

essentially members of a system of such concepts, is as yet to provide no explanation for why a surface cannot have two colours at once.

I can see no way for Wittgenstein to maintain both that there are no purely metaphysical necessities, and that necessity is objective, if it is allowed that there can be mutually inconsistent elementary propositions. Yet each is an essential ingredient in the philosophy of *TLP*. Moreover, the rejection of metaphysical intuition surely stands firm in any case. As already indicated in Chapter 3, I agree with Wittgenstein in finding the idea that our intellects might be such as to provide us with direct access to the metaphysical structure of reality wholly unintelligible. So it looks as if our only option is to give up the objectivity of conceptual necessity – in effect denying logical objectivism. Our account of the necessity of ‘Nothing is red and green all over’ could then take the sort of form we began to indicate at the end of Chapter 3, somewhat as follows. Having acquired the concepts *red* and *green*, we discover that we find it unimaginable how any surface could satisfy both concepts at once. Now so far this is merely a fact of psychology. But as a result of it we elevate, by convention, the proposition in question to the status of a necessary ‘truth’ (we ‘put it in the archives’), employing it henceforward as a rule of description.<sup>10</sup>

### Summary

We have found two distinct arguments for the independence requirement. One is premised on the reducibility, and one on the articulability, of necessity. Each may ultimately be unsound. But the reasons for their failure would lie deep within the structure of *TLP*: respectively, in its account of the identity-conditions for semantic content, and in its logical objectivism.

## 14 Modelling elementary propositions

Our task in this chapter is to provide a model for the elementary propositions of *TLP* which will meet as many as possible of the various constraints on their nature to have emerged from our previous discussions.

### (A) Constraints on the model

We can distinguish three distinct kinds of constraint which a completely satisfactory model should meet. Firstly, there are Wittgenstein’s explicit claims, which are so clear as to admit of no reinterpretation. No model could even begin to be adequate which did not respect them. We are told that Simples exist in all possible worlds (2.023), that elementary propositions consist only of names of Simples in immediate concatenation (3.2–3.21, 4.22), that elementary propositions are logically independent of one another (4.211, 5.134), and that an assignment of truth-values to all elementary propositions would constitute a complete description of the world (4.26). Many commentators have thought that nothing could even begin to satisfy all of these constraints. We shall show in the next section that they are wrong.

Secondly, there are the further developments of the above claims which are imposed upon us by some of the interpretations adopted earlier. We argued that the Simples of *TLP* are individuals, as opposed to universals (Chapter 1), which not only exist in all possible worlds but at all times in those worlds (Chapter 8). So the Simples in our model should be necessarily existing individuals. Moreover, since this narrow reading of ‘object’ requires an equally narrow reading of ‘name’, it will follow that elementary propositions consist only of proper names in immediate concatenation. So unless we were prepared to countenance Sellars’ suggestion in his (1962a), that *TLP* allows monadic concatenations (propositions consisting of just a single name), it would be an advantage if our model were

also to make clear why Wittgenstein should believe that all elementary propositions will be relational, with none being of subject/predicate form. These additional claims are of course open to reassessment. But since the arguments for attributing them to Wittgenstein are powerful, they too place constraints upon the adequacy of a model for elementary propositions. Only if it were to prove easy to provide a model for the explicit claims without these further developments, but difficult to provide a model which includes them, should we have any reason to look again at our earlier interpretations.

Thirdly, there is the specific problem I explained briefly in Chapter 1 above, concerning Wittgenstein's remark at 4.243 that one could not understand two names without knowing whether their reference was the same or different. This conflicts with my view that the names of *TLP* should be regarded as having senses, unless those names were to be introduced by means of some general rule which would enable a speaker to know *a priori* whether any given pair of names refer to the same or to distinct things. So the final constraint upon our model is that the names involved should be introduced (or be introducible) by means of just such a general rule. Otherwise I shall be forced either to discount 4.243 as an aberration, or to give up my doctrine that *TLP* names have senses.

