V

THE CONCEPTUAL AND THE REAL:

3. PICTURING

1. I have emphasized that the concept of truth as S-assertibility is universal in its scope, applying to propositions of the most divergent types. On the other hand, as a generic concept it takes specific forms which are functions of the semantical rules which govern these different types of propositions. My concern in this chapter will be with what might initially be called 'factual truth'. This phrase is intended to cover both the truth of propositions at the perceptual and introspective level, and the truth of those propositions which, though 'empirical' in the broad sense that their authority ultimately rests on perceptual experience, involve the complex techniques of concept formation and confirmation characteristic of theoretical science.[1]

2. Since the term 'fact' is properly used as a synonym for 'truth' even in its most generic sense, so that we can speak of mathematical and even ethical facts, 'factual', in the more specific sense indicated above, should be thought of as short for 'matter-of-factual', and as equivalent to Leibnitz' technical term '*verité de fait*'.

3. Notice that if the phrase 'factual truth' is introduced to contrast with '*a priori* truth' or '*verité de raison*' it would be quite

[1] Thus, this chapter is an attempt to give a unified treatment, which coheres with the argument of the remainder of the book, of issues separately discussed in 'Truth and "Correspondence",' *Journal of Philosophy*, 59, 1962 [reprinted as Chapter 6 in *Science, Perception and Reality*], and 'Scientific Realism or Irenic Instrumentalism' for reference see note on p. 21 above].

appropriate to classify substantive ethical truths, granting there to be such, under this heading. Indeed, according to the theory to be advanced in the final chapter, ethical truths are the projections of 'matter-of-factual' truths, in the narrower sense adumbrated above, into the framework of intentions and purposes.

4. Even this narrower sense, however, in which we contrast the ethical 'ought' with the matter-of-factual 'is', does not bring us to the end of the series of chinese boxes which make up factual truth. For the domain of 'is' also has its 'oughts'. Thus, though I shall not defend the analysis here, law-like propositions tell us how we ought to think about the world.[1] They formulate rules of criticism, and if, as such, they tell us what ought or ought not to be the case, the fact that it is what ought or ought not to be the case with respect to *our beliefs about* the world suffices to distinguish them from those rules of criticism which tell us what ought or ought not to be the case in the world. The fact that our beliefs about the world are themselves in the world does not undermine this distinction, though it emphasizes the care with which it must be drawn.

5. The conceptual form of a law-like statement is roughly indicated by the following example:

> For all temporal senses t, one ought not to accept both the proposition that there is lightning at t and the proposition that there is not thunder at t plus Δt

This is, in first approximation at least, equivalent to

> (t) that there is lightning at t implies that there is thunder at t plus Δt

where 't' ranges over the appropriate temporal senses or intensions. Thus law-like statements are at the meta-linguistic (and meta-conceptual) level, and must be carefully distinguished from quantified statements at the first level of discourse. As indicated, they involve quantification over intensions or senses. Thus the above implication statement must not be confused with the object language statement

> (t) there is lightning at $t \rightarrow$ there is thunder at t plus Δt

[1] I have discussed this topic at length in 'Counterfactuals, Dispositions and the Causal Modalities', *Minnesota Studies in the Philosophy of Science*, Volume II, Minneapolis, 1957, and 'Induction As Vindication', *Philosophy of Science*, 31, 1964.

where '→' stands for material implication, and '*t*' ranges over moments of time.

6. If something like this analysis stands up, it follows that law-like statements are, in our sense of the phrase, 'semantical rules', and are, *ceteris paribus*, reflected in uniformities pertaining to the verbal behaviour (and conceptual acts) of those who espouse them. These uniformities would be characterized by the absence, *ceteris paribus*, from overt and covert propositional episodes of pairs which violate linguistic ought-not-to-be's of the kind illustrated above.

