

TORE NORDENSTAM

**ON ANALYTIC SENTENCES
IN NATURAL LANGUAGE**

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Note on the internet edition

When I became a student of philosophy some fifty years ago, I got fascinated with the ongoing discussion on the distinction between analytic and synthetic sentences. I decided to write a thesis on this with an emphasis on the uses of analytic sentences in natural languages like English and Swedish. In addition to the ongoing discussion, I also wanted to draw upon a number of linguistic contributions which I felt were relevant to the discussion.

There was not much of an environment for that kind of enterprise at the University of Göteborg at that time. Alvar Ellegård, then professor of English in Göteborg, kindly commented upon the following text, but I got a strong impression that the professor of philosophy (Ivar Segelberg) wanted something more philosophical and less linguistic. In the thesis which was accepted in 1961, there is a stronger emphasis on the ongoing discussion, and a good deal of the detailed explorations of the uses of analytic sentences was left out.

When I went to the University of Khartoum in 1961, it was not possible to continue this kind of work in the borderland between philosophy and linguistics, and I turned to another field of study.

The 1961 thesis (with a new concluding chapter) was printed some years later (*Empiricism and the Analytic-Synthetic Distinction*, 1972), thanks to Arne Næss, who commented very favourably on that work and found a suitable publisher. But I still feel that there might be something of value in the material which was left out.

Hence this internet version.

Bergen, January 2007

PREFACE

In how far do users of English have intuitions about analyticity and how should one account for their intuitions? In what contexts do they use analytic sentences, and what is the function of the analytic sentence in which it occurs? Do analytic sentences play a unique role in language, or is it always possible to find non-analytic sentences which would do the same job as the analytic ones? Are all sentences which look like the standard examples of analytic sentences really analytic as they occur in actual situations? What types of analytic sentences are there in English and similar languages?

Those are the questions I am going to discuss in this paper. The paper is very informal, and no definite answers or solutions will be given. Instead, I shall present a series of considerations which seem to me to be relevant for the analytic-synthetic distinction when it is drawn in a natural language like English or Swedish, and I shall try to indicate the kind of concepts and methods which will have to be worked out in order to answer the questions.

Throughout the paper I have tried to keep in contact with linguistic theories and investigations in syntax and semantics. It seems to me that the results of recent development in syntactical analysis can be fruitfully applied to some of the problems centering round the analytic-synthetic distinction in natural language; I have tried to sketch one such application in this paper. Linguistic semantics has perhaps not gone through such a striking development as syntax has done in the last decades, but there are theories in that field which are clearly relevant for the themes of this paper, and a consideration of actual research procedures in semantics seems to me to be inevitable for the serious student of the semantics of natural languages.

Department of Philosophy, University of Göteborg,
Autumn 1960.

0. INTRODUCTION

If a non-philosopher asks what an analytic sentence is, the best way of giving a short answer would probably be to cite some common definitions together with some standard examples of analytic sentences. An analytic sentence is true by virtue of its meaning alone, one can explain, and you can see that that is true of sentences like “All bachelors are unmarried men” and “Swedes are natives of Sweden”. And so one could go on through all the definitions and sentences listed in sections 1.1 and 1.2 below. The non-philosopher would then get a rough idea of the intended intension and extension of the term ‘analytic sentence’.

At this stage a Quinean sceptic might appear and try to persuade the non-philosopher that the distinction between analytic and not-analytic sentences which he has just been acquainted with is nothing but “an unempirical dogma of empiricists, a metaphysical article of faith”.¹ But our non-philosopher would not find the argument convincing if he happened to find that even people without a philosophical training make the same distinction, intuitively or explicitly. Now it is a matter for empirical research to decide in how far ordinary people have intuitions about analyticity. The results of one such investigation by Apostel, Mays, Morf and Piaget suggest that semantically untrained people tend to be rather confused about analytic sentences. E.g., 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 held that they are synthetic, 2 that they are ambiguous, and none that they are intermediate.² A previous investigation where the subjects were given no instructions to guide the classification revealed still more confusion. Two points should be noted, however. (i) The sentences were presented in isolation. The authors rightly

¹ W. V. O. Quine, “Two Dogmas of Empiricism”, in *From a Logical point of View*, p. 37.

² L. Apostel, W. Mays, A. Morf, J. Piaget, *Les liaisons analytiques et synthétiques dans les comportements du sujet*, p. 32.

stress this inadequacy, and think that it may have increased the number of intermediate cases.³ Both points call for further comments.

(i) It seems reasonable to suppose that many non-philosophers don't distinguish between analytic and other trivially true sentences. All such sentences are unreflectingly bundled together as self-evident truths. It may be noted that Quine's behaviouristic substitute for the notion of analytic truth covers exactly this stage. Says Quine, "I call a sentence *stimulus-analytic* for a subject if he would assent to it, or nothing, after every stimulation."⁴ This is a test of triviality rather than of analyticity. Not only sentences like "Spinsters are not married" could be assented to regardless of 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." (I have replaced the word 'would' in Quine's formulation by 'could', because Quine's test for triviality meets the following difficulty. Suppose that the person to be tested assumes that the game to be played is "the true sentence game", that is, he assumes that his task is to assent to true sentences and dissent from false sentences after every stimulation. Then Quine's test works all right. But if he person is playing "the true description game", he would dissent to every analytic sentence on the ground that an analytic sentence is never a correct description of the stimulating situation. And it is quite probable that the test-person in Quine's story assumes that this is the game to be played. For he is a native of a jungle tribe, and the visiting linguist started playing the descriptive game when he arrived, as everybody who wants to learn a language without the help of interpreters and other translational devices has to do.)

At the first stage, trivial empirical truths and analytic truths are not distinguished. A more sophisticated stage is represented by those whose behaviour shows that they are aware of the difference between analyticity and ordinary triviality. They may e.g. put analytic sentences to special uses to which other trivialities cannot be put. (One such special use will be discussed in section 2.1 below.) There are, finally, those who not only distinguish

³ Op. cit., pp.38-39.

⁴ W. V. V. Quine, *Word and Object*, p. 55.

clearly between analytic and synthetic sentences in their behaviour but also draw the distinction explicitly. As might be expected, the distinction has been drawn more or less clearly in linguistics. (Some relevant theories will be mentioned in section 1.3, and the claims will be discussed in section 3.)

(ii) It seems probable that the method of presenting sentences out of context not only distorted the number of intermediate cases in the investigation by Apostel, Mays, Morf and Piaget, but that it also affected the investigation in other ways. Many occurrences of analytic-looking sentences like “Une table est une table” exhibit a semantical complexity which is easily overlooked when the sentences are taken in isolation. (This theme will be developed in section 2.2 below.)

We are thus going to treat analytic sentences in context. The first task will be to make an inventory of analyticity candidates.

1. ANALYTICITY CANDIDATES

1.1. Some definitions of ‘analytic sentence’

Some common definitions of the term ‘analytic sentence’ are listed here for the sake of convenience.

(Def. 1) A sentence is analytic if and only if it is true by virtue of its meaning.

(Def. 2) A sentence is analytic if and only if it is a logical truth or can be reduced to a logical truth by substituting *definiencia* for *definienda*.

(Def. 3) A sentence is analytic if and only if it is a logical truth or can be turned into a logical truth by putting synonyms for synonyms.

(Def. 4) A sentence is analytic if and only if it is a logical truth or can be transformed into a logical truth by means of logical transformation rules plus transformation rules of L (the language in point).

(Def. 5) A sentence is analytic in L if and only if it is a logical truth or it is true according to the semantical rules of L.

(Def. 6) A sentence is analytic I if and only if it is true in all possible worlds.

(Def. 7) A sentence is analytic if and only if it could not possibly be false.

(Def. 8) A sentence is analytic if and only if its negation is self-contradictory.

Definition 1 is the most general of the definitions, and Def. 2 – Def. 5 can be regarded as so many explications of the old Scholastic idea of sentences which are true *ex vi terminorum*. The idea that analytic sentences can be reduced to logical truths goes back at least to Frege;⁵ I shall sometimes refer to it as “the Fregean way” of defining ‘analytic sentence’. Two other definitions will be given below (in section 2.1 and section 3.1).

⁵ G. Frege, *Die Grundlagen der Arithmetik*, § 3. – On the various definitions, see e.g. B. Mates, “Analytic Sentences”, *The Philosophical Review*, Vol 60 (1951), p. 525 ff.; W. V. O. Quine, “Two Dogmas of Empiricism”, in *From a Logical Point of View*, p. 20 ff.; F. Waismann, “Analytic-Synthetic I”, *Analysis*, Vol. 10 (1949), p. 25 ff.

All the definitions listed above exclude contradictions and falsities but include logical truths. Usage differs on this point. I shall use the term ‘analytic sentence’ in the wide sense which includes logical sentences. I deal explicitly only with true sentences.

1.2. Some analyticity candidates

The standard examples of analytic sentences are, apart from logical and mathematical truths, sentences like “A bachelor is an unmarried man”. “All spinsters are unmarried”, “No spinsters are married.” I shall call such sentences *analytic synonymy sentences*. Usually only examples resting on synonymy relations between substantival expressions are given. *The* paradigm of an analytic sentence is a subject-predicate sentence where the subject phrase is synonymous with the predicate phrase. There is, however, no reason to exclude synonymy sentences like “If you do something reluctantly, then you are disinclined to do it” and “If you love somebody, then somebody is loved by you”, which depend upon synonymy relations between non-substantival expressions and on constructional synonymy. (Philosophers’ traditional preoccupation with subject-predicate sentences is reflected in Kant’s definition of ‘analytic sentence’, and the neglect of the contributions of constructions to the meaning of sentences may help to account for the conventional selection of examples.)

If synonymy sentences and logico-mathematical truths are taken as paradigms of analytic sentences, trouble arises when one comes to other sentences which are not obviously factually true or false. There are several types of sentences which may with some plausibility be claimed to be true by virtue of their meaning and which are not clearly reducible to logical truths:

- (i) what Leibniz called *disparates*,⁶ e.g. “Heat is not the same thing as colour”, “Red is not blue”, “A man is not a horse”;
- (ii) *relational sentences* like “If A is longer than B and B is longer than C, then A is longer than C”;

⁶ G. Leibniz, *New Essays Concerning Human Understanding*, New York 1968, p. 405.