We have already seen in Chapter 8 that there is a powerful case against taking Simples to be sense-data. For although it would be consistent with this that they should be constituents of all possible worlds, the cost would be to make the resulting doctrines absurd. Moreover, such an interpretation would leave us unable to meet the constraint of logical independence. For if elementary propositions consist of concatenations of names relating the corresponding sense-data to one another within the various sensory fields, then there can be no question of their being logically independent. However, we shall return to the question of phenomenalism in Section D below, showing that it is possible to provide a rather different sort of phenomenalist model for elementary propositions, which would satisfy many of the above constraints. This will then throw much of the weight of our rejection of a phenomenalist reading of *TLP* back on to claims about Wittgenstein's generally realist attitude to metaphysics and lack of interest in epistemology.

Another perennial temptation for interpreters of *TLP* is to picture Simples as being very small physical objects.<sup>1</sup> This is reinforced by the repeated use of the simple/complex contrast, which permeates Wittgenstein's thinking about them. Indeed, he seems, in *NB* at least, to have believed that the analysis of a term referring to a complex object like a table

or a watch would be a description of the relations obtaining between its component parts (*NB* 62, 63, 67). Simples would then be physical components which do not themselves have components. But on such a view there could be no question of meeting the constraint of necessary existence. For as we observed in Chapter 9, there is no reason to think that any physical object, no matter how small, is a constituent of all possible worlds. Nor should we be able to meet the constraint of logical independence. For if Simples were physical objects, then some of the elementary propositions would have to describe spatial and temporal relations between them – otherwise there would be important facts left undescribed. But then such propositions could not be logically independent of one another, in virtue of the *a priori* principles that no physical object can be in two places at once, and that no two physical objects can be in the same place at the same time.

### (B) The model<sup>2</sup>

Let the names out of which elementary propositions are to be constructed be names of planes of space and points of time, ordered discretely. The planes of space are named in relation to a point of origin, along three different axes at right angles to one another, their names being of three different kinds. Let 'a<sub>-3</sub>', 'a<sub>-2</sub>', 'a<sub>0</sub>', 'a<sub>1</sub>', 'a<sub>2</sub>', 'a<sub>3</sub>', etc. be names of planes in one axis. Let 'b<sub>-3</sub>', 'b<sub>-2</sub>', 'b<sub>-1</sub>', 'b<sub>0</sub>', 'b<sub>1</sub>', 'b<sub>2</sub>', 'b<sub>3</sub>', etc. be names of planes at right angles to the first. And let 'c<sub>-3</sub>', 'c<sub>-2</sub>', 'c<sub>-1</sub>', 'c<sub>0</sub>', 'c<sub>1</sub>', 'c<sub>2</sub>', 'c<sub>3</sub>', etc. be names of planes at right angles to each of the first two sorts. The points of time may also be named in relation to an arbitrarily chosen point of origin, taking the form 't<sub>-3</sub>', 't<sub>-2</sub>', 't<sub>-1</sub>', 't<sub>0</sub>', 't<sub>1</sub>', 't<sub>2</sub>', 't<sub>3</sub>', and so on. Then let all elementary propositions take the form 'abct', stating that a point-mass exists at the intersection of planes a, b and c at time t. For example, the proposition 'a<sub>6</sub>b<sub>-5</sub>c<sub>1</sub>t<sub>4</sub>' would say that there is a point-mass at the intersection of planes a<sub>6</sub>, b<sub>-5</sub> and c<sub>1</sub> at time t<sub>4</sub>.

Clearly this model stands at least some chance of meeting the requirement of necessary existence. For space and time could plausibly be thought to be constituents of all possible worlds. Moreover, planes of space do not consist of parts, or at least not in a way which would make it sensible to say 'Suppose those parts had never been combined in that way . . .'; for the lines and bands which make up any given plane of space belong to it necessarily. However, in order to meet this requirement in full we should have to take an absolute, as opposed to a relational, view of space and time. For consider the possible world in which there exists no matter what-



ever prior to time  $t_{-64}$ . On a relational theory of time there would be no times prior to  $t_{-64}$  in that world. In which case some points of time – for example  $t_{-66}$  – would fail to exist in all possible worlds. A similar thesis can be established concerning the contingent existence of planes of space, given a relational theory of space. Only if space and time are absolute, being able to exist in the absence of any material objects and of any change, can the requirement of necessary existence be fully met, on the above model.

