricism. That artificial languages are constructed, and therefore 'conventional' in a sense, does not mean that they are arbitrary, and artificial languages as such do not imply any particular theory of knowledge.

(3) The Quinean definition of analyticity as reducibility to logical truth through replacement of synonyms has turned out to be too narrow for an adequate treatment of the problems traditionally associated with the analytic-synthetic distinction, and will have to be supplemented by a number of other concepts of analyticity.

(4) The linguistically relevant aspects of the analyticity cluster are beginning to be more clearly separated from the logically and phenomenologically relevant aspects of the traditional notion of analyticity.

As to further work in the field of analyticity, it would seem beneficial to break out of the narrow framework suggested by Quine, White and Goodman. Non-circularity should not be expected, except in the sense that *crude* circularity should be avoided, and behaviouristic explications of semantical notions seem to hold little promise, except perhaps as heuristic devices. An explicit confrontation with the continental hermeneutic and phenomenological traditions would probably be fruitful.

Finally, the notion of the a priori seems to stand in dire need of a critical examination similar to that which the notion of analyticity has been subjected to in the last two decades. Until that has been done, the idea of the synthetic a priori will linger on in all its vagueness in spite of the refinements of the notion of analyticity. The growing interest in transcendental questions in analytic philosophy and elsewhere gives some hope of progress in this area as well.

Notes

Preface

- ¹ W. V. Quine, Two Dogmas of Empiricism, *The Philosophical Review*, Vol. 60, 1951, pp. 20–43; reprinted in his *From a Logical Point of View*, Cambridge, Mass., 1953, pp. 20–46. References throughout the present paper will be to the latter. M.G. White, The Analytic and the Synthetic: an Untenable Dualism, in S. Hook (ed.), *John Dewey: Philosopher of Science and Freedom*, New York, 1950, pp. 316–330; reprinted in L. Linsky (ed.), *Semantics and the Philosophy of Language*, Urbana, Ill., 1952, pp. 272–286. References will be to the original pagination (which is also to be found in the Linsky volume). N. Goodman, On Likeness of Meaning, *Analysis*, Vol. 10, 1949, pp. 1–7; reprinted with revisions in the Linsky volume, pp. 67–74, and in M. Macdonald (ed.), *Philosophy and Analysis*, Oxford, 1954, pp. 55–62. References will be to the Linsky volume.
- ² Part I of A. Pasch, *Experience and the Analytic*, Chicago, 1958, contains a good survey of the Quine-White-Goodman attack on analyticity and its significance for epistemology (pp. 3–88). A number of other surveys have also appeared, e.g. W. Stegmüller, *Das Wahrheitsproblem und die Idee der Semantik*, Vienna, 1957, pp. 291–319; J. G. Kemeny, Analyticity versus Fuzziness, *Synthese*, Vol. XV, 1963, pp. 57–80; and S. C. Hackett, Contemporary Philosophy and the Analytic-Synthetic Distinction, *International Philosophical Quarterly*, Vol. III, 1967, pp. 413–440. Excellent short reviews of some of the main contributions to the debate have been published in *The Journal of Symbolic Logic* (e.g. by A. Church on Goodman in Vol. 15, 1950, pp. 150f.; by C. G. Hempel on White in Vol. 16, 1951, pp. 210f.; by J. G. Kemeny on Quine, Martin & Mates in Vol. 17, 1952, pp. 281–284; by R. E. Robinson on the discussion on Goodman in Vol. 21, 1956, pp. 79–83; by A. R. Anderson on Liu Shih-Chao, Weitz and Grice & Strawson in Vol. 23, 1958, pp. 68–71). Further references are listed at the end of this paper. See further R. Hall, Analytic-Synthetic — a Bibliography, *The Philosophical Quarterly*, Vol. 16, 1966, pp. 178–181.
- ³ A. Pasch, *Experience and the Analytic*.

1. The Epistemological Setting

- ¹ Pasch, *Experience and the Analytic*, p. 21.
- ² Quine, Two Dogmas of Empiricism. G. Bergmann, Two Cornerstones of Empiricism, *Synthese*, Vol. 8, 1953, pp. 435–452; reprinted in G. Bergmann, *The Metaphysics of Logical Positivism*, New York, 1954, pp. 78–105.
- ³ Quine, Two Dogmas of Empiricism, p. 20.
- ⁴ A. Pap, *Semantics and Necessary Truth*, New Haven, 1958, p. 423.
- ⁵ This follows from his rejection of the statement theory of meaning; cf. section 2.6. Quine says, somewhat unclearly, that ‘the major difficulty lies not in the first class of analytic statement, the logical truths, but rather in the second class, which depends on the notion of synonymy’ (Two Dogmas of Empiricism, p. 24). This has led some philosophers to think that Quine accepts the notion of logical truth, but he now