- (iii) *negations of category mistake sentences*, e.g. “ $\sqrt{7}$ is not green”, “You can’t make it a practice to believe seven new things every morning”, “Recognition is not a process”;
- (iv) sentences like “Time is measurable”, “I see with my eyes and hear with my ears”, “I do not choose the mouth to speak withW, which have been claimed to “on the borderline between necessary and contingent, the *a priori* and the empirical”;⁷
- (v) sentences like “If today is Monday, then tomorrow is Tuesday” which are true by some conventions which are not clearly linguistic in nature;⁸
- (vi) *ostensive sentences* like “Nothing can be red and green all over at the same time for the same observer”;
- (vii) what has been claimed to be *indubitable existential statements*, e.g. “There are red surfaces” and “There is at least one rod which is exactly one metre long.”⁹

Some of these sentence-“types” (the classification is of course preliminary) will be discussed in section 3.

When a sentence in an actual text falls into one or more of the “categories” of analyticity candidates distinguished above or is obviously similar to one of the types, it will be counted as an analyticity candidate; and when it is clear that a sentence is claimed to have some of the defining properties listed in section 1.1, it will similarly be selected as an analyticity candidate.

⁷ F. Waismann, “Analytic-Synthetic III”, *Analysis*, Vol. 11 (1951), p. 54.

⁸ The example is from G. Ryle, “‘If’, ‘So’, and ‘Because’”, in M. Black, ed., *Philosophical Analysis*.

⁹ A. Pap, *Semantics and Necessary Truth*, ch. 9.

1.3. The theory of semantic fields; further analyticity candidates

In this section, four texts will be examined from the point of view of what analyticity candidates they contain. The definitions and analyticity candidates listed in 1.1 and 1.2 will be used as “dowsing-rods” in the way described at the end of section 1.2. The texts all belong to the linguistic tradition which may be called “the theory of semantic fields”. This is a theory, or rather a set of theories, of semantic structures in natural language. The most radical field thesis seems to be that all expressions in a language belong to systems of expressions which are such that they delimit “fields of meaning” and, further, that it is impossible to explain the meaning of any expression without reference to the place it occupies in the system it belongs to. (Cf. the quotation from Ipsen below.) There are various other conceptions of semantic fields, and it must be pointed out that the theory of semantic fields, as I have called it, is a tradition and a continuous discussion rather than a well established branch of linguistics. A detailed discussion of the tradition would take us too far away;¹⁰ an examination of some articles and books will suffice for the present purposes. I have chosen two papers by R. M. Meyer, one by W. Porzig, and a full-length study by E. Oksaar, which might be said to illustrate three stages in the history of the theory. The main aim of the section is, as I said already, to see what analyticity candidates occur in the texts.¹¹

R. M. Meyer’s short paper on the system of military titles in German is a classic in field theory.¹² The system of military titles is, he says, an unusually clear example of a “meaning-system”. In order to understand the meaning of an expression which belongs to such a system we have to find out its place in the system. What a major is only a look at the hierarchy of ranks can tell us. In another paper in which he deals more generally with “meaning-systems”, Meyer gives very wide definition of ‘meaning-system’ as “the

¹⁰ S. Ullmann gives a survey of field theories and a host of references in *Principles of Semantics*, 2nd ed. Cf. also the introduction to A. Oksaar, *Semantische Studien im Sinnbereich der Schnelligkeit*, and *Proceedings of the Eighth International Congress of Linguists*, sec. “Is a Structural Semantics Possible?”

¹¹ The question whether the analyticity candidates in the texts are analytic or not will be raised in section 3.

¹² R. M. Meyer, “Die militärischen Titel“, *Zeitschrift für deutsche Wortforschung*, Vol. 12 (1910), p. 145ff.

arrangement of a limited number of expressions from a specific point of view”.¹³ He instances e.g. the tense and case systems, the languages of the *Minnesänger* and hunters, synonymy groups, taxonomies. This is a general plea for structural considerations in linguistics which is remarkable as an anticipation of Saussure, but only some of the systems belong to the subject-matter of semantics. The number system which “is intelligible only as a whole”,¹⁴ synonymy groups, and simple fields like “father-son” and “left-right” are clearly relevant. Such systems give rise to at least two groups of sentences which are not evidently analytic on Frege’s and Quine’s definitions of ‘analytic sentence’ (Def. 2 and Def. 3 in section 1.1), viz. *relational sentences* like “If A is the father of B, the is the child of A” and system sentences like “A major has a lower rank than a colonel.” Relational sentences were one of the problematic groups mentioned earlier (1.2), and system sentences seem to belong to the same group as Ryle’s example “If today is Monday, tomorrow is Tuesday” (group v in 1.2). The only actual example in Meyer’s papers which can plausibly be counted as an analyticity candidate is the following: “‘elf’ muss immer zwischen ‘zehn’ und ‘zwölf’ sein.”¹⁵

Porzig’s essay on “essential meaning relations” was published some decades later.¹⁶ In the meantime, some important contributions to field theory had been made by Ipsen and Trier. Both had made investigations on actual fields in Indo-European languages, but the theory behind their approach was obscure. The metaphysical character of their theories can be illustrated with a quotation from Ipsen:

--- die eigenwörter stehn in einer sprache nie allein, sondern sind eingeordnet in bedeutungsgruppen; damit ist nicht eine etymologische gruppe gemeint ... sondern solche /wörter/, deren gegenständlicher sinngehalt mit anderen sinngehalten verknüpft ist. Diese verknüpfung aber ist nicht als aneinanderreihung an einem assoziationsfaden gemeint, sondern so, dass die ganze gruppe ein ‘Bedeutungsfeld’ absteckt, das in sich gegliedert ist; wie in einem mosaik fñgt sich hier wort an wort, jedes anders umrissen, doch so, dass

¹³ R. M. Meyer, “Bedeutungssysteme”, *Zeitschrift für vergleichende Sprachforschung*, Vol. 43 (1910), p. 357.

¹⁴ Op. cit., p. 356.

¹⁵ R. M. Meyer, “Bedeutungssysteme”, p. 356.

¹⁶ W. Porzig, “Wesenhafte Bedeutungsbeziehungen”, *Beiträge zur Geschichte der deutschen Sprache und Literatur*, Vol. 58 (1934), pp. 70-97.

die contouren aneinanderpassen und alle zusammen in einer sinneinheit höherer ordnung aufgehen.¹⁷

Porzig gives a lot of examples of sentences which consist of expressions which have an essential meaning relation to each other, e.g.:

- “man /kann/ gar nicht anders *gehen* ... als mit den *füssen*“ (p. 70);
- “man /kann/ nicht anders *fahren* als mit einem *wagen* oder – in anderer, aber wiederum eindeutigen situation – mit einem *schiff*“ (p. 70);
- “ein hund *geht* nicht über die strasse“ (p. 70);
- “eine katze *geht* nicht auf einer mauer“ (p. 70);
- “*bellen* kann nur ein hund“ (p. 72);
- “Wiehern /kann/ nur ein *pferd*“ (p. 72);
- “was man *fällt*, muss immer ein *baum* sein“ (p. 72);
- “Mann kann niemandem *einen blumenstrauss vorsetzen*“ (p. 72);
- “*aufgehen*, *untergehen* und *scheinen* können /nur/ sonne, mond und sterne“ (p. 73);
- “Greifen kann man nur mit der hand” (p. 76);
- “*hämmern* kann man nur mit einem *hammer*“ (p. 80);
- “eine kerze konnte man ... *anstecken*, das kann mit der elektrischen lampe nicht“ (p. 87).

Such sentences might be styled “essential meaning relation sentences” or, short, *essential sentences*. What Porzig calls “essential meaning relations” is obviously similar to the relation which is supposed to hold between the crucial expressions in analytic sentences. We have here one more “class” of analyticity candidates which will be discussed in some detail later on.

Meyer’s and Porzig’s papers are rather short and sketchy. Els Oksaar’s account of the field of speed in German is a fully documented monograph on ‘plötzlich’, ‘schnell’, and

¹⁷ G. Ipsen, “Der alte Orient und die Germanen“, in the *Streitberg- Festschrift*. Quoted from A. Jolles, “Antike Bedeutungsfelder“, *Beiträge zur Geschichte der deutschen Sprache und Literatur*, Vol. 58 (1934), p. 102f.

related expressions.¹⁸ She polemicizes against the idea that the meaning of an expression is determined by the place it occupies in the “field” it belongs to. Rather, the meaning of an expression is determined by the contexts in which it occurs. The bulk of the work consists of reports on the type of verbal and social contexts German speed-expressions occur in, the reports ending up with formulations of “rules of use” for the expressions. The field of speed consists of a set of near-synonyms, and thus it differs considerably from such fields as Porzig’s elementary fields and Meyer’s system of military titles. Indeed, Oksaar’s procedure differs little from conventional lexicography. It is only the mode of presentation which is different. Instead of making an ordinary alphabetic dictionary she groups the expressions for speed in two classes centering round the words ‘plötzlich’ and ‘schnell’, which enables her to avoid repetitions to a large extent.

There are two reasons why Oksaar’s work is particularly interesting in a discussion of analytic sentences in natural language. First, she provides us with an unusually carefully worked out account of the uses of a set of linguistic expressions which may enable us to answer analyticity questions where ordinary dictionaries give no clues. Second, the rules of use give rise to analyticity candidates in a way which will be discussed in due time (sections 2.1 and 3.5).

Some sentences which are intuitively felt to be analytic and which occur in such positions that it is evident that they are thought to have a connection with meaning occur in Oksaar’s text:

- “Mann kann einen Groschen flink aufheben, aber kaum einen schweren Stein” (p. 48);
- “Ein Elephant bewegt sich schnell, aber kaum *flink* oder *behende*“ (p. 48);
- “nur wenn man auf das Folgende nicht vorbereitet ist, kann etwas plötzlich geschehen“ (p. 71);
- “Wenn man etwas sucht und es nach einer halben Stunde findet, kann man nicht behaupten, man habe es *sofort* gefunden“ (p. 111);

¹⁸ E.Oksaar, *Semantische Studien im Sinnbereich der Schnelligkeit. Plötzlich, schnell* und ihre Synonymik im Deutsch der Gegenwart und des Früh-, Hoch- und Spätmittelalters.

- “nicht jede *prompte Antwort* ist eine schlagfertige Antwort“ (p. 138);
- “Man tut nicht etwas Schlechtes, Unerfreuliches *flink*“ (p. 244).

I shall call these analyticity candidates *rule sentences*. The name may serve as a reminder of the suggested connection with rules of use.

