has that sort of self-subsistence that used to belong to substance, except that it usually only persists through a very short time, so far as our experience goes. That is to say, each particular that there is in the world does not in any way logically depend upon any other particular. Each one might happen to be the whole universe; it is a merely empirical fact that this is not the case. There is no reason why you should not have a universe consisting of one particular and nothing else. That is a peculiarity of particulars. In the same way, in order to understand a name for a particular, the only thing necessary is to be acquainted with that particular. When you are acquainted with that particular, you have a full, adequate, and complete understanding of the name, and no further information is required. No further information as to the facts that are true of that particular would enable you to have a fuller understanding of the meaning of the name.

Discussion

Mr. Carr: You think there are simple facts that are not complex. Are complexes all composed of simples? Are not the simples that go into complexes themselves complex?

Mr. Russell: No facts are simple. As to your second question, that is, of course, a question that might be argued—whether when a thing is complex it is necessary that it should in analysis have constituents that are simple. I think it is perfectly possible to suppose that complex things are capable of analysis *ad infinitum*, and that you never reach the simple. I do not think it is true, but it is a thing that one might argue, certainly. I do myself think that complexes—I do not like to talk of complexes—are composed of simples, but I admit that that is a difficult argument, and it might be that analysis could go on forever.

Mr. Carr: You do not mean that in calling the thing complex, you have asserted that there really are simples?

Mr. Russell: No, I do not think that is *necessarily* implied.

Mr. Neville: I do not feel clear that the proposition 'This is white' is in any case a simpler proposition than the proposition 'This and that have the same colour'.

Mr. Russell: That is one of the things I have not had time for. It may be the same as the proposition 'This and that have the same colour'. It may be that white is defined as the colour of 'this',

or rather that the proposition 'This is white' means 'This is identical in colour with that', the colour of 'that' being, so to speak, the definition of white. That may be, but there is no special reason to think that it is.

Mr. Neville: Are there any monadic relations which would be better examples?

Mr. Russell: I think not. It is perfectly obvious *a priori* that you can get rid of all monadic relations by that trick. One of the things I was going to say if I had had time was that you can get rid of dyadic and reduce to triadic, and so on. But there is no particular reason to suppose that that is the way the world begins, that it begins with relations of order *n* instead of relations of order 1. You cannot reduce them downward, but you can reduce them upward.

Question: If the proper name of a thing, a 'this', varies from instant to instant, how is it possible to make any argument?

Mr. Russell: You can keep 'this' going for about a minute or two. I made that dot and talked about it for some little time. I mean it varies often. If you argue quickly, you can get some little way before it is finished. I think things last for a finite time, a matter of some seconds or minutes or whatever it may happen to be.

Question: You do not think that air is acting on that and changing it?

Mr. Russell: It does not matter about that if it does not alter its appearance enough for you to have a different sense-datum.

III. ATOMIC AND MOLECULAR PROPOSITIONS

I did not quite finish last time the syllabus that I intended for Lecture II, so I must first do that.

I had been speaking at the end of my last lecture on the subject of the self-subsistence of particulars, how each particular has its being independently of any other and does not depend upon anything else for the logical possibility of its existence. I compared particulars with the old conception of substance, that is to say, they have the quality of self-subsistence that used to belong to substance, but not the quality of persistence through time. A particular, as a rule, is apt to last for a very short time indeed, not

an instant but a very short time. In that respect particulars differ from the old substances but in their logical position they do not. There is, as you know, a logical theory which is quite opposed to that view, a logical theory according to which, if you really understood any one thing, you would understand everything. I think that rests upon a certain confusion of ideas. When you have acquaintance with a particular, you understand that particular itself quite fully, independently of the fact that there are a great many propositions about it that you do not know, but propositions concerning the particular are not necessary to be known in order that you may know what the particular itself is. It is rather the other way round. In order to understand a proposition in which the name of a particular occurs, you must already be acquainted with that particular. The acquaintance with the simpler is presupposed in the understanding of the more complex, but the logic that I should wish to combat maintains that in order thoroughly to know any one thing, you must know all its relations and all its qualities, all the propositions in fact in which that thing is mentioned; and you deduce of course from that that the world is an interdependent whole. It is on a basis of that sort that the logic of monism develops. Generally one supports this theory by talking about the 'nature' of a thing, assuming that a thing has something which you call its 'nature' which is generally elaborately confounded and distinguished from the thing, so that you can get a comfortable see-saw which enables you to deduce whichever results suit the moment. The 'nature' of the thing would come to mean all the true propositions in which the thing is mentioned. Of course it is clear that since everything has relations to everything else, you cannot know all the facts of which a thing is a constituent without having some knowledge of everything in the universe. When you realize that what one calls 'knowing a particular' merely means acquaintance with that particular and is presupposed in the understanding of any proposition in which that particular is mentioned. I think you also realize that you cannot take the view that the understanding of the name of the particular presupposes knowledge of all the propositions concerning that particular.