The constraint that elementary propositions should consist of proper names in immediate concatenation is satisfied completely. The fact that three individual planes of space and a point of time are related to one another by way of intersecting at a point-mass is depicted by a relation – in this case a significant linear ordering – between their proper names. Indeed, we can even see why Wittgenstein might have been confident that no elementary proposition would be of subject/predicate form, if we suppose him to have had in mind something like our model. For there is nothing significant (contingent) that you can say about a plane of space or a point of time on its own that cannot also be said in terms of the propositions employed in our model.<sup>3</sup>

Most importantly, the model satisfies the requirement that elementary propositions be logically independent. For from the fact that there exists a point-mass at a certain point at a certain time, nothing at all follows about the existence or non-existence of point-masses anywhere else at that time. Nor is anything implied about the existence of point-masses at that or any other point of space at any other time. Indeed, since it is not a necessary truth that any given point-mass should continue to exist from one moment to the next, there are no restrictions whatever on assignments of truth-values to the class of elementary propositions.<sup>4</sup> Moreover, since no attempt is made to name point-masses or to treat them as individuals, there is no way to describe relations between them except by means of truth-functions of the elementary propositions stating their positions.

It might even be plausible to think that a complete assignment of truth-values to the set of elementary propositions would be a complete description of the world. For many have thought that all facts about the world must reduce, in the end, to facts about the distribution of matter in space and time. However, the model would face severe difficulties if we tried to regard it as the end-point of a programme of analysis. For remember that the touch-stone of an adequate analysis, on the *TLP* account, is analytic equivalence. And although there are many philosophers who are materialists, there are few who are analytic materialists.<sup>5</sup> Indeed, such a

thesis appears wildly implausible. Although it is possible that such things as pains and sensations of red are, as a matter of fact, events occurring in the human brain, they do not seem to be so as a matter of conceptual necessity. And although it may be true that colours are physical properties of surfaces (capacities for the differential reflection of light), we could hardly have discovered such a thing by conceptual analysis alone. Yet it may be that these problems are not insuperable, only requiring that the model be extended rather than abandoned. We shall consider in Section D below whether our elementary propositions might be developed in such a way as to yield descriptions of colours and mental states without compromising their other features (logical independence, etc.).

Finally, in this catalogue of the virtues of our model, it can be seen how Wittgenstein might have thought that no one could understand two names of Simplex without knowing whether their reference was the same or different. For consider the matter in the abstract: suppose there are two different systems of coordinates, in one of which (System A) the point of origin ( $a_0b_0c_0t_0$ ) is that which is designated as 'a<sub>4</sub>b<sub>8</sub>c<sub>2</sub>t<sub>16</sub>' in the other (System B). Then someone who understands both systems of description, and who wishes to know whether or not 'a<sub>32</sub>' in System A designates the very same plane of space as referred to by 'a<sub>28</sub>' in System B, will be in a position to work out the answer *a priori*. However, the situation may be a little more complex when we consider how in any actual case a system of coordinates would have to be set up.

Even if space and time are absolute, we can surely only assign names to planes of space and points of time by relating them to the (contingent) positions of physical objects with which we are acquainted, or by relating them to ourselves. So in order to set up an actual system of coordinates we should have to say something like: 'Let the origin be here and now, with planes in the a-axis being in *that* direction, those in the b-axis being in *that* direction, and those in the c-axis being in *that* direction.' But then, of course, we should only be able to keep track of the referents of our names if we made contingent assumptions about the motions over time of ourselves and the physical items around us.<sup>6</sup> And we should only be able to work out whether a name from another system of coordinates – say one centred on the Post Office Tower in London – had the same reference as one of these names if we made assumptions about our own spatial position relative to London. Since we cannot know these motions and relative positions *a priori*, neither can we know *a priori* whether or not the names are co-referential. Our model is thus unable to make complete sense of Wittgenstein's commitment to the transparency of names at 4.243, unless

we make the implausible assumption that there can be direct knowledge of planes of space and points of time irrespective of their relation to ourselves or to contingent distributions of matter.<sup>7</sup>

### (C) The model and the text

There are two quite different ways of regarding our model. Firstly, we could see it as no more than that: a model, making no claims about what Wittgenstein may or may not have had in mind. It would then be merely an attempt to show that the various constraints which he places upon his elementary propositions are not wildly absurd or inconsistent. In this it succeeds admirably. But secondly, I have suggested that we could attempt to interpret *TLP* as involving our model, or at least something very like it. We might thus try claiming that Wittgenstein had such a model in mind when making his various pronouncements about the nature of elementary propositions. At any rate, it is worth asking whether our model can, in this second role, receive any textual support.