To sum up, the excursion into semantic fields has furnished us with three groups of analyticity candidates, viz. system sentences, essence sentences, and rule sentences, and we have got a collection of actual examples from non-philosophical contexts. What is the function of those sentences in the contexts from which they have been picked out? That is the first question to which we shall now turn.

2. The uses of analytic sentences

2.0. Introductory

In this section, the uses of two sets of analyticity candidates will be discussed: first, the sentences collected from semantic field writings in section 1.3; second, repetitive sentences, i.e. sentences of the form “A is (are, was, were, etc.) A”. Only those uses to which the sentences are actually put in the contexts in which they occur will be discussed. Like other sentences, analytic sentences can be used as inference licences or premisses in arguments. Such uses will not be discussed here since they are not exemplified in the material I have investigated.

2.1. Meaning-stating

There are many ways of meaning-stating, and still more ways of meaning-explaining. Pointing, making or showing pictures are not ways of stating the meaning of an expression. Those activities are not stating at all, no statements are made in the course of the explanation. The outright way of stating meanings is to use sentences like “‘A’ means the same as ‘B’” or “‘A’ means B”. It may be noted that the two forms are not equivalent, since “‘A’ means B” presupposes that B belongs to a language which the speaker knows, whereas “‘A’ means the same as ‘B’” may well be used by a speaker who does not know what ‘A’ and ‘B’ mean. Synonymy sentences like those which mention at least one of the crucial expressions will be called *formal synonymy sentences*. Negations of formal synonymy sentences may be called *formal antonymy sentences*, e.g. “‘A’ is not synonymous with ‘B’”.

Analytic sentences are sometimes used to explain the meaning of an expression to somebody who does not know it, to define an expression or to remind somebody of the meaning of an expression he already knows, as Locke and Leibniz pointed out.¹⁹ Analytic sentences are used to make statements, so we have here another method of meaning-stating. The obvious difference between formal and analytic meaning-stating sentences is that analytic sentences don’t *mention* the essential expressions. Nor do they *use* them in the straight-forward way in which expressions are used in ordinary, empirical sentences; the crucial expressions of analytic sentences *occur essentially* in the sense that they cannot be replaced by synonymous expressions without loss of the point of the sentence. In fact-stating sentences, no expressions occur essentially in this sense: if ‘A’ and ‘B’ are wholly synonymous expressions, it does not matter whether I say tht Mr. X is A or tht Mr. X is B. To mark the peculiar way in which essential expressions occur in

¹⁹ Locke discusses the uses of “maxims” and “trifling propositions” in Book IV of *An Essay Concerning Human Understanding* (ch. vii and ch. viii; also ch. ii). For Leibniz, see the corresponding parts of *New Essays Concerning Human Understanding*.

analytic sentences, I shall say that analytic sentences *exhibit* the use of essential expressions.²⁰ Analytic sentences are not always used to exhibit uses. Sometimes they are used to remind somebody of a fact rather than of the meaning of an expression. In such circumstances, it would be very queer to say “The expression ‘bachelor’ means the same as the expression ‘unmarried man’” instead of “All bachelors are unmarried”. When, however, a sentence like “All bachelors are unmarried” is used for meaning-stating, it can be replaced by the corresponding formal statement. It is, then, a *material synonymy sentence*. Similarly, sentences like “A is not B” and “A is not the same as B” are sometimes used to make *material antonymy statements*.

On the whole, material and formal synonymy and antonymy sentences are interchangeable. To use material sentences can, however, be misleading since they look like fact-stating sentences. One loose rule for the use of material sentences is therefore that it should be obvious that the sentence is used for meaning-stating. In the case of the examples quoted in section 1.3, the fact that the sentences occur in semantic writings contributes to eliminate the ambiguity. One exception to the interchangeability can be noted. Formal sentences which contain expressions from different languages would not usually be transformed into material sentences. We *could* say “A Junggeselle is a bachelor” instead of “‘Junggeselle’ means the same as ‘bachelor’”, but not without qualms.

Both material and formal sentences are used for meaning-stating in semantic literature. Dictionaries, it may be observed, employ a third method which is neutral to the formal-material distinction. Dictionary entries can be viewed as a sort of shorthand notation which can be expanded into statements. Dictionaries contain stuff of various kinds: they give equivalent expressions of various types (synonyms, definitions, paraphrases, near-synonyms), they characterize the meaning of expressions (e.g. the *COD* on *ohm*: “Unit of electrical resistance”), they give examples of verbal contexts in which an expression has occurred or may occur, they give etymologies and factual information, they sometimes contain illustrations. It has been pointed out that the characterizing entries may be

²⁰ The term has been suggested to me by Mr. Jakob Meløe.

expanded into statements like “The meaning of ... can be described with ---“ and that the equivalence entries can be expanded into “... is synonymous with ---“.²¹ And no doubt the most natural way of expanding an entry like “*bachelor*. Unmarried man” is to choose a formal sentence like “‘Bachelor’ means the same as ‘unmarried man’.” But it is perfectly possible to use a material sentence like “All bachelors are unmarried men” if the context makes it clear that a synonymy statement is made. There is some justification for saying that dictionaries contain meaning-stating analytic sentences (*viz.*, *in nuce*).

All the examples from semantic field theory literature which cited earlier (in 1.3) seem to exhibit the uses of linguistic expressions. (Exhibited expressions are often italicized in linguistic literature; cf. the examples from Porzig and Oksaar. Italicizing is also used for marking mentioned expressions.) Most of the examples from Oksaar have a further function as well. They occur in sections stating rules of use for various expressions and are used to convince the reader of the correctness of the rules which have been stated. Analytic sentences may thus have a heuristic value in semantical investigations: it is often easier to “see” that a sentence is analytic than that a rule is correct.

‘Meaning-stating’ is an intensional term, so it cannot be used for breaking out of the analyticity family. A definition of ‘analytic sentence’ in terms of meaning-stating would be as circular as the definitions collected in section 1.1. It would not be quite unilluminating, perhaps, to say that an analytic sentence is a material mode sentence (a sentence which does not mention any expressions) which is or can be used for meaning-stating (Def. 9 of ‘analytic sentence’). Like other circular definitions, this one would trace connections within a conceptual family. But the distinction between meaning-stating and e.g. fact-stating cannot be used to explicate the analytic-synthetic distinction. It would, I think, come nearer to the truth to say that we can shed light on the activity of meaning-stating through the analytic-synthetic distinction than the other way round. For meaning-stating is that activity in which meaning-stating sentences are used, and a meaning-stating sentence is a sentence the truth of which depends entirely on linguistic facts (i.e., it is either analytic or a synthetically true sentence about meaning), and, further, it is a

²¹ F. Hiort in *Proceedings of the Eight International Congress of Linguists*, p. 106.

sentence which is intended or thought to be intended to draw attention to linguistic facts. In short, meaning-stating is that activity which consists in purposively drawing attention to semantic facts.

Apart from uses in arguments, it seems that whenever an analytic sentence is used, a synthetic sentence can be found that will do the same job. If one tries to characterize analytic sentences, one is then driven back to the analytic-synthetic distinction or some similar distinction such as the distinction between using and exhibiting a term. And there seems to be little hope of finding a way of characterizing analytic sentences non-circularly through the uses they are put to in arguments. It seems, therefore, to hold generally that the uses of analytic sentences cannot be used to define ‘analytic sentence’ non-circularly. Sometimes, however, it is not possible to find a synthetic equivalent which would have exactly the same effect as the analytic sentence, as we shall see in the next section. But analytic sentences cannot be characterized in terms of that effect, for as we shall see, it depends upon the hearer’s knowledge that the sentence in point is sometimes analytic and that non-analytic sentences may be used to get the same type of effect.

2.2. Secondary uses

Many occurrences of repetitive sentences as well as of other analytic-looking sentences exemplify a type of use which has often been overlooked by philosophers and logicians. An examination of repetitive sentences as used in everyday life will show that the statements on repetitive sentences one finds in text-books of logic needs some qualification.²²

Philosophers don’t believe nowadays that the word ‘is’ always expresses identity, but it is a common view that it often does. Thus we are said to write “Elizabeth II is the present Queen of England” to mean that Elizabeth II is the same person as the present Queen of

²² The ordinary use of repetitive sentences has not always been quite overlooked, as the discussion below will show. Cf. also *Language, Thought, and Culture*, ed. by P. Henle, p. 138.

England,²³ and sentences like “The man who was elected is the least desirable candidate” and “The author of *Hamlet* is the author of *Macbeth*” are said to express “identity statements”.²⁴

On the other hand, it has been noted that repetitive sentences are often used in other ways in ordinary life. “‘War is war’ is not an example of the law of identity”, said Wittgenstein.²⁵ And according to D. W. Hamlyn, the uses of sentences like “Black is black” are “by no means ordinary or straightforward”. The uses of “tautologies” are “essentially idiomatic”, he says, and clearly such sentences could not be used to express factual statements; “suggested analytic statements or non-mathematical tautologies in ordinary language ... could be used only to tell us something about the use of words.”²⁶ In a comment on Hamlyn’s paper, A. Stroll has pointed out another use of analytic sentences, viz. to say something entirely non-committal.²⁷ And no doubt we *can* say “Black is black” to someone who is equivocating about the colour of something, as Hamlyn has pointed out,²⁸ and we *can* use an analytic sentence to waive away a question, as Stroll reminds us that Hamlet did on one occasion.²⁹ And, again learning from Hamlet, you can go on and use analytic sentences if you pretend to be mad. But usually repetitive sentences are not used for such purposes. Nor are they used to make identity statements in one natural sense of ‘identity statement’, and in so far Wittgenstein was right in his comment on “War is war.” How, then, are repetitive sentences used in ordinary life?

The general rule for repetitive sentences is that they are used to suggest something which the context makes clear. What they suggest can be brought out by some contrasting feature in the verbal context or by other means. The following patterns are frequent: ‘A is A, and B is B’, ‘A is A and not B’, ‘A is A, but B is C’. It is not easy to state more precise rules, but perhaps one could distinguish between three types of uses besides the

²³ P. Suppes, *Introduction to Logic*, p. 101.

²⁴ J.C.C. Cooley, *A Primer of Formal Logic*, p. 125; A. Pap, *Elements of Analytic Philosophy*, p. 347.

²⁵ L. Wittgenstein, *Philosophical Investigations*, p. 221.