7. In philosophy one thing always leads to another, and it is tempting, at this point, to embark on an extended discussion of induction. What is the rationale of accepting law-like statements thus construed? How is this rationale grounded in the end-in-view of scientific inquiry? The attempt to answer these and related questions is a notoriously intricate and controversial enterprise. I have attempted to carry it through in some detail on another occasion.[1] I shall limit myself now to pointing out that the above account of law-like statements would seem to imply that their truth (S-assertibility) involves a semantical rule or rules relating the accepting of them to the accepting of the corresponding evidential statements. If so, the rationale of accepting *this* higher order rule (or rules) must involve the job which law-like statements, construed as we have construed them, perform. Since this job is to govern, as rules of criticism, semantical uniformities involving factual statements in a deeper sense of 'factual', to understand the point of inductive reasoning one must understand the distinctive functions of matter-of-factual statements belonging to the level below that of law-like statements.

II

8. Although Wittgenstein's *Tractatus*, by lacking a theory of the normative aspects of matter-of-factual discourse, fails to do justice to the complex interrelationships between the different levels of such discourse, it does contain essential clues to an understanding of the distinctive functions of first-level matter-of-

[1] 'Induction As Vindication', *Philosophy of Science*, 31, 1964.

factual discourse. These clues are contained in his discussion of language as a means of constructing 'logical pictures' of the world.

9. I speak of the distinctive *functions* of first-level matter-of-factual discourse; for even within this level essential distinctions must be drawn if we are to grasp the difference between the *primary* concept of factual truth (truth as correct picture), which makes intelligible all the other modes of factual truth, and the *generic* concept of truth as S-assertibility, which involves the quite different mode of correspondence bound up with illustrating propositional expressions and the truth performance, as in

$$\frac{\text{That 2 plus 2} = 4 \text{ is S-assertible}}{2 \text{ plus } 2 = 4}$$

in terms of which the 'correspondence' statement (i.e. equivalence statement)

That 2 plus 2 = 4 is true $\leftrightarrow$ 2 plus 2 = 4

is to be understood.

10. The key distinction pertaining to matter-of-factual statements of the first level is a familiar one, easy to indicate, but difficult to refine. It is that between atomic and molecular statements. In first approximation it is atomic statements which make up 'linguistic pictures' of the world. These pictures are correct or incorrect in terms of the semantical rules of the framework within which they are statements. They are true (S-assertible) if correct, false if incorrect.

11. Molecular statements, on the other hand, have their own specific way of being S-assertible. They pick out sets of pictures within which they play no favourites, and are true if the set of pictures they pick out includes the correct picture, false if they pick out a set of pictures which does not include this picture. Tautologies pick out *all* pictures and hence *pick out* none. Contradictions pick out no pictures for, to use a metaphor and an Irish Bull, the pictures they pick out are red and green all over.

12. Basic factual predicates come in families of competing predicates, one or other of which must be satisfied by every object

which *can* satisfy a predicate of that family. If *a* is not f_1 it must be f_2 or f_3. Hence

$f_1a \cdot \sim f_1a$

implies

$f_1a \cdot (f_2a \vee f_3a)$

that is

$f_1a \cdot f_2a \vee f_1a \cdot f_3a$

Thus one misses the point if one argues that a contradiction picks out all pictures on the grounds that 'a contradiction implies every proposition'.

13. The S-assertibility of molecular statements which are neither tautologies nor self-contradictory is a function of the syntactical moves which connect them with disjunctions of conjunctions of non-negative and non-competing atomic statements, and of the S-assertibility of these conjunctive complex *qua* complex pictures.

14. Thus, if the two families are ['f_1', 'f_2', 'f_3'] and ['g_1', 'g_2', 'g_3']

$\sim(f_1a \cdot \sim g_1b)$

becomes the disjunction of conjunctions

$(f_1a \cdot g_1b) \vee (f_2a \cdot g_1b) \vee (f_2a \cdot g_2b) \vee (f_2a \cdot g_3b) \vee (f_3a \cdot g_1b) \vee (f_3a \cdot g_2b) \vee (f_3a \cdot g_3b)$

and is S-assertible if any of the disjuncts constitutes an S-assertible picture.