I should like to say about understanding, that that phrase is often used mistakenly. People speak of 'understanding the universe' and so on. But, of course, the only thing you can really

understand (in the strict sense of the word) is a symbol, and to understand a symbol is to know what it stands for.

I pass on from particulars to predicates and relations and what we mean by understanding the words that we use for predicates and relations. A very great deal of what I am saying in this course of lectures consists of ideas which I derived from my friend Wittgenstein. But I have had no opportunity of knowing how far his ideas have changed since August 1914, nor whether he is alive or dead, so I cannot make any one but myself responsible for them.

Understanding a predicate is quite a different thing from understanding a name. By a predicate, as you know, I mean the word that is used to designate a quality such as red, white, square, round, and the understanding of a word like that involves a different kind of act of mind from that which is involved in understanding a name. To understand a name you must be acquainted with the particular of which it is a name, and you must know that it is the name of that particular. You do not, that is to say, have any suggestion of the form of a proposition, whereas in understanding a predicate you do. To understand 'red', for instance, is to understand what is meant by saying that a thing is red. You have to bring in the form of a proposition. You do not have to know, concerning any particular 'this', that 'This is red' but you have to know what is the meaning of saying that anything is red. You have to understand what one would call 'being red'. The importance of that is in connection with the theory of types, which I shall come to later on. It is in the fact that a predicate can never occur except as a predicate. When it seems to occur as a subject, the phrase wants amplifying and explaining, unless, of course, you are talking about the word itself. You may say " 'Red' is a predicate", but then you must have 'red' in inverted commas because you are talking about the word 'red'. When you understand 'red' it means that you understand propositions of the form that 'x is red'. So that the understanding of a predicate is something a little more complicated than the understanding of a name, just because of that. Exactly the same applies to relations, and in fact all those things that are not particulars. Take, e.g., 'before' in 'x is before y': you understand 'before' when you understand what that would mean if x and y were given. I do not mean you know whether it is true, but you understand the proposition. Here again the same

thing applies. A relation can never occur except as a relation, never as a subject. You will always have to put in hypothetical terms, if not real ones, such as 'If I say that x is before y, I assert a relation between x and y'. It is in this way that you will have to expand such a statement as ' "Before" is a relation' in order to get its meaning.

The different sorts of words, in fact, have different sorts of uses and must be kept always to the right use and not to the wrong use, and it is fallacies arising from putting symbols to wrong uses that lead to the contradictions concerned with types.

There is just one more point before I leave the subjects I meant to have dealt with last time, and that is a point which came up in discussion at the conclusion of the last lecture, namely, that if you like you can get a formal reduction of (say) monadic relations to dyadic, or of dyadic to triadic, or of all the relations below a certain order to all above that order, but the converse reduction is not possible. Suppose one takes, for example, 'red'. One says, 'This is red', 'That is red', and so forth. Now, if anyone is of opinion that there is reason to try to get on without subject-predicate propositions, all that is necessary is to take some standard red thing and have a relation which one might call 'colour-likeness', sameness of colour, which would be a direct relation, not consisting in having a certain colour. You can then define the things which are red, as all the things that have colour-likeness to this standard thing. That is practically the treatment that Berkeley and Hume recommended, except that they did not recognize that they were reducing qualities to relations, but thought they were getting rid of 'abstract ideas' altogether. You can perfectly well do in that way a formal reduction of predicates to relations. There is no objection to that either empirically or logically. If you think it is worth while you can proceed in exactly the same way with dyadic relations, which you can reduce to triadic. Royce used to have a great affection for that process. For some reason he always liked triadic relations better than dyadic ones; he illustrated his preference in his contributions to mathematical logic and the principles of geometry.