There is only one remark in *TLP* which can be construed as an explicit endorsement of our model. That is 2.0251, which says that space, time and colouredness are forms of objects. But even this is ambiguous. It could mean, as on our model, that space and time (and colour – see section D below) are themselves kinds of object. Or it could mean only that being in space and time and having colour are, necessarily, possible attributes of objects. The former reading is the more plausible, however. For as we have noted many times, there can be no question of physical particles having the sort of necessary existence required of *Simples*, or of elementary propositions describing spatial relations between such particles being logically independent of one another.

At various places in *NB* Wittgenstein considers the possibility of describing distributions of matter in space by means of a system of coordinates. For example, at *NB* 20–1 he supposes that we might express the fact that the material point *P* is to be found in place (*ab*), by means of a proposition of the form ' $a_p b_p$ '. (He is obviously thinking of descriptions of matter on a two-dimensional surface.) But it is not wholly clear whether he considers the sign ' $p$ ' here to be the proper name of a particular point-mass (which would immediately make ' $a_p b_p$ ' incompatible with ' $a_p c_p$ '), or whether it is merely a (redundant) index of the names '*a*' and '*b*', signifying that there is some point-mass or other at the intersection of the lines they refer to (which would then be very close to our model). However, at least these remarks show that at a fairly early stage (1914) Wittgenstein was

contemplating using spatial coordinates to describe the distribution of matter in the world.

A further strong argument for using our model in an interpretational role is that it does enable us to make sense of Wittgenstein's apparent confidence that there will be no elementary propositions of subject/predicate form,<sup>8</sup> as well as his claim that no one could understand two names for *Simples* without knowing whether their reference is the same or different. But then if he really did have our model in mind, the immediate challenge is to explain why he did not say so. Why, in that case, did he choose to remain silent on the crucial question of the nature of elementary propositions?

The most plausible answer lies in the difficulties with the model, some already noted. For Wittgenstein wants his *Simples* to have necessary existence, yet planes of space and points of time will only be necessary if space and time are absolute. But he would surely have been sufficiently aware of the debates within *Physics* at the time to realise that the absoluteness of space and time could not simply be taken for granted. Indeed, see *NB* 129, where he indicates as much. Moreover he seems to have been attracted towards some form of psychological dualism (see *NB* 85). In which case he would not have thought that our model as it stands could yield descriptions of all kinds of fact. Yet as we shall see in Section D below, we face severe problems in trying to extend the model to include descriptions of experiences. Naturally, then, if Wittgenstein's thinking about elementary propositions had been dominated by our model, he would presumably have been aware of the difficulties in the way of implementing it fully. And this would have been sufficient reason for him not to commit himself to it.<sup>9</sup>

One possible argument for thinking that Wittgenstein could not have had our model at the front of his mind would be this. Notice that not all systems of coordinates need name planes of space which have the same orientations. Instead of a system in which the *a*-planes are horizontal and parallel to due North–South, we could choose one in which they are some number of degrees off horizontal. Nor need the three axes be at right angles to one another. There would therefore be many more objects (planes of space) than we would actually need to name, and different complete descriptions of the physical world could name distinct sub-sets of them. And then the argument would be that there is no hint of this sort of optionality in *TLP*, where it seems to be assumed that all fully-analysed languages would employ names for the very same objects. Thus 3.25 asserts categorically that every proposition has one and only one analysis. Yet on our



model there would apparently be many different ways of analysing it, each employing a distinct system of coordinates.

In fact it is not so obvious that different systems of coordinates must yield differing analyses of any given proposition. For remember that the criterion of correctness for an analysis is logical equivalence. And any two elementary propositions which both assign a point-mass to the very same place will be logically equivalent, despite the fact that they may employ names of different planes of space. For if the point of intersection of planes  $a$ ,  $b$  and  $c$  is the very same as that of  $a^*$ ,  $b^*$  and  $c^*$  (where these are planes having a different orientation), then it will be logically necessary that this is so. Indeed, far from rejecting the kind of optionality involved in our model, Wittgenstein might be read as committing himself to it at 6.341, where he talks about the possibility of using alternating grids or 'meshes' to describe reality, it being an empirical matter how fine the grid would need to be—in our terms, the distances between neighbouring planes on an axis—in order to give a complete description of the world.