²⁶ D. W. Hamlyn, “Analytic Truths”, *Mind* 65 (1956).

²⁷ A. Stroll, “Uses of Analytic Sentences”, *Mind* 66 (1957).

²⁸ D. W. Hamlyn, “analytic Truths”, p. 361.

²⁹ A. Stroll, op. cit. Cf. Locke on the use of “maxims” “for the silencing of obstinate wranglers” (*An Essay Concerning Human Understanding*, IV, vii, 11).

general category of suggestive uses: the uniqueness use, the excluding use, and summary use.

Repetitive sentences are often used to suggest that something has some property which made clear by some feature in the immediate verbal context, as in the following examples:

“‘Ay, and then the lusty banqueting, with sweetmeats and comfits wet and dry, and dried fruits of diverse sorts’, said Plumdumas.

‘But Scotland was Scotland in those days.’

‘I’ll tell ye what it is, neighbours’, said Mrs. Howden. ‘I’ll ne’er believe Scotland is Scotland any mair, if our kindly Scots sit down with the affront the hae gien us this day ...’”

(Walter Scott, *The Heart of Midlothian*, Collins Classics, pp. 48-49.)

“... he had already learned that a pair of stockings, that’s a pair of stockings, and a cake is a cake, but a sixpence, that is an infinite number of wishes ...”

(Hjalmar Söderberg, *Martin Bircks ungdom*, Samlade verk II, p.49. Translated by T.N.)

The uniqueness use can be illustrated with Kipling’s “Oh, East is East, and West is West, and never the twain shall meet”, and “Clovis, c’est Clovis”, said in answer to the question “Quie est Clovis?” in the film *Les cousins*.

The excluding use, the use to rebut a particular suggestion, may be illustrated with the sentence “Murder is murder – it does not matter who the victim is” (Agatha Christie, *Cards on the Table*, Fontana Books, p. 32).

And finally an example of the summary use: in *Art Concret*, a journal which appeared in 1930, an argument against representative art as concluded with the phrase “a surface is a surface, a line is a lined, nothing more, nothing less.”

All repetitive sentences I have found in plays, novels, newspapers etc. and overheard in conversations fall into one or more of these four categories. There are also other analytic-looking sentences which are used in the same way, viz. sentences of the forms ‘If p, then p’, ‘When p, p’ etc. When Pilate said “What I have written, that I have written”, he was not telling anything about the use of words any more than Chruschev was when he said in a public speech that “a stench is a stench” and “law is law”.

Repetitive sentences as used in ordinary life are by no means clearly analytic. On the contrary, they might seem to express clearly synthetic statements. “A line is a line” in the quotation above means its context that a line cannot be made to represent anything (or perhaps that it should not be used in that way); “A Nyasa is a Nyasa” may mean that Nyasas are inefficient; and so on. If one wants to, one can say that ordinary repetitive sentences contain ambiguous words or play upon the connotations or suggestions of words,³⁰ though it seems rather unpalatable to say that e.g. ‘twenty years’ or ‘√5’ are ambiguous when they happen to be used in repetitive sentences, and the connotation view is true only if ‘connotation’ is stretched to include all contextual features which help us to see the point of the repetitive sentence. 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, I presume, the reason why the repetitive sentence is used instead of the more explicit sentence. Ordinary repetitive sentences could be said to be parasitic upon trivial repetitive sentences.

That both the trivial and the informative interpretations of repetitive sentences play a part in the ordinary use of them is shown in our ascription of truth to repetitive sentences. If somebody uses a repetitive sentence to make an informative statement, we often hesitate to object to it by the words “That is not true”, but if there is no possibility of misunderstanding, we can do so. The ‘that’ in the phrase “That is not true” then refers to the point of the sentence rather than to its trivial meaning.

³⁰ In L. Bloomfield’s sense of the word ‘connotation’ (*Language*, pp. 151-157). Cf. the discussion of repetitive sentences in S. I. Hayakawa, *Language in thought and Action*, e.g. p. 213f.

We react in a similar way in the case of misdescribing. If somebody points at a man with a blue neck-tie and says, “The man over there with the black neck-tie is a carpenter”, we may grant that what he meant was true though what he said was not quite correct.³¹ Since the subject expression is used mainly to identify the person, it does not matter very much whether it describes the person correctly if the identification succeeds anyhow, and so we may say “That is true” referring to the communicated sentence rather than to the uttered sentence. The ascription of analyticity is similar to the ascription of truth. Analyticity may be attributed to the uttered sentence or to the communicated sentence.

The same mechanism is seen even more clearly in the case of metaphor, where there is an unusually clear difference between the usual, standard, primary or literal meaning, and the occasional, contextual, secondary or figurative meaning. Metaphorical sentences as well as many contradictions and trivial truths have to be given a meaning in the contexts in which they occur since the literal interpretation is out of question.

The repetitive sentences quoted earlier do not express identity statements in the sense that the component 'is' could be replaced by 'is the same (person, thing) as' or 'is identical with' in the contexts in which the sentences occur. It seems natural to say that 'is' expresses identity only when it can be replaced with 'is identical with' or some synonymous phrase without causing oddity. The use of 'is'-sentences to make identity statements in this sense of 'identity' is unusual. If we have referred to the opposition leader in Kenya by the expressions 'Tom Mboya' and 'the opposition leader in Kenya' and suddenly realize that our listener does not know that the two expressions refer to the same person, we can point out to him that Tom Mboya is the same person as the opposition leader in Kenya by uttering the sentence “Tom Mboya is the opposition leader in Kenya”. But it would be more natural to say e.g. “Tom Mboya is the same person as the opposition leader in Kenya”. The dictum that every sentence which consists of two substantival expressions joined by 'is/are' expresses an identity statement must be viewed as a way of characterizing the inference powers of such sentences. When logicians say

³¹ This example is discussed in H. Törnebohm, “On Truth, Implication, and Three-Valued Logic”, *Theoria*, Vol. 22 (1956), Part 3; and in M. Furberh's and my note on that paper in *Theoria*, Vol 23 (1957), Part 2.

that repetitive sentences express trivial identity statements (as already Locke did), they do not assert anything about ordinary uses of repetitive sentences. What they say holds for primary uses only, and for the logic of the primarily used sentences only. They deal with what can be called “logically standard discourse” from a logical point of view.

In this section we have considered analytic-looking sentences in context. But usually examples of analytic sentences are given in isolation. They must then be regarded as belonging to logically standard discourse. This condition is, however, not sufficient. Even if the examples are imagined to occur in logically standard contexts, non-analytic interpretations are always possible and often plausible. When examples of analytic sentences are given, we are invited to look at the examples *as analytic*; it is assumed to be irrelevant that non-analytic interpretations are possible.

Every sentence can be regarded as analytic, but only some sentences are usually regarded as analytic. To decide which sentences are usually so regarded is another task for descriptive semantics. In the next section some sentences will be discussed from this point of view.

3. An examination of some analyticity candidates

3.0. Introductory

In the foregoing sections, we made an inventory of analyticity candidates and discussed the uses they are put to in the contexts in which they occur. In this section some of the analyticity candidates will be examined more closely. The main question will be: which of the analyticity candidates are analytic ? The answer is easy to give as regards logical

sentences. Whatever ‘analytic sentence’ means, logical sentences are analytic. It is a criterion of adequacy for any definition of ‘analytic sentence’ in the broad sense that the term should apply to logical sentences. Logical sentences are thus analytic by definition, but the problem of defining ‘logical sentence’ remains. It will be discussed in section 3.1. The remaining sections will be devoted to controversial groups of analyticity candidates, mainly those sentences which were quoted in 1.3 from semantic field literature.

3.1. Logical sentences

A promising approach towards logical truth is offered by the definition made well-known by Quine : a logical truth is a true statement which contains only logical constants essentially,³² or, in other words, which remains true under all reinterpretations of its components other than the logical constants.³³ Unlike Carnap's explication in terms of state-descriptions, it applies directly to natural language sentences (in logically standard discourse), and unlike Wittgenstein's notion of tautology, it yields a general definition of ‘logical truth’ without commitment to any such doctrine as that all sentences are either atomic or else truth-functions of atomic sentences.³⁴ In this section I shall outline an amended version of Quine's definition of ‘logical truth’ which meets some (but not all) of the objections raised against Quine’s definition by Pasch, Pap, and Strawson. I begin with a few comments on the notion of truth that occurs in the definition, and then I will discuss the two other central notions in Quine's definition, “logical constant”, and “essential occurrence” or “remaining true under all reinterpretations”.

(i) As Pap has pointed out, Quine’s definition does not give an effective decision procedure for logical truths as it stands, since it presupposes that we already know that the sentences in question are true.³⁵ As it stands, the definition is at best a partial explication of a familiar idea and will have to be supplemented with a definition of

³² W. V. O. Quine, “Truth by Convention”, in Feigl and Sellars, eds., *Readings in Philosophical Analysis*, p. 253.

³³ W. V. O. Quine, “Two Dogmas of Empiricism”, in *From a Logical Point of View*, pp. 22-23.

³⁴ See A. Pap, *Semantics and Necessary Truth*, p. 145, p. 153.

³⁵ Pap, *op. cit.*, p. 131.

‘truth’. No general definition of ‘true sentence in a language L’ is known at the present. ‘True sentence’ has been defined for some restricted classes of languages (calculi) but not for natural languages.³⁶ But though the definition of ‘logical truth’ is incomplete pending a definition of ‘truth’, it is not *ipso facto* useless. What is needed is, for all practical purposes, not a strict definition of ‘truth’ but a criterion of truth. General acceptance is inadequate as a general criterion of truth, but it seems to be a possible criterion in the case of logical sentences, i.e. sentences in which only logical constants occur essentially. A logical truth would, then, be a generally accepted logical sentence, and a logically false sentence would be a generally rejected logical sentence. The suggested criterion of truth of logical sentences cannot be used as a definition of ‘truth’ as predicated of logical sentences. For defining ‘truth’ in terms of general assent has unwelcome consequences : ‘true’ would mean one thing in the case of empirical sentences and another thing in the case of logical sentences, and one would be forced to regard ‘true’ as ambiguous. ‘True’ in the sense in which it could be predicated of logical sentences would then mean the same as ‘generally accepted’, and ‘generally accepted’ as predicated of logical sentences would have to carry the burden that ‘true’ now does. The assent criterion excludes all non-logical sentences which happen to be generally accepted in a speech community, e.g. empirical trivialities, metaphysical and superstitious sentences which all contain non-logical expressions essentially. It seems, therefore, not to be too wide. But it might be regarded as too narrow, depending on how the phrase “generally accepted sentence” is interpreted. A criterion in terms of actual conscious acceptance is of course not adequate, since many logical truths are not consciously accepted by most people. The criterion could then be amended to read: a logical sentence is true if everyone who understands it assents to it. Or a logical sentence might be said to be true if it is generally acceptable or is compatible with generally accepted logical and non-logical sentences. Both amendments seem correct, and seem to lead to no undesirable results, but of course they are unacceptable to philosophers like Quine who want a characterization of logical truth in non-intensional terms. There seems, however, to be no way out of the analyticity family at this point.