All that is possible. I do not myself see any particular point in doing it as soon as you have realized that it is possible. I see no particular reason to suppose that the simplest relations that occur in the world are (say) of order n, but there is no *a priori* reason

against it. The converse reduction, on the other hand, is quite impossible except in certain special cases where the relation has some special properties. For example, dyadic relations can be reduced to sameness of predicate when they are symmetrical and transitive. Thus, e.g., the relation of colour-likeness will have the property that if A has exact colour-likeness with B and B with C, then A has exact colour-likeness with C; and if A has it with B, B has it with A. But the case is otherwise with asymmetrical relations.

Take for example 'A is greater than B'. It is obvious that 'A is greater than B' does not consist in A and B having a common predicate, for if it did it would require that B should also be greater than A. It is also obvious that it does not consist merely in their having different predicates, because if A has a different predicate from B, B has a different predicate from A, so that in either case, whether of sameness or difference of predicate, you get a symmetrical relation. For instance, if A is of a different colour from B, B is of a different colour from A. Therefore when you get symmetrical relations, you have relations which it is formally possible to reduce to either sameness of predicate or difference of predicate, but when you come to asymmetrical relations there is no such possibility. This impossibility of reducing dyadic relations to sameness or difference of predicate is a matter of a good deal of importance in connection with traditional philosophy, because a great deal of traditional philosophy depends upon the assumption that every proposition really is of the subject-predicate form, and that is certainly not the case. That theory dominates a great part of traditional metaphysics and the old idea of substance and a good deal of the theory of the Absolute, so that that sort of logical outlook which had its imagination dominated by the theory that you could always express a proposition in a subject-predicate form has had a very great deal of influence upon traditional metaphysics.

That is the end of what I ought to have said last time, and I come on now to the proper topic of to-day's lecture, that is *molecular* propositions. I call them molecular propositions because they contain other propositions which you may call their atoms, and by molecular propositions I mean propositions having such words as 'or', 'if', 'and', and so forth. If I say, 'Either to-day is Tuesday, or we have all made a mistake in being here', that is the

sort of proposition that I mean that is molecular. Or if I say, 'If it rains, I shall bring my umbrella', that again is a molecular proposition because it contains the two parts 'It rains' and 'I shall being my umbrella'. If I say, 'It did rain and I did bring my umbrella', that again is a molecular proposition. Or if I say, 'The supposition of its raining is incompatible with the supposition of my not bringing my umbrella', that again is a molecular proposition. There are various propositions of that sort, which you can complicate *ad infinitum*. They are built up out of propositions related by such words as 'or', 'if', 'and', and so on. You remember that I defined an atomic proposition as one which contains a single verb. Now there are two different lines of complication in proceeding from these to more complex propositions. There is the line that I have just been talking about, where you proceed to molecular propositions, and there is another line which I shall come to in a later lecture, where you have not two related propositions, but one proposition containing two or more verbs. Examples are got from believing, wishing, and so forth. 'I believe Socrates is mortal.' You have there two verbs, 'believe' and 'is'. Or 'I wish I were immortal'. Anything like that where you have a wish or a belief or a doubt involves two verbs. A lot of psychological attitudes involve two verbs, not, as it were, crystallized out, but two verbs within the one unitary proposition. But I am talking to-day about molecular propositions and you will understand that you can make propositions with 'or' and 'and' and so forth, where the constituent propositions are not atomic, but for the moment we can confine ourselves to the case where the constituent propositions are atomic. When you take an atomic proposition, or one of these propositions like 'believing', when you take any proposition of that sort, there is just one fact which is pointed to by the proposition, pointed to either truly or falsely. The essence of a proposition is that it can correspond in two ways with a fact, in what one may call the true way or the false way. You might illustrate it in a picture like this:

True:	Prop. $\rightarrow$	Fact
False:	Fact	Prop. $\rightarrow$

Supposing you have the proposition 'Socrates is mortal', either

there would be the fact that Socrates is mortal or there would be the fact that Socrates is not mortal. In the one case it corresponds in a way that makes the proposition true, in the other case in a way that makes the proposition false. That is one way in which a proposition differs from a name.