- declares that this is a misinterpretation (*Word and Object*, New York and London, 1960, p. 63, note 3).
- 6 White, *The Analytic and the Synthetic*, p. 318. On Quine's pragmatism, cf. sect. 1.6 below.
 - 7 Gewirth, *The Distinction between Analytic and Synthetic Truths*, *The Journal of Philosophy*, Vol. L, 1953, pp. 397–425.
 - 8 References may be found in F. Überweg, *System der Logik*, 4th ed., Bonn, 1874, pp. 232f.; Chr. Sigwart, *Logik*, 3rd ed., Tübingen, 1904, pp. 139f.; B. Bolzano, *Wissenschaftslehre*, Part I, Sulzbach, 1837, pp. 88f.; R. Eisler, *Wörterbuch der philosophischen Begriffe*, 4th ed., Berlin, 1930, p. 369. For Trendelenburg, see his *Logische Untersuchungen*, Leipzig, 1870, p. 264.
 - 9 Gewirth, *The Distinction between Analytic and Synthetic Truths*, p. 415. The quotation is from Bradley's *Principles of Logic*, Vol. I, p. 185.
 - 10 Gewirth, *The Distinction between Analytic and Synthetic Truths*, p. 415; cf. pp. 398f.
 - 11 See H. W. B. Joseph, *An Introduction to Logic*, 2nd rev. ed., Oxford, 1916 and later reprints, pp. 210–211; B. Bosanquet, *Knowledge and Reality*, London, 1892, pp. 59–60; idem, *Logic, or the Morphology of Knowledge*, 2nd ed., Oxford, 1911, pp. 91–96. As an example of a psychological interpretation of Kant which leads to gradualism in my sense of this word, I should like to refer to the Kantian definition that a sentence is analytic if the predicate is conceived of, although unclearly, when the subject is conceived of. A definition along such lines may be taken to lead to gradual analyticity: a sentence is more or less analytic according to how clearly the predicate is thought of when the subject is thought of. In 1920 Th. Ziehen mentioned this view as a common but unfounded objection to the sharpness of the analytic-synthetic distinction (*Lehrbuch der Logik*, Bonn, 1920, p. 678). In spite of his psychologist terminology Kant was not himself a psychological gradualist. Indeed, he was not a gradualist at all. That the predicate is thought of when the subject is thought of meant for Kant that the predicate concept is included in the subject concept; thus he referred to an objective relation between concepts. Cf. the Introduction to *Critique of Pure Reason*: synthetic judgments add to the subject concept a predicate, 'welches in jenem gar nicht gedacht war, und durch keine Zergliederung desselben hätte können herausgezogen werden' (*Kritik der reinen Vernunft*, Hamburg, 1956, p. 45).
 - 12 Gewirth, *The Distinction between Analytic and Synthetic Truths*, p. 398.
 - 13 C. S. Peirce, *Collected Papers*, C. Hartshorne & P. Weiss (eds.), Cambridge, Mass., 1932–1933, 2. 451, p. 277, note 1.
 - 14 Peirce, *Collected Papers*, 3.560; cf. 4.232.
 - 15 F. C. S. Schiller, *Logic for Use. An Introduction to the Voluntarist Theory of Knowledge*, London, 1929, pp. 353, 358. On Quine, cf. section 1.6.
 - 16 To quote Ayer, 'In the United States a number of philosophers like Quine, Nagel and Nelson Goodman conduct logical analysis in a systematic spirit that is probably closer to the original ideal of the Vienna Circle than anything that is now to be met with elsewhere' (A. J. Ayer, Editor's Introduction to *Logical Positivism*, London and Glencoe, Ill., 1960, pp. 7–8).
 - 17 Cf. Pasch, *Experience and the Analytic*, p. 8; Überweg, *System der Logik*, pp. 230f.; Wedberg, *Filosofins historia, Nyare tiden till romantiken*, Stockholm, 1959, p. 52.
 - 18 C. G. Hempel, Problems and Changes in the Empiricist Criterion of Meaning, *Revue internationale de philosophie*, Vol. 11, 1950, pp. 41–63; reprinted in L. Linsky (ed.), *Semantics and the Philosophy of Language*. The present reference is to p. 41 in the original pagination. Pasch, *Experience and the Analytic*, pp. 10–11.
 - 19 E.g., A. Pap, S. Toulmin, A. Church. See the references in Pasch, *Experience and the Analytic*, p. 11, note 16.
 - 20 *Critique of Pure Reason*, Introduction to ed. B, I–II.
 - 21 Cf. W. Sellars, Is There a Synthetic A Priori?, in S. Hook (ed.), *American Philosophers at Work*, New York, 1956, pp. 136f.

