# SENTENCES, SYNTAX, AND PARTS OF SPEECH

Sentences may be interrogative, optative, exclamatory, or imperative; they may also be indicative. Throughout most of the remainder of our discussions, we may confine ourselves to indicative sentences, since these alone are true or false. In addition to being true or false, indicative sentences have two other properties which are of interest to us, and which they share with other sentences. The first of these is that they are composed of words, and have a meaning derivative from that of the words that they contain; the second is that they have a certain kind of unity, in virtue of which they are capable of properties not possessed by their constituent words.

Each of these three properties needs investigation. Let us begin with the unity of a sentence.

A single grammatical sentence may not be logically single. 'I went out and found it was raining' is logically indistinguishable from the two sentences: 'I went out', 'I found it was raining'. But the sentence 'when I went out I found it was raining' is logically single: it asserts that two occurrences were simultaneous. 'Caesar and Pompey were great generals' is logically two sentences, but 'Caesar and Pompey were alike in being great generals' is logically one. For our purposes, it will be convenient to exclude sentences which are not logically single, but consist of two assertions joined by 'and' or 'but' or 'although' or some such conjunction. A single sentence, for our purposes, must be one which says something that cannot be said in two separate simpler sentences.

Consider next such a sentence as 'I should be sorry if you fell ill'. This cannot be divided into 'I shall be sorry' and 'you will fall ill'; it has the kind of unity that we are demanding of a sentence. But it has a complexity which some sentences do not have; neglecting tense, it states a relation between 'I am sorry' and 'you are ill'. We may interpret it as asserting that at any time when the second of these sentences is true, the first is also true. Such sentences may be called 'molecular' in relation to their constituent sentences, which, in the same relation, may be called 'atomic'. Whether any sentences are 'atomic' in a non-relative sense, may, for the present, be left an open question; but whenever we find a sentence to be molecular, we shall do well, while we are considering what makes the unity of sentences, to transfer our attention, in the first place, to its atoms. Roughly, an atomic sentence is one containing only one verb; but this would only be accurate in a strictly logical language.

This matter is by no means simple. Suppose I say first 'A' and then 'B'; you may judge: 'the sound "A" preceded the sound "B" '. But this implies 'the sound "A" occurred' and 'the sound "B" occurred', and adds that one occurrence was earlier than the other. Your statement, therefore, is really analogous to such a statement as 'after I went out I got wet'. It is a molecular statement whose atoms are 'A occurred' and 'B occurred'. Now what do we mean by 'A occurred'? We mean that there was a noise of a certain class, the class called 'A'. Thus when we say 'A preceded B' our statement has a concealed logical form, which is the same as that of the statement: 'first there was the bark of a dog, and then the neigh of a horse'.

Let us pursue this a little further. I say 'A'. Then I say 'what did I say?' Then you reply 'you said "A" '. Now the noise you make when saying 'A' in this reply is different from the noise I originally made; therefore, if 'A' were the name of a particular noise, your statement would be false. It is only because 'A' is the name of a class of noises that your statement is true; your statement classifies the noise I made, just as truly as if you had said 'you barked like a dog'. This shows how language forces us into generality even when we most wish to avoid it. If we want to speak about the particular noise that I made, we shall have to give it a proper name, say 'Tom'; and the noise that you made when you said 'A' we will call 'Dick'. Then

we can say 'Tom and Dick are A's'. We can say 'I said Tom' but not 'I said "Tom" '. Strictly, we ought not to say 'I said "A" '; we ought to say 'I said an "A" '. All this illustrates a general principle, that when we use a general term, such as 'A' or 'man', we are not having in our minds a universal, but an instance to which the present instance is similar. When we say 'I said "A" ', what we really mean is 'I made a noise closely similar to the noise I am now about to make: "A".' This, however, is a digression.

We will revert to the supposition that I say first 'A' and then 'B'. We will call the particular occurrence which was my first utterance 'Tom' and that which was my second utterance 'Harry'. Then we can say 'Tom preceded Harry'. This was what we really meant to say when we said 'the sound "A preceded the sound "B"'; and now, at last, we seem to have reached an atomic sentence which does not merely classify.