There are, of course, two propositions corresponding to every fact, one true and one false. There are no false facts, so you cannot get one fact for every proposition but only for every pair of propositions. All that applies to atomic propositions. But when you take such a proposition as 'p or q', 'Socrates is mortal or Socrates is living still', there you will have two different facts involved in the truth or the falsehood of your proposition 'p or q'. There will be the fact that corresponds to p and there will be the fact that corresponds to q, and both of those facts are relevant in discovering the truth or falsehood of 'p or q'. I do not suppose there is in the world a single disjunctive fact corresponding to 'p or q'. It does not look plausible that in the actual objective world there are facts going about which you could describe as 'p or q', but I would not lay too much stress on what strikes one as plausible: it is not a thing you can rely on altogether. For the present I do not think any difficulties will arise from the supposition that the truth or falsehood of this proposition 'p or q' does not depend upon a single objective fact which is disjunctive but depends on the two facts one of which corresponds to p and the other to q: p will have a fact corresponding to it and q will have a fact corresponding to it. That is to say, the truth or falsehood of this proposition 'p or q' depends upon two facts and not upon one, as p does and as q does. Generally speaking, as regards these things that you make up out of two propositions, the whole of what is necessary in order to know their meaning is to know under what circumstances they are true, given the truth or falsehood of p and the truth or falsehood of q. That is perfectly obvious. You have as a schema, for 'p or q',
using '*TT*' for 'p and q both true'
'*TF*' for 'p true and q false', etc.,

TT	*TF*	*FT*	*FF*
T	*T*	*T*	*F*

where the bottom line states the truth or the falsehood of 'p or q'. You must not look about the real world for an object which you

can call 'or', and say, 'Now, look at this. This is "or".' There is no such thing, and if you try to analyse 'p or q' in that way you will get into trouble. But the meaning of disjunction will be entirely explained by the above schema.

I call these things truth-functions of propositions, when the truth or falsehood of the molecular proposition depends only on the truth or falsehood of the propositions that enter into it. The same applies to 'p and q' and 'if p then q' and 'p is incompatible with q'. When I say 'p is incompatible with q' I simply mean to say that they are not both true. I do not mean any more. Those sorts of things are called truth-functions, and these molecular propositions that we are dealing with to-day are instances of truth-functions. If p is a proposition, the statement that 'I believe p' does not depend for its truth or falsehood, simply upon the truth or falsehood of p, since I believe some but not all true propositions and some but not all false propositions.

I just want to give you a little talk about the way these truth-functions are built up. You can build up all these different sorts of truth-functions out of one source, namely 'p is incompatible with q', meaning by that that they are not both true, that one at least of them is false.

We will denote 'p is incompatible with q' by p/q.

Take for instance p/p, i.e., 'p is incompatible with itself'. In that case clearly p will be false, so that you can take 'p/p' as meaning 'p is false', i.e., p/p = not p. The meaning of molecular propositions is entirely determined by their truth-schema and there is nothing more in it than that, so that when you have got two things of the same truth-schema you can identify them.

Suppose you want 'if p then q', that simply means that you cannot have p without having q, so that p is incompatible with the falsehood of q. Thus,

$$\text{'If } p \text{ then } q' = p/(q/q).$$

When you have that, it follows of course at once that if p is true, q is true, because you cannot have p true and q false.

Suppose you want 'p or q', that means that the falsehood of p is incompatible with the falsehood of q. If p is false, q is not false, and vice versa. That will be

$$(p/p)/(q/q).$$

Suppose you want 'p and q are both true'. That will mean that p is not incompatible with q. When p and q are both true, it is not the case that at least one of them is false. Thus,

$$\text{'}p \text{ and } q \text{ are both true'} = (p/q)/(p/q).$$

The whole of the logic of deduction is concerned simply with complications and developments of this idea. This idea of incompatibility was first shown to be sufficient for the purpose by Mr. Sheffer, and there was a good deal of work done subsequently by M. Nicod. It is a good deal simpler when it is done this way than when it is done in the way of *Principia Mathematica*, where there are two primitive ideas to start with, namely 'or' and 'not'. Here you can get on with only a single premise for deduction. I will not develop this subject further because it takes you right into mathematical logic.