³⁶ See N. L. Wilson, *The Concept of Language*.

(ii) What is a logical constant ? The definitions in terms of lack of descriptive content and independence of meaning are vague and do not warrant a sharp distinction between logical and non-logical words, and other attempts at defining ‘logical constant’ have been shown to be either circular or non-illuminating.³⁷ So philosophers have been led to believe that there is only a distinction of degree between logical constants and other expressions and, consequently, only a difference of degree between logical truths and other truths. The conclusion seems rash, and two other possibilities suggest themselves: (a) Perhaps it is impossible to find a single criterion of logicity. (b) Perhaps one should not seek for (only) a semantical criterion of logicity but for e.g. a syntactical one. I shall follow both suggestions, and I shall begin with the observation that the English words usually listed as logical constants have a syntactical property in common: they are all what Fries has called “function words”.³⁸

Function words are words which occupy peculiar places in sentences. The idea is best exposed by looking at the procedure through which function words are sorted out from discourse. Fries analysed a vast material of recorded speech, and having arrived at the unit of “minimum free utterance” he selected some such sentences for experiment:

We started with the minimum free utterance *the concert was good* as our first test frame and set out to find in our materials all the words that could be substituted for the word *concert* with no change of structural meaning. The words of this list we called Class 1 words. When we repeated this process for each of the significant positions in all the structural frames we found in our materials, we had a large number of examples of each of the parts of speech we must recognize for present-day English.³⁹

“The structural meaning” of a sentence is, says Fries, that part of the whole sentence-meaning which cannot be ascribed to any of the lexical items.⁴⁰ In the sentence “John killed the dog”, e.g., it is word-order that conveys that it was the man who killed the animal and not the other way round. Word-order has structural meaning in English. The

³⁷ See A. Pasch, *Experience and the Analytic*, p. 40ff., and A. Pap, *Semantics and Necessary Truth*, p.133ff.

³⁸ C. C. Fries, *The Structure of English*, ch. VI *et passim*.

³⁹ *Op. cit.*, pp. 75-76.

⁴⁰ *Op. cit.*, p. 56.

notion of structural meaning will be discussed later together with other unclear points in the passage just quoted. But let us abstain from critical remarks for a moment and develop the theme.

The majority of the words in Fries's materials were found to belong to four big groups which very roughly correspond to the traditional word-classes substantive, verb, adjective, and adverb. Out of a thousand different words (types, not tokens), 93 % were found to belong to these four classes. The remainder of the materials was scattered out in fifteen groups which together comprised 154 items (types). The words which belonged to those small groups are the function words. All the words usually listed as logical words, 'all', 'some', 'no', 'the', 'a/an', 'if', 'and', 'either-or', 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'. It is impossible to give an adequate account of modern grammatical analysis in traditional terminology, so I must refer the reader who wants more than this sketch to Fries's own text.

Logical words are thus a subset of the set of function words which have been delimited by positional criteria. The task of characterizing logical words may now be reformulated as the task of giving a rationale for singling out just the words 'all', 'some', 'the', etc. as a subset of function words. This cannot be done on purely positional grounds, if Fries is right, since the logical words belong to different groups of function words and are not the sole members of those groups. Now it seems that one can arrive at the set of function words through the kind of process that Quine has called "regimentation":⁴¹ only those function words are logical which are needed in the logician's "canonical language" or can be defined with the help of such words. Logically standard discourse consisting of statements only is the traditional domain of logic, and question-marking function words are mustered out along with words like 'oh', 'well', 'please' which can be dispensed with in purely informative discourse. Possessive pronouns can be viewed as abbreviational devices and therefore also be dispensed with. Genitives are easily translated into descriptive phrases like "which belongs to", "has the property of being owner of" etc.

⁴¹ W. V. O. Quine, *Word and Object*, ch. V-VI.

Demonstrative pronouns are mustered out on the ground that the canonical language should be neutral to the occasion of the utterance. The auxiliary verbs can be substituted by adverbs (Class 4 words in Fries's scheme), and the modifying adjectives will be unnecessary since the canonical language will have an exact vocabulary where *ad hoc*-modifications are unnecessary. Prepositions may be transformed into predicates, that is, into members of the four big position classes. This expurgation leaves us with the ordinary logical words 'all', 'the', 'no', 'each', 'any', the sentence connectives and 'not', the numerals and some similar words. But the following expressions also remain: 'few', 'much', 'man', 'most', 'both', 'nor', 'but', 'rather than', 'when', 'whenever', 'because', 'since', 'before' etc. through all the so-called conjunctions. Are these words to be counted as logical or not? It seems that the technique of regimentation can be applied again to sort out those words for, as Alan Pasch has said, convenience seems to be the only reason why words such as 'but', 'though' and 'nevertheless' are not usually listed in logical vocabularies".⁴² The remaining nonlogical words can, finally, be dismissed on the ground that only truth-functional connectives will be allowed in the canonical language. *Exeunt* 'because', 'since', etc., as well as many occurrences of 'and', 'if-then' and other connectives.

To sum up the foregoing argument, an English word could be said to be a logical word if it is a function word and plays an essential role in cognitive (scientific, purely informative) discourse. Logical words are thus characterized both through their semantical and their syntactical (positional, distributional) properties. The syntactical properties of logical words seem to have been overlooked by philosophers. Yet it seems undeniable that those properties must not be neglected if one is to account for intuitions about logicity (as e.g. Pasch sets out to do).⁴³

Hitherto we have only discussed logical words in English. It seems possible to generalize the definition of 'logical word' so that it applies to other natural languages as well on the following lines:

⁴² A. Pasch, *Experience and the Analytic*, pp. 40-42.

⁴³ *Op. cit.*, p. 40.

A word in a natural language L is a logical word in L if and only if (i) it is a function word in L, where ‘function word’ is defined as the odd-class remainder one gets when one analyses a representative sample of sentences in L into position classes (word classes, parts of speech), and (ii) it is needed in cognitive discourse.

This definition will have to be amended, however, in view of the considerations presented below.

It is time to look with a more critical eye on the notion of a function word. There are three points in Fries's procedure which need to be commented upon: the notion of structural meaning, the preoccupation with words, and the idea that there is a fixed set of position classes which must be recognized for a given language.

Traditionally word-classes and parts of speech have been distinguished both on morphological grounds (inflection) and on semantical grounds (meaning and function), but in practice other criteria have often been used. A *noun* is traditionally “the name of a person, place or thing”, an *adjective* is “a word that modifies a noun or a 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 (e.g. in a sentence like “Some of the officers there are my friends”), and so on.⁴⁴ It is the merit of structural linguistics to have made explicit the criteria actually used and to have worked out strict and uniform procedures for analysis into parts of speech (or at least to have begun to do so). The best starting-point for such analysis is not the unit *word* but the smaller unit *morpheme*.⁴⁵ Morphemes and sequences of morphemes are then classified according to the verbal environments in which they occur: morphemes (morpheme sequences) which occur in identical or similar

⁴⁴ C. C. Fries, *The Structure of English*, p. 67, 205.

⁴⁵ ‘Morpheme’ is often defined semantically as “the smallest meaning-bearing unit”. This is only roughly true, however, and is unhappy for the semanticist who tries to give semantics a foundation in syntax, since it might involve him in a vicious circle. For a more careful treatment of meaning, see Z. S. Harris, *Methods in Structural Linguistics*, ch. 12.

environments and which thus have the same “distribution” are members of the same position class.⁴⁶

It is clear, then, that the number and magnitude of the position classes one sets up for a given language will depend upon how many environments one requires to be identical or similar. There is no fixed set of position classes which must be recognized for a given language. The linguist chooses the set he finds most revealing, i.e. which leads to the simplest grammar and accounts for the native speakers’ grammatical intuitions in the best way, but there is no reason to exclude the possibility of alternative and equally effective grammars.⁴⁷ When function words are characterized as words belonging to small word-classes, one presupposes certain criteria of adequacy for word-class analysis which will have to be explicated. A more significant property of function words than the smallness of function word classes is that they belong to *closed position classes*. The commonly recognized large position classes are productive in the sense that new members are continually added to them. Function word classes – or, strictly, function morpheme (sequence) classes – are likely to contain the same members over long stretches of time.⁴⁸

The closed classes have the distributional property of occurring in very many environments. To this formal feature there corresponds a well-known semantical property of logical words: logical words belong to that core of the language which is needed for discourse about any subject matter; and the same holds for most other function morphemes (function morpheme sequences).

Fries considers words only (perhaps to avoid too many complications in a book which is intended for the general reader), and so he misses the similarities between function words and inflectional endings and other morphological devices. Since *function morpheme sequence* is a more general notion than function word, a consideration of function morpheme sequences also makes it easier to generalize the definition of ‘logical constant’ to other languages. It is notorious that different languages contain different grammatical categories. The functions of some English function words are fulfilled by grammatical

⁴⁶ Harris, *op.cit.*, ch. 15-16.

⁴⁷ See N. Chomsky, *Syntactic Structures* and *The Logical Structure of Linguistic Theory*, ch. 3.

⁴⁸ Cf. Harris, *Methods in Structural Linguistics*, p. 251, note 20.

particles in other languages, and vice versa. Such differences will be irrelevant if the definition of ‘logical constant’ is stretched to include members of closed morpheme (sequence) classes.