It might be objected that, when I say 'Tom preceded Harry', this implies 'Tom occurred' and 'Harry occurred', just as when I said 'the sound "A" preceded the sound "B" ', that implied ' "A" occurred' and ' "B" occurred'. This, I think, would be a logical error. When I say that an unspecified member of a class occurred, my statement is significant provided I know what class is meant; but in the case of a true proper name, the name is meaningless unless it names something, and if it names something, that something must occur. This may seem reminiscent of the ontological argument, but it is really only part of the definition of 'name'. A proper name names something of which there are not a plurality of instances, and names it by a convention ad hoc, not by a description composed of words with previously assigned meanings. Unless, therefore, the name names something, it is an empty noise, not a word. And when we say 'Tom preceded Harry', where 'Tom' and 'Harry' are names of particular noises, we do not presuppose 'Tom occurred' and 'Harry occurred', which are both strictly meaningless.

In practice, proper names are not given to single brief occurrences, because most of them are not sufficiently interesting. When we have occasion to mention them, we do so by means of descriptions such as 'the death of Caesar' or 'the birth of Christ'. To speak for the moment in terms of physics, we give proper names to certain continuous stretches of space-time, such as Socrates, France, or the moon. In former days, it would have been said that we give a proper name to a substance or collection of sub stances, but now we have to find a different phrase to express the object of a proper name.

A proper name, in practice, always embraces many occurrences, but not as a class-name does: the separate occurrences are parts of what the name means, not instances of it. Consider, say, 'Caesar died'. 'Death' is a generic word for a number of occurrences having certain resemblances to each other, but not necessarily any spatio-temporal interconnection; each of these is a death. 'Caesar', on the contrary, stands for a series of occurrences, collectively, not severally. When we say 'Caesar died', we say that one of the series of occurrences which was Caesar was a member of the class of deaths; this occurrence is called 'Caesar's death'.

From a logical point of view, a proper name may be assigned to any continuous portion of space-time. (Macroscopic continuity suffices.) Two parts of one man's life may have different names; for instance, Abram and Abraham, or Octavianus and Augustus. 'The universe' may be regarded as a proper name for the whole of space-time. We can give a proper name to very small portions of space-time, provided they are large enough to be noticed. If I say 'A' once at 6 p.m. on a given date, we can give a proper name to this noise, or, to be still more particular, to the auditory sensation that some one person present has in hearing me. But even when we have arrived at this degree of minuteness, we cannot say that we have named something destitute of structure. It may therefore be assumed, at least for the present, that every proper name is the name of a structure, not of something destitute of parts. But this is an empirical fact, not a logical necessity.

If we are to avoid entanglement in questions that are not linguistic, we must distinguish sentences, not by the complexity which they may happen to have, but by that implied in their form. 'Alexander preceded Caesar' is com plex owing to the complexity of Alexander and Caesar; but 'x preceded y' does not, by its form, imply that x and y are complex. In fact, since Alexander died before Caesar was born, every constituent of Alexander preceded every constituent of Caesar. We may thus accept 'x precedes y' as an atomic form of proposition, even if we cannot actually mention an x and a y which give an atomic proposition. We shall say, then, that a form of proposition is atomic if the fact that a proposition is of this form does not logically imply that it is a structure composed of subordinate propositions. And we shall add that it is not logically necessary that a proper name should name a structure which has parts.

The above discussion is a necessary preliminary to the attempt to discover what constitutes the essential unity of a sentence; for this unity, whatever its nature may be, obviously exists in a sentence of atomic form, and should be first investigated in such sentences.

In every significant sentence, some connection is essential between what the several words mean—omitting words which merely serve to indicate syntactical structure. We saw that 'Caesar died' asserts the existence of a common member of two classes, the class of events which was Caesar and the class of events which are deaths. This is only one of the relations that sentences can assert; syntax shows, in each case, what relation is asserted. Some cases are simpler than 'Caesar died', others are more complex. Suppose I point to a daffodil and say 'this is yellow'; here 'this' may be taken as the proper name of a part of my present visual field, and 'yellow' may be taken as a class-name. This proposition, so interpreted, is simpler than 'Caesar died', since it classifies a given object; it is logically analogous to 'this is a death'. We have to be able to know such propositions before we can know that two classes have a common member, which is what is asserted by 'Caesar died'. But 'this is yellow' is not so simple as it looks. When a child learns the meaning of the word 'yellow', there is first an object (or rather a set of objects) which is yellow by definition, and then a perception that other objects are similar in colour. Thus, when we say to a child 'this is yellow', what (with luck) we convey to him is: 'this resembles in colour the object which is yellow by definition'. Thus, classificatory propositions, or such as assign predicates, would seem to be really propositions asserting similarity. If so, the simplest propositions are relational.