- ²² Cf. the criticism of the phenomenological analysis of this type of statement in M. Schlick, *Is There a Factual A Priori?*, in H. Feigl & W. Sellars (eds.), *Readings in Philosophical Analysis*, New York, 1949, pp. 277–285 (transl. from the original which appeared in *Wissenschaftlicher Jahresbericht der Philosophischen Gesellschaft an der Universität zu Wien für das Vereinsjahr 1930/31*).
- ²³ Pasch, *Experience and the Analytic*, p. 21.
- ²⁴ Pasch, *Experience and the Analytic*, p. 22.
- ²⁵ Pasch, *Experience and the Analytic*, p. 22.
- ²⁶ Pasch, *Experience and the Analytic*, p. 20.
- ²⁷ Goodman, *On Likeness of Meaning*, p. 74.
- ²⁸ W. V. Quine, *Truth by Convention*; reprinted in H. Feigl & W. Sellars (eds.), *Readings in Philosophical Analysis*, p. 270.
- ²⁹ In *Word and Object* Quine mentions the view that the analytic, the a priori and the necessary are identical without discussing it (p. 66), but he repeatedly emphasizes 'the baselessness of intentional idioms' (p. 221) and asks for behaviouristic characterizations.
- ³⁰ M. G. White, *Toward Reunion in Philosophy*, Cambridge, Mass., 1956, p. 152.
- ³¹ Cf. A. Hofstadter, *The Myth of the Whole: A Consideration of Quine's View of Knowledge*, *The Journal of Philosophy*, Vol. 51, 1954, pp. 399–400.
- ³² Quine, *Two Dogmas of Empiricism*, p. 42.
- ³³ Hofstadter, *The Myth of the Whole: A Consideration of Quine's View of Knowledge*, R. J. Richman, *Neo-Pragmatism, Methodos*, Vol. 8, 1956, pp. 35–45; D. Rynin, *The Dogma of Logical Pragmatism*, *Mind*, Vol. 65, 1956, pp. 379–391.
- ³⁴ R. Carnap, *Empiricism, Semantics, and Ontology*, *Revue internationale de philosophie*, Vol. 11, 1950, pp. 20–40; reprinted in L. Linsky (ed.), *Semantics and the Philosophy of Language*, pp. 208–228.
- ³⁵ Carnap, *Empiricism, Semantics, and Ontology*, pp. 24–25.
- ³⁶ Quine, *Two Dogmas of Empiricism*, pp. 45–46.
- ³⁷ External statements (the answers to the philosophically interesting interpretation of ontological questions) are statements only by courtesy; Carnap calls them 'pseudostatements' (*Empiricism, Semantics, and Ontology*, p. 31).
- ³⁸ Quine, *Two Dogmas of Empiricism*, pp. 45–46.
- ³⁹ W. V. Quine, *Logical Truth*, in S. Hook (ed.), *American Philosophers at Work*, New York, 1956, p. 133.
- ⁴⁰ Carnap, *Empiricism, Semantics, and Ontology*, p. 32, note 2.
- ⁴¹ Quine later modified his position. In *Word and Object* he talks of 'an excessive holism espoused in occasional brief passages of mine' and grants that the objections which have been raised are 'largely warranted' (p. 13, note 5). Discussions of Quine's pragmatic theory of knowledge are to be found in V. C. Aldrich, *Mr. Quine on Meaning, Naming, and Purporting to Name*, *Philosophical Studies*, Vol. 6, 1955, pp. 17–26; Bergmann, *Two Cornerstones of Empiricism*, pp. 435–452; reprinted in his *The Metaphysics of Logical Positivism*, New York, London and Toronto, 1954, pp. 78–105; H. P. Grice & P. F. Strawson, *In Defense of a Dogma*, *The Philosophical Review*, Vol. 65, 1956, pp. 141–158; J. Smith, *Tre tipi et due dogmi dell' empirismo*, *Rivista di filosofia*, Vol. 48, 1957, pp. 257–273; in the articles by Hofstadter, Richman and Rynin referred to earlier in this section; and in White's *Toward Reunion in Philosophy*, pp. 272–278.

2. *The Attack on the Analytic-Synthetic Distinction*

- ¹ Kant gives several definitions of 'analytic judgment'; see K. Marc-Wogau's study *Kants Lehre vom analytischen Urteil*, *Theoria*, Vol. 17–18, 1951–1952, pp. 140–154.
- ² Quine, *Two Dogmas of Empiricism*, p. 22.
- ³ Quine, *Two Dogmas of Empiricism*, p. 22; idem, *Semantics and Abstract Objects*, *Proceedings of the American Academy of Arts and Sciences*, Vol. 80, 1951, pp. 91f.
- ⁴ Quine, *Two Dogmas of Empiricism*, p. 28; cf. p. 57 in *From a Logical Point of View*.