15. Notice that the mode of composition by virtue of which a number of atomic statements join to make a complex picture must not be confused with the mode of composition by virtue of which a number of atomic statements join to make a molecular statement. In other words, we must distinguish 'pictorial' from 'logical' complexity. Thus, the complex picture of which the elements are an '*fa*', an '*aRb*' and a '*gb*' must not be confused with the conjunctive statement

$fa \cdot aRb \cdot gb$

16. It was pointed out in the preceding chapter that to be an '*fa*' is, strictly speaking, to be an '*f*' ['*a*'], where the latter is a common noun, analogous to 'white dog', which applies to items which are both .*a*.s and possessed of a character by virtue of which they do the job done in the base language by '*a*'s which are concatenated to the left with an '*f*'. I am assuming that the base language is a subject-predicate one because of the convenience of expressing how things are by giving referring expressions the how of being concatenated in a one-dimensional order with predicative expressions, though the latter are in principle eliminable in favour of more complex devices. Redundancy also is convenient, but, in principle, dispensible. With redundancy the complex picture corresponding to the molecular statement

$fa \cdot aRb \cdot gb$

might be, for example,

$fa.aRb.gb$

where the dots are periods rather than 'and's.

17. Without redundancy the picture might be, for example,

R*fagb*

and in a non-subject-predicate language it might be, for example,

$\boldsymbol{a}_{\mathrm{B}}$

where the fact that the '*a*' is in bold face makes it an '*fa*', the fact that the '*b*' is in upper case makes it a '*gb*' and the fact that the '*a*' is to the upper left of the '*b*' makes them an '*a*R*b*'.

III

18. The point I have just been making can be put by saying that logical connectives and quantifiers do not occur *as such* in pictorial complexes. Thus, when the conjunctive statement '$fa \cdot aRb \cdot gb$' is considered *qua* picture the connectives, though physically present, no longer function as such, but become so to speak mere punctuation. This suggests that there might be other ways in which logical operators 'occur' in pictures without occurring in them *as operators*.

19. We are all familiar with problems concerning the sense in which 'it is raining' occurs in such intensional contexts as 'Jones believes that it is raining'. Less attention has been paid to problems concerning the sense in which the quantificational apparatus of definite description occurs in contexts which are *prima facie* purely extentional. The topic is an important one, for unless we are clear about it the Tractarian account of matter-of-factual truth is likely to appear so remote from ordinary usage as to be absurd.

20. It seems reasonable, as a first step, to interpret

The g is f

and

The g is not f

not as contradictories but as contraries, by construing them as the informal counterparts, respectively, of

$$(\mathrm{E}x)\, gx \cdot (y)\, gy \rightarrow y = x \cdot fx$$

and

$$(\mathrm{E}x)\, gx \cdot (y)\, gy \rightarrow y = x \cdot \sim fx$$

This would mean that to negate 'The g is not f' we would have to say something like 'It is not the case that the g is f'.

21. On this analysis both 'The g is f' and 'The g is not f' would be false if the uniqueness condition is not satisfied. If we distinguish, with Russell, between

(*a*) $\sim f[(\imath x)\, gx]$

and

(*b*) $\sim\{f[(\imath x)\, gx]\}$

the latter would correspond to 'It is not the case that the g is f',[1] the former to 'the g is not f'.

22. It will be remembered that we have been abstracting from the 'dialectical' assertibilities which are grounded in the requirements of unambiguous communication. If we are prepared to take into account a dimension of 'dialectical' assertibility (D-assertibility), it is tempting to suggest that

It is false that the g is f

is not D-assertible in a dialogue, if the speaker's ground is that the uniqueness condition is not satisfied, *and* this fact has not yet been brought out in the dialogue. It becomes D-assertible when this occurs. Since S-assertibility abstracts from this type of consideration, it would follow that although both

It is false that the g is f

and

It is false that the g is not f

are true (S-assertible), neither is, in specifiable circumstances, D-assertible. If we take 'false' to imply 'not D-assertible' neither