There is, however, a difference between relations that are symmetrical and those that are asymmetrical. A relation is symmetrical when, if it holds between x and y, it also holds between y and x; it is asymmetrical if, when it holds between x and y, it cannot hold between y and x. Thus, similarity is symmetrical, and so is dissimilarity; but 'before', 'greater', 'to the right of', and so on, are asymmetrical. There are also relations which are neither symmetrical nor asymmetrical; 'brother' is an example, since, if x is the brother of y, y may be the sister of x. These and asymmetrical relations are called non symmetrical. Non-symmetrical relations are of the utmost importance, and many famous philosophies are refuted by their existence.

Let us try to state what exactly are the linguistic facts about non-symmetrical relations. The two sentences 'Brutus killed Caesar' and 'Caesar killed Brutus' consist of the same words, arranged, in each case, by the relation of temporal sequence. Nevertheless, one of them is true and the other false. The use of order for this purpose is, of course, not essential; Latin uses inflexions instead. But if you had been a Roman schoolmaster teaching the difference between nominative and accusative, you would have been compelled, at some point, to bring in non-symmetrical relations, and you would have found it natural to explain them by means of spatial or temporal order. Consider for a moment what happened when Brutus killed Caesar: a dagger moved swiftly from Brutus into Caesar. The abstract scheme is 'A moved from B to C', and the fact with which we are concerned is that this is different from 'A moved from C to B'. There were two events,

one A-being-at-B, the other A-being-at-C, which we will name x and y respectively. If A moved from B to C, x preceded y; if A moved from C to B, y preceded x. Thus, the ultimate source of the difference between 'Brutus killed Caesar' and 'Caesar killed Brutus' is the difference between 'x precedes y' and 'y precedes x', where x and y are events. Similarly in the visual field there are the spatial relations above-and-below, right-and-left, which have the same property of asymmetry. 'Brighter', 'louder', and comparatives generally, are also asymmetrical.

The unity of the sentence is peculiarly obvious in the case of asymmetrical relations: 'x precedes y' and 'y precedes x' consist of the same words, arranged by the same relation of temporal succession; there is nothing whatever in their ingredients to distinguish the one from the other. The sentences differ as wholes, but not in their parts; it is this that I mean when I speak of a sentence as a unity.

At this point, if confusions are to be avoided, it is important to remember that words are universals.1 In the two sentential utterances 'x precedes y' and 'y precedes x', the two symbols 'x' are not identical, no more are the two symbols 'y'. Let S1 and S2 be proper names of these two sentential utterances; let X1 and X2 be proper names of the two utterances of 'x', Y1 and Y2 of those of 'y', and P1 and P2 of those of 'precedes'. Then S1 consists of the three utterances X1 , P1 , Y1 in that order, and S2 consists of the three utterances Y2 , P2 , X2 in that order. The order in each case is a fact of history, as definite and unalterable as the fact that Alexander preceded Caesar. When we observe that the order of words can be changed, and that we can say 'Caesar killed Brutus' just as easily as 'Brutus killed Caesar', we are apt to think that the words are definite things which are capable of different arrangements. This is a mistake: the words are abstractions, and the verbal utterances can only have whichever order they do have. Though their life is short, they live and die, and they are incapable of resurrection. Everything has the arrangement it has, and is incapable of rearrangement.

I do not wish to be thought needlessly pedantic, and I will therefore point out that clarity on this matter is necessary for the understanding of possibility. We say it is possible to say either 'Brutus killed Caesar' or 'Caesar killed Brutus', and we do not realize that this is precisely analogous to the fact that it is possible for a man to be to the left of a woman on one occasion, and for another man to be to the right of another woman on another occasion. For: let β be the class of verbal utterances which is the spoken word 'Brutus'; let κ be the class of verbal utterances which is the spoken word 'killed'; and let γ be the class of verbal utterances which is the spoken word 'Caesar'. Then to say that we can say either 'Brutus killed Caesar' or 'Caesar killed Brutus' is to say that (1) there are occurrences x, P, y, such that x is a member of β, P is a member of κ, y is a member of γ, x is just before P and P is just before y; (2) there are occurrences x′, P′, y′ fulfilling the above conditions as to member ship of β, κ, γ but such that y′ is just before P′ and P′ just before x′. I maintain that in all cases of possibility, there is a subject which is a variable, defined as satisfying some condition which many values of the variable satisfy, and that of these values some satisfy a further condition while others do not; we then say it is 'possible' that the subject may satisfy this further condition. Symbol ically, if ' x and ψx' and ' x and not 'ψx' are each true for suitable values of x, then, given x, ψx is possible but not necessary. (One must distinguish empirical and logical necessity; but I do not wish to go into this question.)