- ⁵ Quine, *Two Dogmas of Empiricism*, pp. 31f.; idem, *Semantics and Abstract Objects*, p. 92.
- ⁶ Cf. Section 1.6.
- ⁷ Quine, *Semantics and Abstract Objects*, p. 92.
- ⁸ Quine, *Two Dogmas of Empiricism*, p. 37.
- ⁹ Quine, *Two Dogmas of Empiricism*, p. 36.
- ¹⁰ Quine, *Two Dogmas of Empiricism*, p. 37.
- ¹¹ Cf. Chapter 1.
- ¹² White, *The Analytic and the Synthetic: an Untenable Dualism*, pp. 324–326 (Def. 3), 319–323, 326–328 (Def. 6), 323f. (C. I. Lewis).
- ¹³ White, *The Analytic and the Synthetic: an Untenable Dualism*, p. 324.
- ¹⁴ Goodman, *On Likeness of Meaning*, pp. 67–70, in the Linsky volume.
- ¹⁵ Notes on Existence and Necessity, *The Journal of Philosophy*, Vol. 40, 1943, p. 120 (reprinted in the Linsky volume); *Two Dogmas of Empiricism*, p. 36; *Word and Object*, p. 207.
- ¹⁶ Cf. the Foreword which Goodman added to the reprint of *On Likeness of Meaning* in M. Macdonald (ed.), *Philosophy and Analysis*, Oxford, 1954, pp. 54f.
- ¹⁷ As Kemeny and Martin have pointed out (J. G. Kemeny, Review of *Two Dogmas of Empiricism*, *The Journal of Symbolic Logic*, Vol. 17, 1952, p. 282; R. M. Martin, *On 'analytic'*, *Philosophical Studies*, Vol. 3, 1952).
- ¹⁸ This seems to be the substance of B. Mates's more complex argument in *Analytic Sentences*, *The Philosophical Review*, Vol. 60, 1951, p. 530.
- ¹⁹ Mates, *Analytic Sentences*, pp. 528f.
- ²⁰ N. Goodman, *Fact, Fiction & Forecast*, London, 1954, pp. 37ff.
- ²¹ Quine, *Word and Object*, p. 221.

3. Meaning, Synonymy and Analyticity in Natural Languages

- ¹ Quine, *Two Dogmas of Empiricism*, p. 37. Cf. section 2.1.
- ² Grice & Strawson, *In Defense of a Dogma*, pp. 142ff.
- ³ Grice & Strawson, *In Defense of a Dogma*, pp. 145f.
- ⁴ Cf. section 2.1.
- ⁵ A. Pap, *Elements of Analytic Philosophy*, New York, 1949, p. 474. Quine, *Word and Object*, p. 66. Cf. Pasch, *Experience and the Analytic*, p. 85, note 36.
- ⁶ L. Apostel, W. Mays, A. Morf & J. Piaget, *Les liaisons analytiques et synthétiques dans les comportements du sujet*, Études d'épistémologie génétique publiées sous la direction de Jean Piaget, IV, Paris, 1957, p. 32.
- ⁷ Cf. Quine, *Word and Object*, p. 67.
- ⁸ 'Connotation' is used here in the common linguistic sense which derives from L. Bloomfield, *Language*, London, 1957 (1st ed. 1933), pp. 151–157.
- ⁹ Benson Mates mentions all these features of the analytic attitude but does not perhaps emphasize the last point sufficiently (*Analytic Sentences*, pp. 531ff.).
- ¹⁰ F. Waismann, *Analytic-Synthetic III*, *Analysis*, Vol. 11, 1951, pp. 54, 57ff.
- ¹¹ Waismann, *Analytic-Synthetic III*, pp. 54, 60.
- ¹² Cf. section 3.2.
- ¹³ S. Ullmann gives a survey of field theories in *Principles of Semantics*, 2nd ed., Oxford, 1957.
- ¹⁴ J. Trier, *Der deutsche Wortschatz im Sinnbezirk des Verstandes I*, Heidelberg, 1931.
- ¹⁵ W. Porzig, *Wesenhafte Bedeutungsbeziehungen*, *Beiträge zur Geschichte der deutschen Sprache und Literatur*, Vol. 58, 1934, pp. 70–97.
- ¹⁶ Goodman, *On Likeness of Meaning*, p. 71; *On Some Differences about Meaning*, *Analysis*, Vol. 13, 1953; reprinted in M. Macdonald (ed.), *Philosophy and Analysis*, Oxford, 1954, p. 63. Further page references will be to the Macdonald volume.