I do not see any reason to suppose that there is a complexity in the facts corresponding to these molecular propositions, because, as I was saying, the correspondence of a molecular proposition with facts is of a different sort from the correspondence of an atomic proposition with a fact. There is one special point that has to be gone into in connexion with this, that is the question: Are there negative facts? Are there such facts as you might call the fact that 'Socrates is not alive'? I have assumed in all that I have said hitherto that there are negative facts, that for example if you say 'Socrates is alive', there is corresponding to that proposition in the real world the fact that Socrates is not alive. One has a certain repugnance to negative facts, the same sort of feeling that makes you wish not to have a fact 'p or q' going about the world. You have a feeling that there are only positive facts, and that negative propositions have somehow or other got to be expressions of positive facts. When I was lecturing on this subject at Harvard* I argued that there were negative facts, and it nearly produced a riot: the class would not hear of there being negative facts at all. I am still inclined to think that there are. However, one of the men to whom I was lecturing at Harvard, Mr. Demos, subsequently wrote an article in *Mind* to explain why there are no negative facts. It is in *Mind* for April, 1917. I think he makes

* [In 1914—R.C.M.]

as good a case as can be made for the view that there are no negative facts. It is a difficult question. I really only ask that you should not dogmatize. I do not say positively that there are, but there may be.

There are certain things you can notice about negative propositions. Mr. Demos points out, *first* of all, that a negative proposition is not in any way dependent on a cognitive subject for its definition. To this I agree. Suppose you say, when I say 'Socrates is not alive', I am merely expressing disbelief in the proposition that Socrates is alive. You have got to find something or other in the real world to make this disbelief true, and the only question is what. That is his *first* point.

His *second* is that a negative proposition must not be taken at its face value. You cannot, he says, regard the statement 'Socrates is not alive' as being an expression of a fact in the same sort of direct way in which 'Socrates is human' would be an expression of a fact. His argument for that is solely that he cannot believe that there are negative facts in the world. He maintains that there cannot be in the real world such facts as 'Socrates is not alive', taken, i.e., as simple facts, and that therefore you have got to find some explanation of negative propositions, some interpretation, and that they cannot be just as simple as positive propositions. I shall come back to that point, but on this I do not feel inclined to agree.

His *third* point I do not entirely agree with: that when the word 'not' occurs, it cannot be taken as a qualification of the predicate. For instance, if you say that 'This is not red', you might attempt to say that 'not-red' is a predicate, but that of course won't do; in the first place because a great many propositions are not expressions of predicates; in the second place because the word 'not' applies to the whole proposition. The proper expression would be 'not: this is red'; the 'not' applies to the whole proposition 'this is red', and of course in many cases you can see that quite clearly. If you take a case I took in discussing descriptions: 'The present king of France is not bald', and if you take 'not-bald' as a predicate, that would have to be judged false on the ground that there is not a present king of France. But it is clear that the proposition 'The present king of France is bald' is a false proposition, and therefore the negative of that will have to be a true proposition, and that could not be the case if you take 'not-bald'

as a predicate, so that in all cases where a 'not' comes in, the 'not' has to be taken to apply to the whole proposition. 'Not-p' is the proper formula.

We have come now to the question, how are we really to interpret 'not-p', and the suggestion offered by Mr. Demos is that when we assert 'not-p' we are really asserting that there is some proposition q which is true and is incompatible with p ('an opposite of p' is his phrase, but I think the meaning is the same). That is his suggested definition:

> 'not-p' means 'There is a proposition q which is true and is incompatible with p.'