It is true that the g is f

nor

It is false that the g is

would be D-assertible. This fact must not be confused with the idea that when the uniqueness condition is not satisfied, 'The g is f' is neither true nor false.[1]

23. Now in the case of informal arithmetical statements, thus

(1) The square of 2 is even
(2) The square of 2 is not even
(3) The square root of 2 is not rational
(4) It is not the case that the square root of 2 is rational

we can reasonably say that the sense of these statements is captured by the PMese counterparts

(1) $(\mathrm{E}x)\, sq\,(x, 2) \cdot (y)\, sq\,(y, 2) \rightarrow y = x \cdot ev(x)$
(2) $(\mathrm{E}x)\, sq\,(x, 2) \cdot (y)\, sq\,(y, 2) \rightarrow y = x \cdot \sim ev(x)$
(3) $(\mathrm{E}x)\, sqr\,(x, 2) \cdot (y)\, sqr\,(y, 2) \rightarrow y = x \cdot \sim rat\,(x)$
(4) $\sim\{(\mathrm{E}x)\, sqr\,(x, 2) \cdot (y)\, sqr\,(y, 2) \rightarrow y = x \cdot rat\,(x)\}$

[1] Strictly speaking, of course, 'It is not the case that the g is f' is in the metalanguage. If we were to remain in the object language we would have to say something like 'Not the g is f'. Notice that while (*b*) involves standard propositional negation, (*a*) involves a contextually defined use of negation.

[1] For an earlier attempt along these lines see my 'Presupposing', *Philosophical Review*, 63, 1953.

According to this analysis, (1) would be true, (2) false, (3) false and (4) true but, perhaps, not D-assertible in a given dialogue.

24. When, on the other hand, we turn our attention to first-level matter-of-factual statements which resemble the statements we have been calling pictures in every respect *save that the subject term is a definite description*, we need to recognize that although

The *g* is *f*

can be perspicuously represented as

$f[(\imath x)\, gx]$

neither 'the *g*' nor '$(\imath x)\, gx$' is occurring *as a logically complex expression, but rather as a simple expression which, if the uniqueness condition it indicates is satisfied, can be used to form linguistic pictures of a certain object*. Failure to appreciate this point leads to the mistaken view that 'existential quantification is the referential tie between language and the world'. The relation between existential quantification and reference is, indeed, close, but it is not that of identity.

25. The point stands out more clearly when we note that instead of using 'the *g*' or '$(\imath x)\, gx$' we could introduce an expression, say '*a*', which has no internal logical complexity, and specify that '*a*' has denotation if and only if E! $(\imath x)\, gx$, in which case it denotes $(\imath x)\, gx$.

26. The fundamental job of singular first-level matter-of-factual statements is to picture, and hence the fundamental job of referring expressions is to be correlated *as simple linguistic objects* by matter-of-factual relations with single non-linguistic objects. The difference between '*a*', on the one hand, and 'the *g*' and '$(\imath x)\, gx$', on the other, is that the latter carry on their sleeve the logical and empirical information relevant to their correct use.

27. Thus, even in the absence of considerations pertaining to the 'open texture' of criteria for the use of specific referring expressions there is reason to deny that the *sense* of referring expressions is given by definite descriptions, for their sense is, at bottom, their job, and their job is to be linguistic representatives of objects. It is this, rather than open texture, which is the fundamental

reason for speaking of definite descriptions as providing 'criteria' for the use of names, rather than giving their sense.

28. We have thus defined a sense in which

The *g* is *f*

presupposes, rather than *asserts*, that there is one and only one *g*. Presupposition in this sense must be distinguished from the dialectical sense explained above, in which *presupposing* uniqueness is compatible with *asserting* it.

29. Although much more could be said on the general topic: '. . . the logical constants do not represent', enough has been said to indicate how Wittgenstein's thesis that atomic statements alone are pictures can be reconciled with his otherwise puzzling statement:

> 5.526 One can describe the world completely by completely general propositions, i.e. without from the outset coordinating any name with a definite object.
>
> In order then to arrive at the customary way of expression we need simply say after an expression 'There is one and only one *x*, which . . .': and this *x* is *a*.