- ¹⁷ Cf. Goodman, On Likeness of Meaning, p. 70.
- ¹⁸ R. Rudner has argued that even replicas cannot possibly be G-synonymous (A Note on Likeness of Meaning, *Analysis*, Vol. 10, 1950, pp. 115–118), but Goodman agrees with Mrs. Robbins that this does not follow (On Some Differences about Meaning, p. 66; cf. B. L. Robbins, On Synonymy of Word-Events, *Analysis*, Vol. 12, 1952, pp. 98–100).
- ¹⁹ Cf. Goodman, On Some Differences about Meaning, pp. 64f., 67f.
- ²⁰ Goodman, On Some Differences about Meaning, p. 64f.
- ²¹ Goodman's own formulations of rules for 'description of' are to be found in On Likeness of Meaning, p. 72, note 2 (this note was not included in the original article in *Analysis*), and in On Some Differences about Meaning, p. 68.
- ²² Goodman, On Likeness of Meaning, p. 67.
- ²³ Cf. section 2.1.
- ²⁴ It is sometimes doubted whether there are any absolute synonyms in ordinary language (replicas apart). Such doubts may be dispelled by drawing attention to such pairs as 'adult – adúlt', 'economic' pronounced with an initial /i:/ – 'economic' pronounced with an initial /e/; such forms are often used interchangeably even by the same person. Cf. N. Chomsky, *Syntactic Structures*, Janua linguarum, IV, The Hague, 1957, p. 95.
- ²⁵ E.g. R. E. Robinson, review of discussions of On Likeness of Meaning in *The Journal of Symbolic Logic*, Vol. 21, 1956, p. 82.
- ²⁶ Goodman, On Some Differences about Meaning, p. 69.
- ²⁷ Cf. Goodman, On Likeness of Meaning, p. 73.
- ²⁸ The last observation was prompted by discussions with K. S. Johannessen and M. Dyivig.
- ²⁹ The term 'implicitly analytic statement' was introduced in section 1.1; cf. section 1.7.
- ³⁰ Quine, Truth by Convention, in Feigl & Sellars (eds.), p. 253.
- ³¹ Quine, Two Dogmas of Empiricism, pp. 22–23. As Quine has pointed out, the definition is of long standing (*Word and Object*, p. 65, note 3).
- ³² P. F. Strawson, Propositions, Concepts, and Logical Truths, *The Philosophical Quarterly*, Vol. 7, 1957, pp. 15–25.
- ³³ Strawson, Propositions, Concepts, and Logical Truths, p. 24.
- ³⁴ Z. S. Harris, *Methods in Structural Linguistics*, Chicago, 1951, p. 7, note 4. A *phoneme* is the smallest of the units linguists usually posit in their descriptions of language systems. Usually, phonemes are construed as classes of distinctive sounds; see B. Bloch & G. L. Trager, *Outline of Linguistic Analysis*, pp. 38f. In *Word and Object* Quine proposes an alternative analysis of phonemes as 'phonetic norms' (pp. 85–90).
- ³⁵ Cf. Chomsky, *Syntactic Structures*, pp. 94–96.
- ³⁶ Strawson, Propositions, Concepts, and Logical Truths, p. 25.
- ³⁷ The role of meaning in phonemic analysis is a controversial question. It seems reasonable to suppose that some reliance on meaning features is necessary for phonemics but that the notion of meaning needed here is a 'weak' one which ought to be acceptable even to non-intensionalists. Cf. the passage from Z. S. Harris referred to some pages ago where phonemic identity is reduced to repetition.
- ³⁸ Strawson, Propositions, Concepts, and Logical Truths, p. 15. Cf. Quine, *Word and Object*, p. 65, note 3.
- ³⁹ Pasch, *Experience and the Analytic*, p. 40. Cf. the discussion between Beth and Carnap on logical constants in P. A. Schilpp (ed.), *The Philosophy of Rudolf Carnap*, La Salle, Ill., 1963, pp. 486f., 931f.
- ⁴⁰ On gradualism and the principles of analyticity, see sections 1.1–1.2 and the summary in section 1.7.
- ⁴¹ Cf. R. Carnap, *Meaning and Necessity*, 2nd ed., Chicago, 1956, p. 7.
- ⁴² Cf. White, *Toward Reunion in Philosophy*, p. 129, and V. Kraft, *Erkenntnislehre*, Vienna, 1960, p. 85.
- ⁴³ Pasch, *Experience and the Analytic*, pp. 40–45.