Since there are a number of good reasons for supposing Wittgenstein to have had our model in mind, and no good reasons against it, I propose that such an interpretation should be adopted.

#### (D) Colours and sense-data

Let us now consider whether our model could be extended to include descriptions of colours, without compromising the requirement of logical independence.<sup>10</sup> Suppose we impose a grid on the colour-spectrum, calling the left-hand end '0' and the right-hand end '1'. We then divide it in half, designating the left half '.0' and the right half '.1'. Dividing each of these in half again, we designate the left half of '.0' by '.00', the right half by '.01', and the left half of '.1' by '.10', the right half by '.11'. We then divide each of these quarters in half again, continuing our numbering system in the same way to produce a grid like that in Figure 2. Obviously we could go on to make the mesh of the grid as fine as we liked.

We now let the elementary propositions take the form 'abctn'. This states, as before, that a point-mass exists at the intersection of  $a$ ,  $b$  and  $c$  at time  $t$ . But it now also states that the colour of the point-mass falls within one of the ranges which has a '1' in the  $n$ th decimal place on the grid. For example, the proposition ' $a_4b_8c_{16}t_{32}$ ' would say that a point-mass exists at the intersection of planes  $a_4$ ,  $b_8$  and  $c_{16}$  at time  $t_{32}$ , whose colour falls either within the range .01 or the range .11. Similarly, the proposition ' $a_4b_8c_{16}t_{32}3$ ' would say that a point-mass exists at the same place

and time, whose colour falls within either of the ranges .001, .011, .101 or .111. In order to say that a shade falls within one of the ranges ending with a '0', we should have to conjoin an elementary proposition of the form 'abct', stating that a given point-mass exists, with the negation of the same proposition extended to take the form 'abctn'. Thus, for example, ' $a_1b_2c_3t_4$  & not  $a_1b_2c_3t_42$ ' would say that there is a point-mass at the intersection of  $a_1$ ,  $b_2$  and  $c_3$  at time  $t_4$ , having a shade of colour either from the range .00 or the range .10. Ascribing a particular shade of colour to the point-mass at abct might then look something like this: abct & not abct1 & not abct2 & abct3 & not abct4 . . . and so on, to the required degree of accuracy. We should, so to speak, have to 'zero in' on the shade of colour we want, by means of a whole series of elementary propositions and their negations.

This extended model goes some considerable distance towards complying with the requirement of logical independence. Since the proposition 'abct2' tells us that the colour of the point-mass falls either within the range .01 or the range .11, it is logically independent of the proposition 'abct1', which tells us that the colour falls within the range .1. And it neither implies nor is implied by 'abct3', which says that the colour falls within any one of the ranges .001, .011, .101 and .111. So all propositions of the form abctn are independent of one another. However, it is still the case that 'abctn' must entail 'abct'. For if there is no point-mass there, then it cannot have a colour. Moreover, 'abctn' and 'not abctn' can both be false together (that is, if 'abct' is false), thus debarring them from being genuinely elementary, on the *TLP* account.

Although the attempt to extend our materialist model to include descriptions of colour has failed, it does suggest how one might construct a system of logically independent elementary propositions for describing sense-data. We need only impose a grid on the 'spectrum' of the subject's colour sensations, rather than on the objective colour-spectrum as above.