IV

30. To be an '*a*' is to be an expression which does the job done in the base language by '*a*'s. It is true, but unilluminating, to say that this job is that of referring to *a*; for, as was argued in the preceding chapter,

> '*a*'s (in L) refer to $a =_{Df}$ (ES) S $\subset$ INSENSE · '*a*' $\subset$ S · S materially equivalent to '*a*'

Thus, in explaining the job of referring expressions in the base language, it is unilluminating to say that their job is to refer to certain objects. We must look instead to the semantical rules and uniformities in which they are involved. Thus:

(1) Non-demonstrative referring expressions must themselves belong to the 'natural' order and be connected with objects

in a way which involves language entry transitions, intra-linguistic moves (consequence uniformities) and language departure transitions (willings-out-loud).[1]

(2) There must be a relatively stable, if skeletal, framework of propositions (involving these referring expressions) which describe the spatio-temporal location of these objects with respect to each other'.

(3) A proper part of this skeletal framework must 'specify location of the language user in his environment'.

(4) Rehearsings of this skeletal framework must gear in with the use of demonstratives to 'specify the location with respect to *here-now* of the objects with which the referring expressions are correlated'.

31. The above remarks are obviously but a first instalment of the explanation, an attempt to give an informal or intuitive account of how referring expressions function in first-level matter-of-factual discourse. Thus it will have been noticed that (2), by speaking of propositions as 'describing the spatio-temporal location of objects with respect to each other', is of a piece with explaining the job of '*a*' to be that of referring to *a*. 'Describe', like 'refer', does not stand for a specific linguistic job, but rather a job classification. Thus the job in question must ultimately be put in terms of uniformities pertaining to the use of spatio-temporal predicates. Similar considerations apply to (3) and (4).

32. The above points, however, do serve to emphasize that the job of referring expressions cannot be explained without taking into account the job of characterizing expressions, and, in particular, those characterizing expressions which stand for spatial and temporal relations; nor can the job of these, in their turn, be explained without taking into account the responsive role of linguistic expressions (language entry transitions) which is the key to the analysis of 'here' and 'now', and the consequence rules which give the 'axiomatics' of spatio-temporal discourse, not to mention the language departure transitions which reconstruct the voluntary participation of the language user in the course of events which pragmatism has stressed from its inception.

[1] These willings pertain to changing one's situation with respect to object making possible new and, perhaps, surprising language entry transitions.

33. Thus, in order for '*a*', '*b*', etc., to be correlated with objects, the spatio-temporal story-tellings in which they occur, however schematic, must be depictings. This means that certain matter-of-factual relations, satisfied by '*a*'s, '*b*'s, etc., as elements in the language, must be counterparts of relations satisfied by the objects which they represent in the pictures.

34. Furthermore, as we have seen, non-demonstrative referring expressions must be associated with criteria which authorize, for example, moves of the form

This $= a$

In other words, the fact that '*a*'s represent O_1 cannot be a matter of purely spatio-temporal relations and their linguistic counterparts. Individual constants must have a *sense* as well as a *denotation*. That this involves the neck-sticking-out move from

This is $f_1 \ldots f_n$

to

This is *the* $f_1 \ldots f_n$

is no more surprising than that inductive neck-sticking-out is an unavoidable feature of factual discourse.

V

35. We saw in the preceding chapter that for a predicate to stand for an attribute or a relation is for it to be of a certain kind. Thus, to stand for triangularity is to be a 'triangular'. What is it to be a 'triangular'? It is to be an item which does the job done in the base language by 'triangular's. Specifically, it is to give a singular term concatenated with it a counterpart character, T'. It is T' individual constants which correctly picture triangular objects, provided that the individual constants are correlated, as above, with the objects.