- ⁴⁴ R. Carnap, *Meaning and Necessity*, 2nd ed., Chicago, 1956, p. 7. Cf. Pasch, *Experience and the Analytic*, p. 46.
- ⁴⁵ Pap, *Semantics and Necessary Truth*, p. 134.
- ⁴⁶ Pap, *Semantics and Necessary Truth*, pp. 135ff.
- ⁴⁷ Pap, *Semantics and Necessary Truth*, p. 135.
- ⁴⁸ H. Reichenbach, *Elements of Symbolic Logic*, New York, 1947, pp. 319ff.
- ⁴⁹ Cf. Pasch, *Experience and the Analytic*, p. 44, note 60.
- ⁵⁰ Pap, *Semantics and Necessary Truth*, p. 143, note 12.
- ⁵¹ E.g., Pasch, *Experience and the Analytic*, pp. 47f., 84.
- ⁵² C. C. Fries, *The Structure of English. An Introduction to the Construction of English Sentences*, London, 1957, Chap. VI et passim.
- ⁵³ Fries, *The Structure of English. An Introduction to the Construction of English Sentences*, pp. 67, 205.
- ⁵⁴ On distributional analysis see Harris, *Methods in Structural Linguistics*.
- ⁵⁵ Cf. Harris, *Methods in Structural Linguistics*, p. 251, note 20.
- ⁵⁶ A. M. Quinton, The *A Priori* and the Analytic, *Proceedings of the Aristotelian Society, N.S., Vol. 64*, 1963–1964, p. 49.
- ⁵⁷ Quinton, The *A Priori* and the Analytic, p. 49.
- ⁵⁸ Cf. Quinton, The *A Priori* and the Analytic, p. 50.
- ⁵⁹ Discussions with K. S. Johannessen and M. Dybvig have helped me to see this point more clearly than I did before.
- ⁶⁰ G. Leibniz, *New Essays Concerning Human Understanding*, transl. by A. G. Langley, New York, 1896 (orig. ed. 1765), p. 405.
- ⁶¹ Pap, *Semantics and Necessary Truth*, Chap. 9. Another type of broadly but not strictly analytic truth (certain laws in deontic and epistemic logic) will be referred to in section 5.3.
- ⁶² H. Delius has now developed this idea in some detail. See section 5.2.
- ⁶³ Cf. section 3.1.
- ⁶⁴ J. C. C. Smart has described such a world in more detail in his article Incompatible Colors, *Philosophical Studies*, Vol. X, 1959, p. 39.
- ⁶⁵ Quine, *Word and Object*, p. 38.
- ⁶⁶ D. F. Pears, Incompatibilities of Colours, in A. Flew (ed.), *Essays on Logic and Language*, II, Oxford, 1955, pp. 112–122; H. Hahn, Logic, Mathematics and Knowledge of Nature, transl. by A. Pap, in A. J. Ayer (ed.), *Logical Positivism*, Glencoe, Ill., 1959, pp. 147–161. (The original appeared in 1933 in the series *Einheitswissenschaft*.)
- ⁶⁷ Hahn, Logic, Mathematics and Knowledge of Nature, p. 154.
- ⁶⁸ Cf. Pears, Incompatibilities of Colours, p. 121.
- ⁶⁹ Cf. R. Carnap, *Introduction to Semantics*, Cambridge, Mass., 1942, pp. 8–10.

4. The Artificial Language Approach

- ¹ This paragraph is partly based in I. M. Copi's discussion of artificial languages in P. Henle (ed.), *Language, Thought & Culture*, Ann Arbor, Mich., 1958, Chap. 4, pp. 96–120.
- ² Cf. Carnap, *Introduction to Semantics*, pp. 11–14. I prefer the term 'constructive semiotics' to Carnap's 'pure semiotics'.
- ³ Constructive pragmatics was not part of Carnap's original scheme, but cf. R. M. Martin, *Toward a Systematic Pragmatics*, Amsterdam, 1959, p. 3.
- ⁴ Such languages as Esperanto and Ido may be viewed as lying somewhere between natural and artificial languages. They have been referred to as 'semi-artificial languages' Bloomfield, *Language*, p. 506; cf. I. M. Copi, op.cit., p. 96.
- ⁵ Cf. R. Carnap, Meaning Postulates, *Philosophical Studies*, Vol. 3, 1952, pp. 65–73. Reprinted in his *Meaning and Necessity*, 2nd ed., Chicago, 1956, pp. 222–229. Referen-

ces will be to the latter. The present reference is to p. 224; cf. p. 223 and also section 2.1 above.

⁶ Cf. Carnap, *Meaning and Necessity*, pp. 9, 224.

⁷ Cf. Pasch, *Experience and the Analytic*, p. 54. Alternative definitions are to be found in Carnap, *Meaning Postulates*, pp. 225f. Cf. Pasch, *Experience and the Analytic*, pp. 52ff.

⁸ Cf. sections 2.7 and 3.5.

⁹ Cf. section 2.2.

¹⁰ Cf. Quine, Two Dogmas of Empiricism, pp. 33–36.

¹¹ Quine, Two Dogmas of Empiricism, p. 33.

¹² Cf. sections 2.2, 3.1, 3.6. See also R. Carnap, On Some Concepts of Pragmatics, *Philosophical Studies*, Vol. 6, 1955, pp. 89–91; reprinted in *Meaning and Necessity*, 2nd ed., pp. 248–250; and R. M. Martin, *Toward a Systematic Pragmatics*, Introduction and pp. 3–5.

¹³ W. V. Quine, Logical Truth, in S. Hook (ed.), *American Philosophers at Work*, pp. 121–134; see especially p. 132.

¹⁴ Quine, Two Dogmas of Empiricism, p. 26. Grice & Strawson, In Defense of a Dogma, pp. 152f.

¹⁵ See Pasch, *Experience and the Analytic*, pp. 62–82.