Another point is to be noted. When we say that the sentences 'x P y' and 'y P x' (where P is an asymmetrical relation) are incompatible, the symbols 'x' and 'y' are universals, since, in our statement, there are two instances of each; but they must be names of particulars. 'Day precedes night' and 'night pre cedes day' are both true. There is thus, in such cases, an absence of logical homogeneity between the symbol and its meaning: the symbol is a universal while the meaning is particular. This kind of logical heterogeneity is very liable to lead to confusions. All symbols are of the same logical type: they are classes of similar

utterances, or similar noises, or similar shapes, but their meanings may be of any type, or of ambiguous type, like the meaning of the word 'type' itself. The relation of a symbol to its meaning necessarily varies according to the type of the meaning, and this fact is important in the theory of symbolism.

Having now dealt with the possible confusions that may arise through saying that the same word can occur in two different sentences, we can henceforth freely use this expression, just as we can say 'the giraffe is to be found in Africa and in the Zoo', without being misled into the belief that this is true of any particular giraffe.

In a language like English, in which the order of the words is essential to the meaning of the sentence, we can put the matter of non-symmetrical relations as follows: given a set of words which is capable of forming a sentence, it often happens that it is capable of forming two or more sentences of which one is true while the others are false, these sentences differing as to the order of the words. Thus the meaning of a sentence, at any rate in some cases, is determined by the series of words, not by the class. In such cases, the meaning of the sentence is not obtainable as an aggregate of the meanings of the several words. When a person knows who Brutus was, who Caesar was, and what killing is, he still does not know who killed whom when he hears the sentence 'Brutus killed Caesar'; to know this, he requires syntax as well as vocabulary, since the form of the sentence as a whole contributes to the meaning.

To avoid unnecessary lengthiness, let us assume, for the moment, that there is only spoken speech. Then all words have a time order, and some words assert a time order. We know that, if 'x' and 'y' are names of particular events, then if 'x precedes y' is a true sentence, 'y precedes x' is a false sentence. My present problem is this: can we state anything equivalent to the above in terms which are not concerned with language, but with events? It would seem that we are concerned with a characteristic of temporal relations, and yet, when we try to state what this characteristic is, we appear to be driven to stating a character istic of sentences about temporal relations. And what applies to temporal relations applies equally to all other asymmetrical relations.

When I hear the sentence 'Brutus killed Caesar', I perceive the time-order of the words; if I did not, I could not know that I had heard that sentence and not 'Caesar killed Brutus'. If I proceed to assert the time-order by the sentences ' "Brutus" preceded "killed" ' and ' "killed" preceded "Caesar" ', I must again be aware of the time-order of the words in these sentences. We must, therefore, be aware of the time-order of events in cases in which we do not assert that they have that time-order, for otherwise we should fall into an endless regress. What is it that we are aware of in such a case?

The following is a theory which might be suggested: when we hear the word 'Brutus', there is an experience analogous to that of the gradually fading tone of a bell; if the word was heard a moment ago, there is still now an akoluthic sensation, analogous to that of a moment ago, but fainter. Thus when we have just finished hearing the sentence 'Brutus killed Caesar', we are still having an auditory sensation which might be represented by **Brutus killed CAESAR;** whereas when we have just finished hearing 'Caesar killed Brutus', our sensation may be represented by Caesar killed BRUTUS.

These are different sensations, and it is this difference—so it may be contended—that enables us to recognize order in time. According to this theory, when we distinguish between 'Brutus killed Caesar' and 'Caesar killed Brutus', we are distinguishing, not between two wholes composed of exactly similar parts which are successive, but between two wholes com posed of somewhat dissimilar parts which are simultaneous. Each of these wholes is characterized by its constituents, and does not need the further mention of an arrangement.