36. But although T' individual constants are correlated with T objects, the concept of this correlation is not the *analysis* of what it is for T' individual constants to *stand for* triangularity, nor does it explain what it is for T' individual constants to *denote* triangular objects. The correlation between objects and their linguistic

pictures must not be confused with the pseudo-relations *standing for* and *denoting*. Thus, that 'triangular's stand for triangularity essentially involves the intra-linguistic consequence uniformities governed by the consequence rules (axiomatics) of geometrical predicates. The crudest form of the contrary position consists in taking the language entry role of a perceptual predicate, the fact that statements involving the predicate are correct responses to objects which exemplify the perceptual character for which it stands, to *constitute* the fact that it stands for this character. For T' individual constants to stand for triangularity essentially involves the consequence patterns in which T' individual constants participate.

VI

37. It is now time to take into account the fact that since the job of abstract singular terms is to classify linguistic and conceptual episodes by comparing the jobs they do with the jobs done by expressions in the base language, the use of abstract terms admits of a dimension of flexibility which, though it has not been unnoticed, particularly by the Hegelian tradition, has never been given an adequate explanation, though the materials for this explanation have long been at hand.

38. One needs only connect the two ideas that triangularity is the ·triangular·, and that the function of 'the ·triangular·' is analogous to that of 'the pawn', to mobilize the familiar fact that it can make very good sense to say that a piece in a certain game is a pawn without implying that it works in *exactly* the same way as pawns do in standard chess. Is a pawn which cannot capture *en passant* a pawn? Is the game in which it belongs chess? There is room here for a decision. More important is the fact that there is room for argument. Considerations of various kinds can be advanced, the most interesting of which pertain to the *point* of classifying games in one way rather than another. One may decide, all things considered, to say 'no', but in the same breath say also that a common-noun 'prawn' could be introduced such that 'standard prawn' and, supposing the non-standard game to be called Jess, 'Jess prawn' would be subordinate classifications.

39. We speak of Euclidian triangularity and contrast it with,

say, Riemannian triangularity. Clearly, this distinction falls in a different dimension from that between scalene triangularity and isosceles triangularity. To say that the design 'triangular' in two different geometries stands for two different triangularities is, in our terms, to do two things. In the first place, it is to classify the design as it functions in these two contexts under a common heading, thus

'triangular's (in G_1) are ·triangular·s
'triangular's (in G_2) are ·triangular·s

On the other hand, it is also, in the second place, to qualify the common nouns under which both uses are subsumed (·triangular·), thusly,

'triangular's (in G_1) are G_1 ·triangular·s
'triangular's (in G_2) are G_2 ·triangular·s

where the expressions on the right-hand side are analogous to 'Guernsey cow' and 'Jersey cow'. The former tells us that 'triangular's in G_1 are ·triangular·s of the G_1 variety, the latter that 'triangular's in G_2 are ·triangular·s of the G_2 variety.

40. This situation must be carefully distinguished from that of ambiguity, as when one distinguishes between geometrical cultural squareness. A person who spoke both 'teen English and fogy English might say

'square' (in 'teenese') stands for squareness, i.e. are ·square·s

and

'square' (in fogese) stands for squareness, i.e. are ·square·s

but the two '·square·s' would be unperspicuously different common nouns, which is not true of '·triangular·' in the above example.

41. The point stands out clearly in number theory, where we say, for example, that there are a number of Two's. There is the natural number Two, the integer Two, the rational number Two, the real number Two, not to mention the imaginary number Two.

42. Furthermore, abstract entities, *pace* Plato, change. Obviously it is in no ordinary sense that they change, yet it is a legitimate one at that.[1] I shall have more to say on this topic before the chapter is over. For the moment it will suffice to note that the base language with respect to which abstract singular terms are introduced is part and parcel of the natural order, the world of 'process' or 'becoming'. Its mode of being is as historical as that of the social institutions it makes possible. The expressions which are embedded in abstract singular terms of the illustrating variety, reconstructed by our dot-quoting device, belong to a cross-section of the history of the language, though the cross-section need not be, in the ordinary sense, 'contemporary usage'.