¹⁶ Bergmann, Two Cornerstones of Empiricism, pp. 79f., and Semantics, in V. Ferm (ed.), *A History of Philosophical Systems*, New York, 1950, pp. 483–492; reprinted in Bergmann's *The Metaphysics of Logical Positivism*, pp. 17–29. The present reference is to p. 27 of the reprint.

¹⁷ Pasch, *Experience and the Analytic*, pp. 68–71.

¹⁸ Pasch, *Experience and the Analytic*, pp. 72–77.

5. Logic, Linguistics and Philosophy

¹ Kemeny, Analyticity versus Fuzziness, p. 57.

² P. Weingartner (ed.), *Deskription, Analytizität und Existenz*, Salzburg and Munich, 1966 (with contributions by R. Haller, H. Feigl, H. Delius, J. Hintikka, G. Frey, P. Weingartner, W. Leinfellner, B. Juhos and P. Feyerabend).

Hackett, Contemporary Philosophy and the Analytic-Synthetic Distinction, pp. 413–440.

Kemeny, Analyticity versus Fuzziness, pp. 57–80.

H. Putnam, The Analytic and the Synthetic, in H. Feigl & G. Maxwell (eds.), *Minnesota Studies in the Philosophy of Science, Vol. III (Scientific Explanation, Space and Time)*, Minneapolis, 1962, pp. 358–397.

Quinton, The *A Priori* and the Analytic, pp. 31–54.

E. Stenius, Begreppen 'analytisk' och 'syntetisk', *Ajatus*, Vol. XXV, 1965, pp. 97–121, and Are True Numerical Statements Analytic or Synthetic?, *The Philosophical Review*, Vol. 74, 1965, pp. 357–372.

Schilpp (ed.), *The Philosophy of Rudolf Carnap*, contains numerous passages dealing with the analytic-synthetic distinction and related subjects (by R. Carnap, Y. Bar-Hillel, H. G. Bohnert, C. G. Hempel, W. V. Quine, W. Sellars and others).

Quine answered many of the criticisms in his *Word and Object* and stimulated further discussions by adding new ideas. See e.g. D. Davidson & J. Hintikka (eds.), *Words and Objections, Essays on the Work of W. V. Quine*, Dordrecht, 1969.

See also the following note.

³ J. J. Katz, *The Philosophy of Language*, New York and London, 1966; Analyticity and Contradiction in Natural Language, in J. A. Fodor & J. J. Katz (eds.), *The Structure of Language*, Englewood Cliffs, N. J., 1964, pp. 519–543 (originally published in *Language*, Vol. 40, 1964); and a joint paper by Katz & Fodor, The Structure of a Semantic Theory, *Language*, Vol. 39, 1963 (reprinted in *The Structure of Language*,

pp. 479–518); cf. also J. J. Katz, Some Remarks on Quine on Analyticity, *The Journal of Philosophy*, Vol. 64, 1967, pp. 36–52; and The Philosophical Relevance of Linguistic Theory, in R. Rorty (ed.), *The Linguistic Turn*, Chicago, 1967, pp. 340–355 (also in J. R. Searle (ed.), *The Philosophy of Language*, Oxford, 1971, pp. 101–120).

H. Delius, *Untersuchungen zur Problematik der sogenannten synthetischen Sätze apriori*, Göttingen, 1963; also Die Unvollständigkeit der Disjunktionen 'analytisch-synthetisch' und 'apriori-aposteriori', in Weingartner, *Deskription, Analytizität und Existenz*, pp. 182–192.

J. Hintikka, four lectures on analyticity in the Weingartner volume (pp. 193–272), and Are Logical Truths Analytic?, *The Philosophical Review*, Vol. 74, 1965, pp. 178–203.

4 *The Philosophy of Language*, Chap. 3.

5 Analyticity and Contradiction in Natural Language, pp. 530ff. (References are to the reprint in *The Structure of Language*).

6 See *The Philosophy of Language*, Chaps. 4–5 (especially pp. 188–224); Analyticity and Contradiction in Natural Language; and Katz & Fodor, The Structure of a Semantic Theory (in *The Structure of Language*).

7 *The Philosophy of Language*, p. 194. Cf. Analyticity and Contradiction in Natural Language, p. 531.

8 *The Philosophy of Language*, p. 171. Cf. Analyticity and Contradiction in Natural Language, p. 528.

9 Analyticity and Contradiction in Natural Language, pp. 539ff.

10 *The Philosophy of Language*, p. 174.

11 *The Philosophy of Language*, p. 107.

12 The Structure of a Semantic Theory, p. 479.

13 U. Weinreich, Explorations in Semantic Theory, in T. A. Sebeok (ed.), *Current Trends in Linguistics*, Vol. III, The Hague and Paris, 1966 (especially pp. 397–416).