In this theory there is, no doubt, an element of truth. It seems clear, as a matter of psychology, that there are occurrences, which may be classed as sensations, in which a present sound is combined with the fading ghost of a sound heard a moment ago. But if there were no more than this, we should not know that past events have occurred. Assuming that there are akoluthic sensations, how do we know their likeness to and difference from sensations in their first vigour? If we only knew present occurrences which are in fact related to past occurrences, we should never know of this relationship. Clearly we do sometimes, in some sense, know the past, not by inference from the present, but in the same direct way in which we know the present. For if this were not the case, nothing in the present could lead us to suppose that there was a past, or even to understand the supposition.

Let us revert to the proposition: 'if x precedes y, y does not precede x'. It seems clear that we do not know this empirically, but it does not seem to be a proposition of logic.3 Yet I do not see how we can say that it is a linguistic convention. The proposition 'x precedes y' can be asserted on the basis of experience. We are saying that, if this experience occurs, no experience will occur such would lead to 'y precedes x'. It is obvious that, however we re-state the matter, there must always be a negation somewhere in our statement; and I think it is also fairly obvious that negation brings us into the realm of language. When we say 'y does not precede x', it might seem that we can only mean: 'the sentence "y precedes x" is false'. For if we adopt any other interpretation, we shall have to admit that we can perceive negative facts, which seems preposterous, but perhaps is not, for reasons to be given later. I think something similar may be said about 'if': where this word occurs, it must apply to a sentence. Thus it seems that the proposition we are investigating should be stated: 'at least one of the sentences "x precedes y" and "y precedes x" is false, if x and y are proper names of events'. To carry the matter further demands a definition of falsehood. We will therefore postpone this question until we have reached the discussion of truth and falsehood.

Parts of speech, as they appear in grammar, have no very intimate relation to logical syntax. 'Before' is a preposition and 'precedes' is a verb, but they mean the same thing. The verb, which might seem essential to a sentence, may be absent in many languages, and even in English in such a phrase as 'more haste, less speed'. It is possible, however, to compose a logical language with a logical syntax, and to find, when it has been constructed, certain suggestions in ordinary language which lead up to it.

The most complete part of logic is the theory of conjunctions. These, as they occur in logic, come only between whole sentences; they give rise to molecular sentences, of which the atoms are separated by the conjunctions. This part of the subject is so fully worked out that we need waste no time on it. Moreover, all the earlier problems with which we are concerned arise in regard to sentences of atomic form.

Let us consider a few sentences: (1) this is yellow; (2) this is before that; (3) A gives a book to B.

(1) In 'this is yellow', the word 'this' is a proper name. It is true that, on other occasions, other objects are called 'this', but that is equally true of 'John': when we say 'here's John', we do not mean 'here is some member of the class of people called "John" '; we regard the name as belonging to only one person. Exactly the same is true of 'this'. The word 'men' is applicable to all the objects called severally 'a man', but the word 'these' is not applicable to all the objects severally called 'this' on different occasions.

The word 'yellow' is more difficult. It seems to mean, as suggested above, 'similar in colour to a certain object', this object being yellow by definition. Strictly, of course, since there are many shades of yellow, we need many objects which are yellow by definition: but one may ignore this complication. But since we can distinguish similarity in colour from similarity in other respects (e.g. shape), we do not avoid the necessity of a certain degree of abstraction in arriving at what is meant by 'yellow'.4 We cannot see colour without shape, or shape without colour; but we can perceive the difference between the similarity of a yellow circle to a yellow triangle and the similarity of a yellow circle to a red circle. It would seem,

therefore, that sensible predicates, such as 'yellow', 'red', 'loud', 'hard', are derived from the perception of kinds of similarity. This applies also to very general predi cates such as 'visual', 'audible', 'tactile'. Thus to come back to 'this is yellow', the meaning seems to be 'this has colour-similarity to that', where 'this' and 'that' are proper names, the object called 'that' is yellow by definition, and colour-similarity is a dual relation which can be perceived. It will be observed that colour-similarity is a symmetrical relation. That is the reason which makes it possible to treat 'yellow' as a predicate, and to ignore com parison. Perhaps, indeed, what has been said about the comparison applies only to the learning of the word 'yellow'; it may be that, when learnt, it is truly a predicate.5

(2) 'This is before that' has already been discussed. Since the relation 'before' is asymmetrical, we cannot regard the proposition as assigning a common predicate to this and that. And if we regard it as assigning different predicates (e.g. dates) to this and that, these predicates themselves will have to have an asymmetrical relation corresponding to 'before'. We may, formally treat the proposition as meaning 'the date of this is earlier than the date of that', but 'earlier' is an asymmetrical relation just as 'before' was. It is not easy to find a logical method of manufacturing asymmetry out of symmetrical data.6