43. Thus, abstract singular terms, built from designs which once played, but no longer play, the role of the expressions the singular term is designed to single out, can still do the job they originally did, if one knows how the designs were originally used. For those who do not, these abstract singular terms must be connected ('by definition') with others which contain *understood* designs. For, *ultimately*, abstract singular terms must relate to the 'truth move' in which the non-illustrating component falls away, as in

That snow is white is true
Snow is white

44. Thus, if abstract singular terms are to do their job without crutches, the expressions which are built into them must be expressions which those who use the abstract singular terms understand—which, again, does not mean that they are in 'ordinary usage' or that 'everybody' understands them.

45. The fact that a predicate in a certain language may play a role which is generically alike, but specifically different from, that played by '*f*' in the base language, and yet be correctly said to 'stand for *f*-ness', can be given an historical twist illustrated by the history of science. Thus we distinguish between Newtonian simultaneity and Einsteinian simultaneity; and between the

[1] One is tempted, indeed, to say that it is not abstract entities which change but rather our concepts of them. But according to the account we have given, the contrast between 'concepts' and 'abstract entities' is not as straightforward as on more platonic positions.

members of a large family of oxidations ranging from Lavoisierian oxidation to oxidation *à la* chemistry of 1966. (Once again, it is important not to confuse the modifiers with the differentia of ordinary specification.) Thus, as the historian of science looks back he can, on the one hand, make statements of the form

'– – –' (in L_{1800}) stood for *f*-ness, i.e. were ·*f*·s
'– – –' (in L_{1860}) stood for *f*-ness, i.e. were ·*f*·s
'– – –' (in L_{1966}) stands for *f*-ness, i.e. were ·*f*·s

and, on the other hand, introduce qualifiers corresponding to the 'Euclidean' and 'Riemannian' of our previous example.

46. An equivalent formulation can be given by introducing the concept of degrees of 'standing for', and pinning down the criteria to the exact way in which '*f*' is used in the base language. Ultimately, we shall see both kinds of move must be made in order to give a complete clarification of the concepts of truth and reality.

47. To say that the semantic rules governing '*f*'s in our language could change over a period of time, and yet that the '*f*'s could all be ·*f*·s, is what is meant by saying that *f*-ness has changed over this period. Just as we have the concept of a developing language or conceptual scheme, from which the concept of a language as studied in current formal semantics is an abstraction, so we have the concept of a developing linguistic or conceptual role from which the usual concept of a 'sense' or 'intension' is also an abstraction. To be an ·*f*· (stand for *f*-ness) does not require in this context that the expression to be classified plays the identical *determinate* role currently played by '*f*', but that its function in the earlier stage of the language is sufficiently similar to the current function of '*f*' to warrant classifying them together. Roughly, '*f*'s at t_1 stand to L at t_1 as '*f*'s at t_2 stand to L at t_2.

VII

48. The explication of truth as S-assertibility raises the question: assertible by whom? With respect to the concept 'true statement (in L)', the obvious, but superficial, answer is: by users of L. But since, as we have seen, this explicitly language relative concept is to be explicated by means of the schema

'– – –' (in L) is true ↔ '– – –'s (in L) are '. . .', and '. . .'s are true

i.e. in terms of what is misleadingly called the 'absolute' sense of true, the more penetrating answer is: S-assertible by *us*. For truth in the 'absolute' sense is, *in its own way*, language relative, relative to *our* language. Thus the

'. . .'s are true

on the right-hand side of the above schema has the sense of

'. . .'s are S-assertible by us

where *we* are users of the language in terms of which specific propositional expressions are introduced.

49. Thus, to characterize a statement in a foreign language, for example, French as true is, in effect, to treat this language as a 'dialect' of a language game which *we* play, i.e. to treat speakers of French as speakers of *our* language, as players of a common game. Since the term 'language' as it is ordinarily used refers to the specific linguistic materials (sign designs and surface grammar) which differentiate, e.g. French from German, we need another term for the common game which is played by users of such differing resources. I shall use the expression 'conceptual structure'[1] to serve this pupose. Thus the above schema, made explicit, becomes

'– – –' (in L) is true ↔ '– – –'s (in L) are '. . .'s and '. . .'s are S-assertible propositions belonging to our conceptual structure.