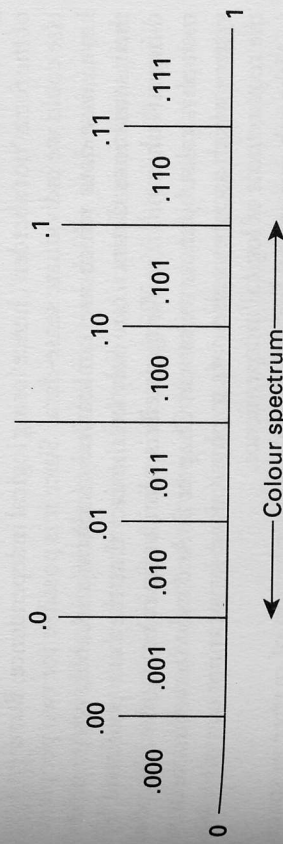


Figure 2

Then instead of using a system of three-dimensional objective spatial coordinates, we could use a two-dimensional system to map the visual field. An elementary proposition would then take the form 'detn', which would say that a colour sense-datum occurs in the visual field at the intersection of lines d and e at time t, where the quality of that experience falls within one of the ranges having a '1' in the nth decimal place on the grid. The propositions in such a system of description would be genuinely independent of one another (in particular, 'detn' and 'not detn' could not both be false), since any point in the visual field must have some colour (2.0131). We could then use a similar system (employing three 'spatial' dimensions once again) to describe the qualities of sense-data of touch and pain, giving their relative positions within the tactile field. And so on for the other senses.

Might one then conjoin such descriptions of sense-data with our earlier system for describing the distribution of matter in objective space and time, to provide a complete description of reality? For example, we might attempt to give an analysis of colour-statements of the familiar disposition-to-cause-a-sense-datum sort.) Could this be how Wittgenstein might have hoped to accommodate his dualism?

He may indeed have had such hopes, but there would in fact be insuperable difficulties in the way of individuating the sense-data belonging to different persons. One could not, for example, ascribe them as properties of point-masses (an elementary proposition of the form 'abctden' saying that there is a point-mass at the intersection of a, b and c at time t, which has a colour sense-datum from one of the ranges having a '1' at the nth decimal place in the grid, occurring at the intersection of lines d and e in the visual field). For then precisely the sorts of problems would arise here as arose with our earlier attempt to find room for objective colours, since in order to ascribe sense-data from ranges having a '0' in their nth decimal place, we should have to conjoin a statement of the form 'abctde' with one of the form 'not abctden', hence losing logical independence. But then how else could we individuate sense-data? Since it is possible for two people to have sense-data which are qualitatively indistinguishable, what makes their sensations distinct can only be the fact that they are possessed by different subjects.<sup>11</sup> Yet Wittgenstein is adamant in rejecting the idea of a metaphysical subject, as we saw in Chapter 8. And as we have just seen, a system which ascribes sense-data to physical subjects cannot comply with the requirement of logical independence.

Although our model for describing the distribution of matter in space and time cannot be extended to include descriptions of colours or sense-

data, what has emerged is that we have the materials for constructing quite a different model for the elementary propositions of *TLP*, which would be phenomenalist rather than realist. Names would not be names of sense-data, but rather of lines imposed upon the subject's various sense-fields, and of disjunctive ranges from the grids imposed upon the various sensation-kinds. So a phenomenalist interpretation of *TLP* is just as well able to cope with the requirement of logical independence as is a realist reading.

Nevertheless, the realist model remains the most plausible, quite apart from the considerations to do with Wittgenstein's attitudes towards metaphysics and epistemology. For it stands (or at least stood) a better chance of complying with the requirement that Simples should be constituents of all possible worlds. As we have seen, this would have been true on the realist model if space and time had turned out to be absolute. But on the phenomenalist model even cursory consideration shows it to be most unlikely. In particular, it seems obviously false that the lines of visual space and the planes of tactile space must exist in all possible worlds, since I might, for example, lose part or all of my visual or tactile fields – as when I go blind or lose feeling in my legs. Now, to this it might be replied that the names in the system are to refer to lines and planes in fields of possible rather than actual experience, since even if I am blind it remains possible that I should enjoy visual sense-data. Exactly so: if I had been blind from birth it would still have been possible that I should have had visual experiences. Yet I could not have learned names to refer to lines in the visual field, since I would have had no visual field. So even if the lines were to exist in all possible worlds, they would not be nameable in all of them. Indeed, there are many people in the actual world who cannot name them, but who are nevertheless capable of thinking (and so who are, for Wittgenstein, capable of representing all possible worlds).

### Summary

We have provided two distinct models for the elementary propositions of *TLP*, each of which can meet some if not all of the constraints laid upon them, notably that of logical independence. It seems likely that Wittgenstein himself might have worked with the realist model, having it at the back of his mind (at least) in his thinking about elementary propositions.