The word 'before', like the word 'yellow', may be derived from com parison. We may start from some very emphatic case of sequence, such as a clock striking twelve, and, by taking other cases of sequence which have no other obvious resemblance to the striking clock, gradually lead to a concentration of attention on sequence. It seems clear, however—whatever may be the case in regard to 'yellow'—that in regard to 'before' this only applies to the learning of the word. The meaning of such words as 'before' or 'colour similarity' cannot always be derived from comparison, since this would lead to an endless regress. Comparison is a necessary stimulus to abstraction, but abstraction must be possible, at least as regards similarity. And if possible, in regard to similarity, it seems pointless to deny it elsewhere.

To say that we understand the word 'before' is to say that, when we perceive two events A and B in a time-sequence, we know whether to say 'A is before B' or 'B is before A', and concerning one of these we know that it describes what we perceive.

(3) 'A gives a book to B.' This means: 'there is an x such that A gives x to B and x is bookish'—using 'bookish', for the moment, to mean the defining quality of books. Let us concentrate on 'A gives C to B', where A, B, C are proper names. (The questions raised by 'there is an x such that' we will consider presently.) I want to consider what sort of occurrence gives us evidence of the truth of this statement. If we are to know its truth, not by hearsay, but by the evidence of our own senses, we must see A and B, and see A holding C, moving C towards B, and finally giving C into B's hands. (I am assuming that C is some small object such as a book, not an estate or a copyright or anything else of which possession is a complicated legal abstrac tion.) This is logically analogous to 'Brutus killed Caesar with a dagger'. What is essential is that A, B and C should all be sensibly present throughout a f inite period of time, during which the spatial relations of C to A and B change. Schematically, the geometrical minimum is as follows: first we see three shapes $A_1$, $B_1$, $C_1$, of which $C_1$ is close to $A_1$; then we see three very similar shapes $A_2$, $B_2$, $C_2$, of which $C_2$ is close to $B_2$. (I am omitting a number of niceties.) Neither of these two facts alone is sufficient; it is their occurrence in quick succession that is asserted. Even this is not really sufficient: we have to believe that $A_1$ and $A_2$, $B_1$ and $B_2$, $C_1$ and $C_2$ are respectively appearances of the same material objects, however these may be defined. I will ignore the fact that 'giving' involves intention; but even so the complications are alarm ing. At first sight, it would seem that the minimum assertion involved must be something like this: '$A_1$, $B_1$, $C_1$ are appearances of three material objects at one time; $A_2$, $B_2$, $C_2$ are appearances of the "same" objects at a slightly later time; $C_1$ touches $A_1$ but not $B_1$; $C_2$ touches $B_2$ but not $A_2$.' I do not go into the evidence required to show that two appearances at different times are appear ances of the 'same'

object; this is ultimately a question for physics, but in practice and the law-courts grosser methods are tolerated. The important point, for us, is that we have apparently been led to an atomic form involving six terms, namely: 'the proximity of C1 to A1 and its comparative remoteness from B1 is an occurrence slightly anterior to the proximity of C2 to B2 and its comparative remoteness from A2 '. We are tempted to conclude that we can not avoid an atomic form of this degree of complexity if we are to have sensible evidence of such a matter as one person handing an object to another person.

But perhaps this is a mistake. Consider the propositions: C1 is near A1 , C1 is far from B1 , A1 is simultaneous with B1 , B1 is simultaneous with C1 , A1 is slightly anterior to A2 , A2 is simultaneous with B2 , B2 is simultaneous with C2 , C2 is near B2 , C2 is far from A2 . This set of nine propositions is logically equivalent to the one proposition involving A1 , B1 , C1 , A2 , B2 , C2 . The one proposition, therefore, can be an inference, not a datum. There is still a difficulty: 'near' and 'far' are relative terms; in astronomy, Venus is near the earth, but not from the point of view of a person handing something to another person. We can, however, avoid this. We can substitute 'C1 touches A1 ' for 'C1 is near A1 ', and 'something is between C1 and B1 ' for 'C1 is far from B1 '. Here 'touching' and 'between' are to be visual data. Thus the three-term relation 'between' seems the most complex datum required.