As, e.g., if I say 'This chalk is not red', I shall be meaning to assert that there is some proposition, which in this case would be the proposition 'This chalk is white', which is inconsistent with the proposition 'It is red', and that you use these general negative forms because you do not happen to know what the actual proposition is that is true and is incompatible with p. Or, of course, you may possibly know what the actual proposition is, but you may be more interested in the fact that p is false than you are in the particular example which makes it false. As, for instance, you might be anxious to prove that someone is a liar, and you might be very much interested in the falsehood of some proposition which he had asserted. You might also be more interested in the general proposition than in the particular case, so that if someone had asserted that that chalk was red, you might be more interested in the fact that it was not red than in the fact that it was white.

I find it very difficult to believe that theory of falsehood. You will observe that in the first place there is this objection, that it makes incompatibility fundamental and an objective fact, which is not so very much simpler than allowing negative facts. You have got to have here 'That p is incompatible with q' in order to reduce 'not' to incompatibility, because this has got to be the corresponding fact. It is perfectly clear, whatever may be the interpretation of 'not', that there is *some* interpretation which will give you a fact. If I say 'There is not a hippopotamus in this room', it is quite clear there is some way of interpreting that statement according to which there is a corresponding fact, and the fact

cannot be merely that every part of this room is filled up with something that is not a hippopotamus. You would come back to the necessity for some kind or other of fact of the sort that we have been trying to avoid. We have been trying to avoid both negative facts and molecular facts, and all that this succeeds in doing is to substitute molecular facts for negative facts, and I do not consider that that is very successful as a means of avoiding paradox, especially when you consider this, that even if incompatibility is to be taken as a sort of fundamental expression of fact, incompatibility is not between facts but between propositions. If I say '*p* is incompatible with *q*', one at least of *p* and *q* has got to be false. It is clear that no two *facts* are incompatible. The incompatibility holds *between the propositions*, between the *p* and the *q*, and therefore if you are going to take incompatibility as a fundamental fact, you have got, in explaining negatives, to take as your fundamental fact something involving propositions as opposed to facts. It is quite clear that propositions are not what you might call 'real'. If you were making an inventory of the world, propositions would not come in. Facts would, beliefs, wishes, wills would, but propositions would not. They do not have being independently, so that this incompatibility of propositions taken as an ultimate fact of the real world will want a great deal of treatment, a lot of dressing up before it will do. Therefore as a simplification to avoid negative facts, I do not think it really is very successful. I think you will find that it is simpler to take negative facts as facts, to assume that 'Socrates is not alive' is really an objective fact in the same sense in which 'Socrates is human' is a fact. This theory of Mr. Demos's that I have been setting forth here is a development of the one one hits upon at once when one tries to get round negative facts, but for the reasons that I have given, I do not think it really answers to take things that way, and I think you will find that it is better to take negative facts as ultimate. Otherwise you will find it so difficult to say what it is that corresponds to a proposition. When, e.g., you have a false positive proposition, say 'Socrates is alive', it is false because of a fact in the real world. A thing cannot be false except because of a fact, so that you find it extremely difficult to say what exactly happens when you make a positive assertion that is false, unless you are going to admit negative facts. I think

all those questions are difficult and there are arguments always to be adduced both ways, but on the whole I do incline to believe that there are negative facts and that there are not disjunctive facts. But the denial of disjunctive facts leads to certain difficulties which we shall have to consider in connexion with general propositions in a later lecture.

Discussion

Question: Do you consider that the proposition 'Socrates is dead' is a positive or a negative fact?

Mr. Russell: It is partly a negative fact. To say that a person is dead is complicated. It is two statements rolled into one: 'Socrates was alive' and 'Socrates is not alive'.

Question: Does putting the 'not' into it give it a formal character of negative and vice versa?

Mr. Russell: No, I think you must go into the meaning of words.

Question: I should have thought there was a great difference between saying that 'Socrates is alive' and saying that 'Socrates is not a living man'. I think it is possible to have what one might call a negative existence and that things exist of which we cannot take cognizance. Socrates undoubtedly did live but he is no longer in the condition of living as a man.

Mr. Russell: I was not going into the question of existence after death but simply taking words in their everyday signification.

Question: What is precisely your test as to whether you have got a positive or negative proposition before you?

Mr. Russell: There is no formal test.

Question: If you had a formal test, would it not follow that you would know whether there were negative facts or not?