In morpheme class analysis one can consider actual distributions in a corpus of sentences, as Harris does, or one can consider possible distributions, as Fries does. Provided that the corpus is large enough to be representative it will permit accurate predictions and thus also account for possible environments. The method of investigating possible distributions seems to be more cumbersome when it is done in the proper way by testing for native speakers’ assent and dissent and also less secure especially when it is done in the more convenient way of relying on one’s own intuitions about grammatically permitted sequences. Apart from such general considerations there is one point in Fries’s version of the method of investigating possible distributions which seems to need an amendment. According to Fries, two words belong to the same position class if they can be substituted for each other in certain selected sentence frames without change of “structural meaning”. When one performs the substitution test, it is therefore not necessary to know the whole meanings of the words to be tested, nor to know what the structural meaning of the sentence frame is. All one has to know is when two sentences are structurally synonymous. Since there is no one-one correspondence between constructions and meanings (every meaning can be expressed by various constructions, and every construction is used to express various meanings), it is evident that meaning identity does not guarantee constructional identity. Nor does partial meaning identity guarantee constructional identity, and we remember that Fries defined ‘structural meaning’ as a part of the total meaning (cf. *supra*). It seems impossible to find a unique semantical property common to all English sentences of e.g. the form Noun Phrase – Verb Phrase – Noun Phrase which would constitute the structural meaning of that construction. We know intuitively that “John got a letter”, “The clerk payed the taxes”. “The boy knew the girl”, “The report dismayed the president” have the same grammatical form, whereas “Who knew the girl?” and “The boy was scolded by his father” exemplify other constructions. The reason why the first four sentences are counted as members of one group seems to be not that we feel that they have some meaning feature in common,

but that we feel they exemplify the same formal pattern. In short, the term ‘structural synonymy’ seems to be a misnomer for constructional identity.⁴⁹

If that is so (the reader can probably provide more striking examples to confirm the thesis), morpheme class analysis does not rely on semantics in the direct way suggested by Fries's terminology. Whether semantical notions must be presupposed by grammatical analysis at other levels is a question which cannot be discussed here. There seems to be some hope, however, that a complete and consistent set of purely distributional methods of grammatical analysis can be worked out on Harris's and Chomsky's lines.

The difficulties of defining ‘logical constant’ and thus also of defining ‘logical truth’ semantically have sometimes led philosophers to believe that there is only a difference of degree between logical and non-logical truths. The distributional approach discussed in the foregoing paragraphs suggests that there is at least a sharp boundary between function morphemes (function morpheme sequences) and other morphemes (sequences). In the absence of detailed distributional studies of function morphemes and other morphemes it is impossible to say whether it will be possible to define ‘logical constant’ wholly in distributional terms and whether, if so, the genericist or the gradualist position will turn out to be correct. Perhaps it will turn out to be necessary to correlate function morpheme classes with features of the non-linguistic environment in order to arrive at a satisfactory definition of ‘logical constant’ for natural languages. In both cases the technique of regimentation can be used to arrive at the *logician's* particular selection of logical constants. But the application of that technique involves adopting criteria of simplicity, extensionality etc., which are foreign to the ordinary use of natural languages. It seems reasonable to allow for the fact that the list of logical constants will vary from language to language and to admit that all languages don't have the same “logic#.

⁴⁹ Fries seems to be aware of this in a passage where he says that “the object of our search is not the meaning but the strictly formal features which make a difference in the ‘meaning’” (*The Structure of English*, p. 75, note 6). – On the distinction between semantical intuitions and intuitions about grammatical form, see N. Chomsky, *Syntactic Structures*, p. 94.

(iii) The definition that “a logical truth is a statement which is true and remains true under all reinterpretations of its components other than the logical particles” presupposes certain conventions about what is to be counted as a reinterpretation. Strawson has discussed those conventions in an a paper which ends up with an amended version of Quine’s definition of ‘logical truth.’⁵⁰ (Similar considerations apply to the definition in terms of essential occurrences.)

First, Strawson shows, typographically identical components must be replaced by typographical identical components in the reinterpretation. 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 changes perhaps 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 sentence 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.

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).

⁵⁰ P. F. Strawson, ”Propositions, Concepts and Logical Truths”, *The Philosophical Quarterly*, Vol. 7 (1957), pp. 15-25.

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 though 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 preserved 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.⁵¹

The definition leads to the desired results, but it appears somewhat opaque and queer as it stands. Particularly the conditions on typography seem 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 covers what Strawson aims at.⁵² For written language is a way of representing spoken language, and two expressions in spoken language are phonemically identical if and only if they are

⁵¹ P. F. Strawson, "Propositions, Concepts and Logical Truths", p. 24.

⁵² On phonemics (phonology), see e.g. Z. S. Harris, *Methods in Structural Linguistics*, ch. 3-11, or any handbook in linguistic analysis.

repetitions of each other. Phonemical identity does not guarantee synonymy, since there are ambiguous words like ‘sick’ in sentence (3) above, and synonymy does not guarantee phonemical identity, as sentence (4) shows.⁵³ Phonemical identity is also independent of referential identity, so it can safely be appointed to the role that typographical identity plays rather unsuccessfully. (After all, most languages are *never* written.) In practice, typographical identity can be used as a criterion of phonemical identity (roughly), since our typography is not wholly capricious. But if there were e.g. 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 sentences. But 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, for instance, ‘wise’ in (1) by ‘or’ must be excluded. I shall call a reinterpretation which preserves the significance of the sentence “a significant reinterpretation”. The specification of the kind of relation which is thought to hold between phonemical or typographical identity and referential and semantical identity (“representation”) seems to be irrelevant in the definition of ‘logical truth’. We are thus led to the following definition (the term ‘statement’ is replaced by ‘sentence’ to conform with the other definitions in this paper):

A sentence 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 both semantical and phonemical identities as well as all both semantical and referential and phonemical identities in the original sentence are preserved in the reinterpretation.

⁵³ Cf. N. Chomsky, *Syntactic Structures*, § 9.2.3 (pp. 94-96).

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

A sentence 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 both semantical and referential identities in the original sentence are preserved in the reinterpretation.

(Def. 10 of ‘analytic sentence’.)⁵⁴

It is easy to test the adequacy of this definition of ‘analytic sentence’ on the examples (1) - (5). Sentence (5), for instance, 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.

Sentence (6) is false, therefore (5) is not analytically true.

Definition 10 of ‘analytic sentence’ 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 Def. 10 should therefore be replaced by ‘semantical identities and inclusions’.

Why do we speak of logical truths only when the typographical condition is fulfilled? Strawson gives the answer that the truth of sentences like (4) and (5) rests on accidental matters of language and fact, whereas the truth of logical sentences depends on a general linguistic convention: when two typographically identical expressions occur within the

⁵⁴ Def. 1-8 were stated in section 1.1, Def. 9 in section 2.1.

same sentence, it is generally assumed that they will have the same sense and reference.⁵⁵ 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 (Def. 10), the typographical or phonemical condition in the definition of 'logical truth' looks odd: one could justifiably say that 'analytic truth' is the more general notion. It seems that one clue to the peculiar place awarded to logical truths is to seek in the fact that logical truths are easier to recognize than other analytic truths and provide an avenue to analytic truths. It is generally assumed that *phonemically* ("typographically") *identical expressions with the same reference have the same meaning*, (The only way of ascertaining a semantical difference between phonemically identical expressions with the same reference would be through variations in the context. The meaning differences of the wholes of which the identical expressions are part can then be ascribed to those variations.) This general rule for the ascription of meaning together with the fact that phonemical or typographical identity is a relatively uncontroversial notion make 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 then be reduced to logical truths in the Fregean way (cf. section 1.1).

The rule for the 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 of referring expressions can be reduced to referential and phonemical identity. The task of clarifying semantical identity between non-referring expressions remains, so it cannot be claimed that Strawson's objection to Quine's definition of 'logical truth' has been wholly met.⁵⁶

⁵⁵ P. F. Strawson, "Propositions, Concepts and Logical Truths", p. 25.

⁵⁶ Strawson's objection was that Quine's definition of 'logical truth' presupposes intensional notions (op. cit., p. 15).

3.2. Essence sentences

In sec. 1.3, the term ‘essence sentence’ was introduced as a name for a group of sentences discussed by W. Porzig. I shall begin the examination of this group with a consideration of a representative example

(1) One can only see with the eyes.

F, Waismann has discussed a similar example:

(2) I see with the eyes.⁵⁷

I shall take it for granted that both sentences have the same analyticity conditions and disregard the complexities that the modal operator in (1) introduces. I am more interested in the general methodological questions sentence (1) gives rise to when the analyticity question is raised than in the actual status of sentence (1).

What is the difference between the view that sentence (1) is analytic and the view that it is synthetic? Let us call the two views the *A-view* and the *S-view* and a person who holds the *A-view* an *A-holder* and similarly for those who hold the *S-view*. The difference between the attitudes of *A-holders* and *S-holders* is that *A-holders* stick to the view that (1) is true no matter what, whereas *S-holders* are perfectly willing to grant the falsity of (1) if a counterinstance is produced. Let us suppose that the following case happens. We come upon a man who seems to see with his nose. When he turns his nose towards something, he says 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 he gets visual impressions via his nose, and he behaves in a way which in no way casts 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; it is false that you can see only with your eyes.” There are two alternatives open to the *A-holder* in this situation. (i) *A-holder*: “Well, the man seems to see with his nose; but then his nose is a sort of eye

⁵⁷ F. Waismann, “Analytic-Synthetic III”, *Analysis*, Vol. 11 (1951), p. 54, 57ff.

after all, for it is impossible to see with anything else than eyes.” (ii) 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.” Which of the two alternatives he chooses will depend upon what he means by ‘eye’ and ‘see’. If ‘eye’ is defined anatomically and ‘see’ is defined in terms of the function of the anatomical eye, he will decide for the second answer, and if ‘eye’ is defined functionally in terms of seeing, he will decide for the first one. In either case, ‘eye’ and ‘see’ are interdefinable, and the A-holder’s attitude rests on the assumption that the interdefinability must be preserved. The A-holder’s two moves are often used in arguments in practical life to defend statements against counter-instances, a fact which Waismann seems to have overlooked when he classifies (2) and a lot of other sentences as “on the border-line between necessary and contingent, the *a priori* and the empirical,” the analytic and the synthetic.⁵⁸

The A-view does not presuppose that the meanings of ‘eye’ and ‘see’ have been totally fixed in advance of all future cases. Sentence (1) does not express a categorical decision about the future use of the words ‘eye’ and ‘see’, it only records the decision that if the range of situations to which ‘see’ is applied is stretched, then ‘eye’ will be stretched in the same way, and vice versa. In this (1) resembles material synonymy sentences. To say that “All bachelors are unmarried men” is analytic is to make a conditional assertion about the future use of ‘bachelor’ and ‘unmarried man’: the field of application of ‘bachelor’ will be changed if and only if the field of application of the phrase ‘unmarried man’ is changed, and the fields will be changed in the same way.