The importance of atomic forms and their contradictories is that—as we shall see—all propositions, or at least all non-psychological propositions justified by observation without inference are of these forms. That is to say, if due care is taken, all the sentences which embody empirical physical data will assert or deny propositions of atomic form. All other physical sentences can theoretically be either proved or disproved (as the case may be), or rendered probable or improbable, by sentences of these forms; and we ought not to include as a datum anything capable of logical proof or disproof by means of other data. But this is merely by way of anticipation.

In a sentence of atomic form, expressed in a strictly logical language, there are a finite number of proper names (any finite number from one upwards), and there is one word which is not a proper name. Examples are: 'x is yellow', 'x is earlier than y', 'x is between y and z', and so on. We can distinguish proper names from other words by the fact that a proper name can occur in every form of atomic sentence, whereas a word which is not a proper name can only occur in an atomic sentence which has the appropriate number of proper names. Thus 'yellow' demands one proper name, 'earlier' demands two, and 'between' demands three. Such terms are called predicates, dyadic relations, triadic relations, etc. Sometimes, for the sake of uniformity, predicates are called monadic relations.

I come now to the parts of speech, other than conjunctions, that cannot occur in atomic forms. Such are 'a', 'the', 'all', 'some', 'many', 'none'. To these, I think, 'not' should be added; but this is analogous to conjunctions. Let us start with 'a'. Suppose you say (truly) 'I saw a man'. It is obvious that 'a man' is not the sort of thing one can see; it is a logical abstraction. What you saw was some particular shape, to which we will give the proper name A; and you judged 'A is human'. The two sentences 'I saw A' and 'A is human' enable you to deduce 'I saw a man', but this latter sentence does not imply that you saw A, or that A is human. When you tell me that you saw a man, I cannot tell whether you saw A or B or C or any other of the men that exist. What is known is the truth of some proposition of the form:

'I saw x and x is human.'

This form is not atomic, being compounded of 'I saw x' and 'x is human'. It can be deduced from 'I saw A and A is human'; thus it can be proved by empirical data, although it is not the sort of sentence that expresses a perceptual datum, since such a sentence would have to mention A or B or C or whoever it was that you saw. Per contra, no perceptual data can disprove the sentence 'I saw a man'.

Propositions containing 'all' or 'none' can be disproved by empirical data, but not proved except in logic and mathematics. We can prove 'all primes except 2 are odd', because this follows from definitions; but we cannot prove 'all men are mortal', because we cannot prove that we have overlooked no one. In fact, 'all men are mortal' is a statement about everything, not only about all men; it states, concerning every x, that x is either mortal or not human. Until we have examined everything, we cannot be sure but that something unexamined is human but immortal. Since we cannot examine everything, we cannot know general propositions empirically.

No proposition containing the (in the singular) can be strictly proved by empirical evidence. We do not know that Scott was the author of Waverley; what we know is that he was an author of Waverley. For aught we know, somebody in Mars may have also written Waverley. To prove that Scott was the author, we should have to survey the universe and find that everything in it either did not write Waverley or was Scott. This is beyond our powers.

Empirical evidence can prove propositions containing 'a' or 'some', and can disprove propositions containing 'the', 'all', or 'none'. It cannot disprove propositions containing 'a' or 'some', and cannot prove propositions containing 'the', 'all', or 'none'. If empirical evidence is to lead us to disbelieve propositions about 'some' or to believe propositions about 'all', it must be in virtue of some principle of inference other than strict deduction—unless, indeed, there should be propositions containing the word 'all' among our basic propositions.

**(An Inquiry into Meaning and Truth, London: Allen & Unwin; New York: W. W. Norton, 1940.)**

NOTES
1. This does not imply that there are universals. It only asserts that the status of a word, as opposed to its instances, is the same as that of Dog as opposed to various particular dogs.
2. Sometimes there is ambiguity: cf. 'The muse herself that Orpheus bore'.
3. To decide this question, we need a discussion of proper names, to which we shall come later.
4. But consider Carnap's Logischer Aufbau; yellow = (by definition) a group all similar to this and each other, and not all similar to anything outside the group.
5. This question has no substance. The object is to construct a minimum vocabulary, and in this respect it can be done in two ways.
6. As to this, Dr Sheffer has a way of distinguishing between the couple x-followed-by-y and the couple y-followed-by-x which shows that it is technically possible to construct asymmetry out of symmetrical materials. But it can hardly be maintained that it is more than a technical device.