14 Cf. H. Putnam, The Analytic and the Synthetic, *Minnesota Studies in the Philosophy of Science*, Vol. III, 1962; and T. Nordenstam, *Sudanese Ethics*, Uppsala, 1968 (especially Chap. 2).

15 For further comments on Katz's theory of analyticity, see W. V. Quine, On a Suggestion of Katz, *The Journal of Philosophy*, Vol. 64, 1967, pp. 52–54; N. L. Wilson, Linguistical Butter and Philosophical Parsnips, *The Journal of Philosophy*, Vol. 64, 1967, pp. 55–67; L. Linsky, Analytic/Synthetic and Semantic Theory, *Synthese*, Vol. 21, 1970, pp. 439–448.

16 H. Delius, *Untersuchungen zur Problematik der sogenannten synthetischen Sätze apriori*, pp. 317ff.

17 H. Delius, *Untersuchungen . . .*, surveys the whole controversy from Husserl (1901) to Hanson (1962).

18 H. Delius, Die Unvollständigkeit der Disjunktionen 'analytisch-synthetisch' und 'apriori-aposteriori', in P. Weingartner (ed.), *Deskription, Analytizität und Existenz*, p. 187.

19 *Untersuchungen . . .*, pp. 282f.

20 In *Untersuchungen . . .*

21 In his later paper.

22 J. L. Austin, *Sense and Sensibilia*, Oxford, 1962, p. 123.

23 *Untersuchungen . . .*, p. 328.

24 *Untersuchungen . . .*, p. 29.

25 See the diagram in *Untersuchungen . . .*, p. 287.

26 *Untersuchungen . . .*, p. 253. 'Designation rule' and 'designate' ('bezeichnen') are defined earlier in the text (p. 229).

27 *Untersuchungen . . .*, p. 253.

28 Delius's argument seems to depend on a confusion between (i) f has the intension I, and (ii) some person P knows that f has the intension I. But, as Delius himself points

- out, it is by no means necessary to know the intension of *f* in order to understand the meaning of *f*. Cf. Delius, *Untersuchungen . . .*, pp. 284f., 246f.
- ²⁹ Delius, *Untersuchungen . . .*, pp. 255ff.
- ³⁰ Delius, *Untersuchungen . . .*, p. 272.
- ³¹ Delius, *Untersuchungen . . .*, pp. 258 f.
- ³² H. Delius, Die Unvollständigkeit der Disjunktionen 'analytisch-synthetisch' und 'apriori-aposteriori', p. 192. Cf. *Untersuchungen . . .*, p. 323.
- ³³ J. Hintikka, An Analysis of Analyticity, Are Logical Truths Tautologies?, Kant Vindicated, Kant and the Tradition of Analysis, in P. Weingartner (ed.), *Deskription, Analytizität und Existenz*, pp. 193–272; and Are Logical Truths Analytic?, *The Philosophical Review*, Vol. 74, 1965, pp. 178–203. Hintikka's papers may profitably be read in conjunction with Stenius's papers Are True Numerical Statements Analytic or Synthetic? (in the same volume of *The Philosophical Review*, pp. 357–372) and Begreppen 'analytisk' och 'syntetisk', pp. 97–121.
- ³⁴ Are Logical Truths Analytic?, p. 179, note 4.
- ³⁵ An Analysis of Analyticity, p. 195.
- ³⁶ An Analysis of Analyticity, p. 195.
- ³⁷ An Analysis of Analyticity, p. 198. The quotation is from *Critique of Pure Reason*, B 17.
- ³⁸ An Analysis of Analyticity, p. 201. Cf. U. Weinreich's complaint that the projection rules of the Katz-Fodor theory 'destroy the semantic structure and reduce the words of a sentence to a heap' (Explorations in Semantic Theory, in T. A. Sebeok (ed.), *Current Trends in Linguistics*, Vol. III, The Hague and Paris, 1966, p. 410). Cf. section 5.1.
- ³⁹ An Analysis of Analyticity, p. 199.
- ⁴⁰ An Analysis of Analyticity, p. 212.

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In the early fifties three leading analytic philosophers — Quine, White, and Goodman — attacked the doctrine that all human knowledge can be sharply divided into analytical and synthetic truths. They suggested that the only distinction to be drawn is, at most, one of degree. Accordingly, a considerable revision of empiricism would be necessary.

Since the attack, empirically minded philosophers have taken the challenge and have subjected the notion of analyticity to a searching critique. The debate has now lasted more than two decades.

In this study, Professor Tore Nordenstam gives a critical survey of the controversy and attempts to assess its outcome and to disentangle the epistemologically from the linguistically relevant aspects. Finding that the philosophical consequences of rejecting the sharp analytic-synthetic distinction have often been exaggerated, he concludes that there are, indeed, many distinctions to be drawn and that these are distinctions of kind rather than degree.

While the book is addressed to philosophers and students of philosophy, it should also be of interest to those who are interested in the basic problems of the theory of knowledge and language.

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