When Porzig claims that there is an essential meaning relation between ‘see’ and ‘eye’, he obviously talks about some standard use of ‘see’ and ‘eye’, and when he claims that the same kind of relation holds between e.g. ‘bellen’ and ‘Hund’, ‘lecken’ and ‘Zunge’, ‘greifen’ and ‘Hand’, he also does not want to say anything about odd or possible uses of those words. Just as in the case of repetitive sentences and all other sentences one must draw a distinction between primary and secondary uses in the case of words and phrases. Metaphorical and ironical uses of a word do not provide counterexamples to the thesis

⁵⁸ F. Waismann, “Analytic-Synthetic III”, *Analysis*, Vol. 11 (1951), p. 54, p. 60.

that there is an analytic tie between that word and some other word. On the contrary, it confirms the thesis, as Porzig points out, for such uses depend for their effect on the primary use where there is such a tie.⁵⁹ It is not sufficient to say that the crucial expressions must be used in a primary, nonfigurative way for the sentence in point to be analytic. Consider “One can only grasp with the hand” (4). ‘Grasping with the mind’ may be explained away as a metaphor, but even so (4) is not quite true. Apes can grasp things with their feet and there are animals with prehensile tails and trunks. (4) is obviously not intended to cover all cases but only a central type of case. (4) is claimed to be true for *the central meaning* of ‘grasp’, the sense of ‘grasp’ which is felt to be paradigmatical and which provides a clue to the other uses of the word.

Each of Porzig’s sentences can be regarded as analytic and defended by taking recourse to suitable senses of the crucial words. But Porzig also claims that they are usually so regarded, that is, that there are commonly recognized central meanings of the crucial words in virtue of which the sentences are true. To verify the claim it is not sufficient to study actual uses of the expressions in point, since the central meaning of a term is not wholly determined by its use.⁶⁰ Both A-holders and S-holders may use the crucial terms in the same way in all usual situations. The difference between them lies in their verbal dispositions and in their *Sprachgefühl*. The difference between the A-view and the S-view will be noticed when one comes to such queer cases as the story of the “nose-seer”. But most people have not thought of what they would say in such unusual situations, and so the status of many sentences would probably be undecided if this was the only way of finding out whether they are considered to be analytic or synthetic. One can turn then to the other method, direct investigation of the set of grammatical and semantical intuitions which form the “linguistic sense” (*Sprachgefühl*, *Sprachbewusstsein*). To ask people what they think of or “see” or associate with when they use a certain expression would not lead to the desired results, partly because most speech is “automatic”, partly because many associations and much imagery is irrelevant for the central meanings of linguistic expressions. Instead one should ask them to explain or define or paraphrase the meaning

⁵⁹ W. Porzig, “Wesenhafte Bedeutungsbeziehungen”, p. 78.

⁶⁰ Cf. Quine’s story of the “Gavagai”, which is discussed below in section 3.4.

of the expression in point. If one finds that people usually explain the meaning of ‘see’ in terms of eyes and their functions, that is a sign that sentence (1) is analytic for them, exactly as there is reason to suppose that “All bachelors are unmarried men” is analytic if people usually explain the meaning of ‘bachelor’ with the help of the words ‘unmarried’ and ‘man’.

The central meaning is not necessarily the most usual meaning, though they seem to coincide in most cases. By ‘the usual meaning’ of an expression I mean those factors which are necessary and sufficient for the occurrence of the expression. The usual meaning can thus be investigated by an analysis of the contexts of the occurrences of the expression. Now it may happen that most occurrences are metaphorical. The formulation of a rule of use for that expression on the basis of contextual analysis would miss that feature of the meaning of the expression, but native speakers would be aware of it. In such a case the usual meaning would differ from the felt central meaning, and contextual analysis must be supplemented with investigations of meaning intuitions. At least in the case of complex expressions it seems necessary to investigate both the usual and the intuited meaning. If one relies on semantical introspection and perhaps some examples it is easy to convince oneself too early that the central meaning has been found. In the case of such a word as ‘plötzlich’ it is only too easy to observe some features of its use to the neglect of other and perhaps more important features, as Oksaar shows in her work on German speed expressions.⁶¹

3.3. System sentences

One member of a synonymy pair is unnecessary relatively to the other and can be dispensed with unless one cares for convenience and elegance. Synonymy sentences rest upon semantical redundancies in the vocabulary. ‘Bachelor’ is redundant in relation to ‘unmarried man’ and the other way round. Does the same hold for system sentences?

⁶¹ E. Oksaar, *Semantische Studien im Sinnbereich der Schnelligkeit*. Cf. sections 1.3 and 3.5 above.

One of the system sentences cited earlier was the sentence

(1) If today is Monday, then tomorrow is Tuesday.⁶²

This sentence is more like “One can only see with the eyes” and “All bachelors are unmarried” than “All bachelors are unmarried men”, since no synonymy pair occurs explicitly in it. But sentence (1) can be reformulated to make it overtly similar to the last example:

(1’) All Mondays are days which are followed by Tuesdays.

Now it could be said that ‘Monday’ is redundant relatively to ‘day which is followed by Tuesday’. The word ‘Monday’ is theoretically superfluous, given e.g. the notions of day, follower, and Tuesday. This would be a perfectly correct move if one wanted to reconstruct the English vocabulary or a part of it in an economical way, making some sort of minimum list of basic English words. (1’) and the equivalent sentence (1) would then be considered as analytic.

There is, however, an important difference between (1) and (1’) on the one hand and ordinary synonymy sentences like “All bachelors are unmarried men” on the other hand, which makes us hesitate to classify (1) and (1’) as analytic as they occur in actual situations. It is perfectly arbitrary whether one chooses ‘Monday’ or some other day-word when one is to reconstruct the calendar terminology. System words admit of several alternative analyses, and no one of them is felt to be more natural than any other. But there is only one way of analysing the meaning of ‘bachelor’ into components. This fact is reflected in the way in which we learn what a bachelor is. I suppose that at least many of us have first learned what it is for something to be a man and what it is for something to be unmarried and then that a bachelor is something which has both those properties. (One could also start by learning the words ‘man’, ‘unmarried’, and ‘bachelor’ ostensibly and separately, gradually learning to see the connections between the words.)

⁶² See 1.2-1.3 above.

But one could not first learn what it is for something to be a Tuesday and then go on to learn what it is for something to be a Monday, for one cannot know what a Tuesday is unless one knows what a Monday is.

Consider another example:

(2) AB is a higher mark than Ba.

(2) can be used as a partial explanation of the scale of marks used in Swedish schools. For a person who knows that the scale has seven grades and who also knows the place of the mark Ba on the scale without knowing the names of the other grades, sentence (2) may function as an abbreviational definition of 'AB'. The sentence would then be used for meaning-stating, and it would be analytic for him (cf. section 2.1). 'AB' would be redundant relatively to his vocabulary. But for most persons (2) is just one of the sentences which together make up a complete description of the Swedish scale of marks. The paradigmatic analytic sentences are analytic relatively to a set of expressions ordered in a certain way, and when there is no natural way of ordering a set of expressions, it seems that the corresponding analyticity candidates are not usually counted as analytic.

The difference between system sentences and ordinary material synonymy sentences is reflected not only in the way we learn the crucial expressions in the sentences and in the way we would explain their meaning to a foreigner or a child but also in the way we confirm them. We don't find the truth-value of sentences like (1) and (2) and "A major has a lower rank than a colonel" (cf. section 1.3) by observing reality in the same sense in which we or somebody else would have to observe reality to verify the sentence "It is raining in Moscow now" or "Plato is dead", nor do we usually verify system sentences by observing people's speech behaviour or by semantical introspection or by consulting a dictionary, as one should do to convince oneself of the truth of the sentence "All bachelors are unmarried". To verify system sentences one has to learn of conventions of calendar, scales of mark, military hierarchy, etc. R. M. Meyer said that the system of military titles is an unusually clear example of a "meaning-system" (section 1.3). One

could say with more justification that the system of military ranks is an unusually clear example of a social system. There is no one natural way of defining the words which belong to the system of military titles as there is in the case of the system ‘man – ‘unmarried’ – ‘bachelor. The latter system could be said to be a better example of a meaning-system.

3.4. Ostensive sentences

The sentences discussed in the last two sections have been such that they are analytic only if their crucial terms are interdefinable. Sentences which contain ostensively defined terms differ from all such sentences, since an ostensive term can never be wholly defined with the help of other terms. It follows that ostensive sentences present problems of their own for the analytic-synthetic distinction, and cannot be treated in the same way as material synonymy sentences, essence sentences, and system sentences. I shall confine the present discussion to one of the standard examples of problematic ostensive sentences, viz.

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

Similar considerations apply, however, to every sentence in so far as it contains ostensively defined expressions in non-vacuous positions.

What is the difference between the view that (1) is analytic (the A-view) and the view that it is synthetic (the S-view) ? Let us make up an odd case as we did in the case of the sentence “One can only see with one’s eyes”, and see what the A-holder and the S-holder would say. Imagine, then, a world in which people get sense impressions which are rather like our visual impressions but differ from our ordinary visual impressions in this 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.⁶³ When people look at some of those things they see that the things are both what they call “red” and what they call “green”. And now to our two protagonists. S-holder: ”You see that there are things which are both red and green all over at the same time for the same observers; so sentence (1) is false after all.” A-holder: “Well, the beings you imagine certainly get 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 recourse to 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, since sentence (1) does not contain two terms which are such that one of the terms can be stretched if and only if the other term is stretched. The sentence “One can only see with the eyes” makes a conditional assertion about the use of the crucial expressions (cf. section 3.2); the sentence (1) makes a categorical assertion about one feature of the meanings of the crucial terms. The disagreement between the A-holder and the S-holder concerns the meanings of ‘red’ and ‘green’: is the incompatibility of red and green essential to the meanings of ‘red’ and ‘green’ or not? The disagreement over sentence (1) is thus a purely semantic issue. It is of some importance to note this, since it has 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 usually are A-holders or S-holders with respect to (1) we will thus have to discuss the question, What is the meaning of the colour predicates ‘red’ and ‘green’?