Mr. Russell: No, I think not. In the perfect logical language that I sketched in theory, it would always be obvious at once whether a proposition was positive or negative. But it would not bear upon how you are going to interpret negative propositions.

Question: Would the existence of negative facts ever be anything more than a mere definition?

Mr. Russell: Yes, I think it would. It seems to me that the business of metaphysics is to describe the world, and it is in my opinion a real definite question whether in a complete description of the world you would have to mention negative facts or not.

Question: How do you define a negative fact?

Mr. Russell: You could not give a general definition if it is right that negativeness is an ultimate.

IV. PROPOSITIONS AND FACTS WITH MORE THAN ONE VERB; BELIEFS, ETC.

You will remember that after speaking about atomic propositons I pointed out two more complicated forms of propositions which arise immediately on proceeding further than that: the *first*, which I call molecular propositions, which I dealt with last time, involving such words as 'or', 'and', 'if', and the *second* involving two or more verbs such as believing, wishing, willing, and so forth. In the case of molecular propositions it was not clear that we had to deal with any new form of fact, but only with a new form of proposition, i.e., if you have a disjunctive proposition such as 'p or q' it does not seem very plausible to say there there is in the world a disjunctive fact corresponding to 'p or q' but merely that there is a fact corresponding to p and a fact corresponding to q, and the disjunctive proposition derives its truth or falsehood from those two separate facts. Therefore in that case one was dealing only with a new form of proposition and not with a new form of fact. To-day we have to deal with a new form of fact.

I think one might describe philosophical logic, the philosophical portion of logic which is the portion that I am concerned with in these lectures since Christmas (1917), as an inventory, or if you like a more humble word, a 'zoo' containing all the different forms that facts may have. I should prefer to say 'forms of facts' rather than 'forms of propositions'. To apply that to the case of molecular propositions which I dealt with last time, if one were pursuing this analysis of the forms of facts, it would be *belief in* a molecular proposition that one would deal with rather than the molecular proposition itself. In accordance with the sort of realistic bias that I should put into all study of metaphysics, I should always wish to be engaged in the investigation of some actual fact or set of facts, and it seems to me that that is so in logic just as much as it is in zoology. In logic you are concerned with the forms of facts, with getting hold of the different sorts of

facts, different *logical* sorts of facts, that there are in the world. Now I want to point out to-day that the facts that occur when one believes or wishes or wills have a different logical form from the atomic facts containing a single verb which I dealt with in my second lecture. (There are, of course, a good many forms that facts may have, a strictly infinite number, and I do not wish you to suppose that I pretend to deal with all of them.) Suppose you take any actual occurrence of a belief. I want you to understand that I am not talking about beliefs in the sort of way in which judgment is spoken of in theory of knowledge, in which you would say there is *the* judgment that two and two are four. I am talking of the actual occurrence of a belief in a particular person's mind at a particular moment, and discussing what sort of a fact that is. If I say 'What day of the week is this?' and you say 'Tuesday', there occurs in your mind at that moment the belief that this is Tuesday. The thing I want to deal with to-day is the question. What is the form of the fact which occurs when a person has a belief. Of course you see that the sort of obvious first notion that one would naturally arrive at would be that a belief is a relation to the proposition. 'I believe the proposition p'. 'I believe that to-day is Tuesday'. 'I believe that two and two are four'. Something like that. It seems on the face of it as if you had there a relation of the believing subject to a proposition. That view won't do for various reasons which I shall go into. But you have therefore got to have a theory of belief which is not exactly that. Take any sort of proposition, say 'I believe Socrates is mortal'. Suppose that that belief does actually occur. The statement that it occurs is a statement of fact. You have there two verbs. You may have more than two verbs, you may have any number greater than one. I may believe that Jones is of the opinion that Socrates is mortal. There you have more than two verbs. You may have any number, but you cannot have less than two. You will perceive that it is not only the proposition that has the two verbs, but also the fact, which is expressed by the proposition, has two constituents corresponding to verbs. I shall call those constituents verbs for the sake of shortness, as it is very difficult to find any word to describe all those objects which one denotes by verbs. Of course, that is strictly using the word 'verb' in two different senses, but I do not think it can lead to any confusion if you understand that