An investigation of the usual and intuitive meanings of ‘red’ and ‘green’ would not take us very far. The overwhelming majority of occurrences of ‘red’ would be found to refer to situations which are also not-green situations. As far as concerns the usual meaning, red and green are incompatible because of their meanings, but that does not show that sentence (1) is analytic in the usual sense of ‘analytic’, but only that the non-modal version of (1) holds true of practically all situations in which the words ‘red’ and ‘green’ are used. Nor does it seem probable that most people have a clear awareness of the incompatibility of colours when they think of colours or that they should mention

⁶³ J. C. C. Smart has described such a world in more detail his paper ”Incompatible Colors”, *Philosophical Studies*, Vol. X (1959), p. 39.

explicitly the incompatibility of red and green as one factor in the meanings of the words, if asked to state their meanings. In so far as concerns the intuitively felt meaning of ‘red’ and ‘green’, sentence (1) could therefore be regarded as synthetic for many people. But as we have seen earlier (section 3.2), one must go on to consider the central meanings of the crucial expressions in order to be able to decide whether the sentences in which they occur are analytic. One method of investigating the central meaning of an expression is to see how people explain the meaning of the expression. The best way of explaining the meaning of colour words is to point at things which have the colour in point. The clue to the status of sentence (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 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 ostensively defined terms. On the S-view, one can know what ‘red’ and ‘green’ mean without knowing that red and green are incompatible. But is it possible to learn first what ‘red’ and ‘green’ mean and afterwards go on to learn that the properties they refer to happen to be incompatible ? If you want a child to learn the colour words, you can give him a pack of cards with different colours. One card is red all over, one is green all over, and so on. The child is then trained to say ‘red’ when the red card turns up, ‘green’ when the green card turns up, and so forth. The child will also have to learn to classify the cards into red and not-red cards, green and not-green cards, and he will have to learn that every card is either red or not-red, either green or not-green, and so on through all the colours (for such is the pack). And you would not be satisfied that the child has learned the ordinary meaning of ‘red’ and ‘green’ if he 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 was a very clever Smartian child that could develop his thesis in a satisfactory way, you would have to point out to him that you have defined ‘red’ and ‘green’ by reference to the cards of 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' means the colour of this card", 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, as I have defined the word, and at the same time be e.g. green all over."

Now it seems that colour words are usually learned in ways similar to this card pack game, and their meaning is usually 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 plus some such phrase as "like this from the colour point of view". Why, then, should one of the colour features of "this" be sorted out and labelled 'accidental', 'empirical', '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 Quine.⁶⁴ But it seems easy to draw the distinction in the case Quine discusses. Suppose that there is a certain type of flies which always accompany rabbits in certain districts. How should one decide, then, whether the native word 'Gavagai' denotes rabbits or rabbit-flies or both ? It would not be sufficient to observe actual speech behaviour (and that is perhaps all that Quine claims when he says that the distinction is "illusory") , since all rabbit situations will also be rabbit-fly situations and conversely. But one can investigate what the central meaning of the word is 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, etc. But in the case of 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 e.g. green instances. It seems rational, therefore, to count incompatibility of colours as part of the meaning of colour words, and to regard the sentence "Nothing can be red and green all over" as analytic. The natural

⁶⁴ W. V. O. Quine, *Word and Object*, p. 38.

course to take in such a case as Smart's case is to say that 'red' and 'green' are used in new senses when applied to his world. The defender of the view that the sentence is analytic invites the charge of gratuitousness.

That the solution of the semantical problem of colour incompatibility lies in the nature of ostension has been hinted at in several articles, e.g. by V. C. Aldrich and D. F. Pears.⁶⁵ Pears has pointed out that sentence (1) is felt to be necessary but that it is not analytic according to what I have called Def. 2 of 'analytic sentence', if the word 'definition' in Def. 2 is interpreted narrowly as 'verbal definition', and there is, therefore, some justification for calling (1) a synthetic sentence *a priori*, as many philosophers have done.⁶⁶ On the other hand, (1) is analytic according to Def. 1, and also analytic on Def. 2 if 'definition' is taken to include ostensive definitions. The corrective to the view that (1) is synthetic *a priori* with all its misleading implications is to take a more liberal view of what an analytic sentence is and consequently, on Def. 2, of what a definition is. Pears introduced the term 'designatory rule' as a name for the relation that holds between 'red' and red, but he did not go on to give an account of such rules or to consider ostensive definitions directly, and so he missed the solution of the problem.

If the argument from the openness of ostensive definitions is right, learning to distinguish between red and not-red things involves learning that no thing is both red and not-red all over. The child who knows what 'red' means will therefore know that a surface that is red all over has no other colour all over, provided that he knows what 'colour' means. But the child need not know e.g. that the surface cannot be green all over at the same time in order to know the meaning of 'red'. I.e., 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 sentence). 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), he will see that (1) is analytic. Or, alternatively, if the child knows what red is and what green is (perhaps without knowing

⁶⁵ V. C. Aldrich, "The Last Word on Being Red and Blue All Over", *Philosophical Studies*, Vol. V (1954), p. 9; D. F. Pears, "Incompatibilities of Colours", in *Essays on Logic and Language*, ed. by A. Flew.

⁶⁶ E. g. Aldrich. – Def. 1 and Def. 2 were given in section 1.1 *supra*.

what colour is), he will understand that sentence (1) is true by virtue of its meaning. For it seems true to say that though a person may know the meaning of 'red' without knowing the meaning of 'green', and conversely, it is impossible to know the meaning of both 'red' and 'green' without knowing that green things are not-red and that red things are not-green. That is, it is natural to regard the learning of the relations that hold between the referents of words as part of learning the meanings of the words.⁶⁷

Colours form a system, and learning colour words involves learning to see the relations within the system.⁶⁸ To see why this view is so natural in the case of colour words one need only try to answer the following question: how should the child who 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'?

⁶⁷ This view has been defended in a general form by W. Sellars; see his papers "Inference and Meaning", *Mind*, LXII (1953), pp. 313-338, and "Empiricism and the Philosophy of Mind", in *Minnesota Studies in the Philosophy of Science*, Vol. I (1956), pp. 253-329. Cf. H. N. Castaneda, "Analytic Propositions, Definitions and the 'A Priori'", *Ratio*, Vol. II (1959), p.85f. According to Sellars, the meaning of words is determined both by formal or logical rules of inference (L-rules) and by material or empirical inference licences (P-rules). "In other words where ' ψa ' is P-derivable from ' ϕa ' ..., it is as correct to say that ' $\phi a \supset \psi a$ ' is true by virtue of the meaning of ' ϕa ' and ' ψa ', as it is to say this where ' ψa ' is L-derivable from ' ϕa '" (*Inference and Meaning*, p. 336). This is intuitively correct in the case of colour words (it seems to me). For let ' ϕ ' be 'red' and ' ψ ' be 'not-green'. It seems right, then, to say with Sellars that '(red) a \supset (not-green) a' is true because of the meaning of 'red' and 'not-green' and, therefore, because of the meaning of 'red' and 'green'. But that is so, I want to suggest, only because the conditional '(red) a \supset (not-green) a' happens to express a feature of the central meaning of 'red' and 'green'. In general, it seems that Sellars' thesis is true only for a wide sense of 'meaning' which includes the central meaning as well as all sorts of associations and reminiscences of earlier situations in which the word in point has been heard and uttered, and that is a much wider sense of 'meaning', it seems, than the definition of 'analytic sentence' in terms of meaning can bear without rendering the analytic-synthetic distinction pointless. If 'It will be wet on the streets' is P-derivable from 'It is raining', the sentence 'It is raining \supset it will be wet on the streets' (S) is true because of the meaning, i.e. it is analytic, according to Sellars. To call S analytic is, however, to blur important differences between S and, for instance, the sentence "All bachelors are unmarried men."

⁶⁸ Cf. D. F. Pears, "Incompatibilities of Colours", p. 121f., and D. S. Schwayder, "Mr. Aldrich's 'Last Word'", *Philosophical Studies*, Vol. V (1954), p. 63f.

3.5. Rule sentences

In order to avoid lengthening an already lengthy paper I shall end with just a few comments on the third group of sentences collected from semantic field writings in section 1.3. The sentences in this group are from E. Oksaar's work on German speed expressions, and most of them occur in sections headed Rule of Use (*Gebrauchsnorm*).⁶⁹

Oksaar precedes in two steps to arrive at such rules. The steps have already been described implicitly earlier in this paper. First, she makes a contextual analysis of occurrences of the expression in point and arrives at what I have called "the usual meaning", a formulation of the factors which are normally present in the situations in which the expression occurs and on which the occurrence of the expression seems to depend. Second, she goes on to investigate what I have called "the central meaning" through introspection (preferably checked by the results of other people's introspections). Led by occurrence analysis and introspection she then formulates the rule of use for the expression.⁷⁰

A consideration of some such rules of use can be a useful corrective for the philosopher who, preoccupied with scientific discourse, tends to take an over-narrow view of the use of ordinary language expressions. It is tempting to think that the use of descriptive expressions is governed only by conditions on the referent of the expression, and to take a word like 'bachelor' as a paradigm of a descriptive word. 'Bachelor' can be used correctly if the referent fulfils two conditions: being unmarried and being a man, and no other conditions need to be fulfilled except general conditions on sentence formation and so on. A word like 'sudden' (*plötzlich*) obeys a more complex rule which lays down conditions on the kind of phenomenon which is said to occur *plötzlich* (it must be an action) as well as conditions on its length and intensity and the state of mind of the

⁶⁹ E. Oksaar, *Semantische Studien im Sinnbereich der Schnelligkeit*. Cf. E. Leisi, *Der Wortinhalt*.

⁷⁰ Oksaar, *op. cit.*, p. 49.

perceiver (he must not expect it) and the verbal context (the word does not occur in positive imperatives except for secondary uses). Other expressions require certain types of actors and objects, certain positions, certain social situations, and so on, as Leisi illustrates in *Der Wortinhalt* with a lot of examples from German and English.

All the rule sentences quoted in section 1.3 seem to depend for their truth on the existence of such rules of use for the crucial expressions. The first sentence is true because of a condition on the type of object, the second depends on a condition on the type of actor, the third on a condition on the length of action, and so on.

Similar consideration apply to the “essence sentences” in section 1.3, and in general it seems that the notion of rule of use can be used to bring the sentences discussed in the last sections of this paper into one basket. Leisi’s and Oksaar’s notion of rule of use can perhaps also be used to clarify the status of other types of sentences which have not been discussed here.

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