50. We must now refine our analysis by taking to account the fact that since even the 'absolute' sense of truth has the form

S-assertible proposition belonging to our conceptual structure

[1] It should be borne in mind that 'conceptual structure' in this sense refers to language games. It does not refer to conceptual activity in the sense of 'inner episodes'. I am assuming, as before, that once the epistemic and ontological categories with which we are concerned have been clarified in their application to Rylean items the extension of this clarification to 'inner-episodes' poses no difficulty of principle.

which can be simplified into

S-assertible in our conceptual structure

the fundamental form of 'true' is

true in conceptual structure CS_i.

The 'unqualified' sense of 'true' pertains to the special case where CS_i is *our* conceptual structure (abbreviated, in what follows, as CSO), thus

true = S-assertible in CSO

51. We are now in a position to supplement our previous explanation of the relation between the (so-called) 'language relative' and the (so-called) 'absolute' sense of 'true'—in which we were limiting our attention to the special case of *one* conceptual structure embedded in two different systems of linguistic resources, English and French was involved—with a more penetrating analysis of truth which takes into account difference of conceptual structure as well as difference of sign designs and surface grammar. To do so we must draw on the above discussion of the evolution of conceptual structures.

52. The point stands out most clearly in the case of the evolution of a scientific theory. Here it makes obvious sense to say that a certain concept belonging to the theory at one stage is a development of a concept belonging to the theory at an earlier stage. Let us suppose that the theory is one which we accept, and hence that what, for the moment, we shall think of as the 'latest' stage of the theory, is part of our conceptual structure as it now stands (CSO). Let us refer to the conceptual structure which includes a certain earlier stage of the theory as CS_1. Finally, let us introduce the concept of a family of propositions (PRFAM) which are the counterparts of each other at different stages in the development of the theory. We can now introduce the following rough definition of the truth of a proposition in CS_1 in terms of the 'absolute' sense of 'true'—which, as we have seen, amounts to 'true proposition belonging to CSO', thus

$PROP_j$ (in CS_1) is true ↔ for some PRFAM and for some PROP, PROP belongs to CSO, $PROP_j$ (in CS_1) ⊂ PRFAM, PROP ⊂ PRFAM, and PROP is true

Here the truth of $PROP_j$ in the less developed conceptual structure is defined in terms of the truth of its counterpart in our current conceptual structure.

53. This approach can be generalized still further by introducing a concept of 'true *quoad* CS_i'. Notice that 'true *quoad* CS_i' must not be confused with 'true in CS_i'. We are introducing a sense in which a proposition in one conceptual structure can be true not only with respect to our current conceptual structure, which is what the so-called 'absolute' sense amounts to, but with respect to any suitably related conceptual structure. Thus we can define a sense in which a proposition in our current conceptual structure (CSO) is true *quoad* the earlier conceptual structure CS_1, thus

$PROP_k$ (in CSO) is true *quoad* CS_1 $\longleftrightarrow$ for some PRFAM and for some PROP, PROP belongs to CS_1, $PROP_k$ (in CSO) $\subset$ PRFAM, PROP (in CS_1) $\subset$ PRFAM and PROP is true *quoad* CS_1

We thus distinguish between the conceptual structure to which a proposition *belongs* and the conceptual structure *with respect to which its truth is defined*. Notice, however, that however many sophisticated senses of 'true' may be introduced, and however important they may be, the connection of truth with *our current conceptual structure* remains essential, for the cash value of S-assertibility is assertion by us *hic et nunc*.

VIII

54. There is a sense in which it is correct to say that truth does not admit of degrees. A statement in our conceptual structure is either S-assertible or it is not. (If it is in principle undecidable, neither it nor its negation is S-assertible.) On the other hand, one conceptual framework can be more 'adequate' than another, and this fact can be used to define a sense in which one proposition can be said to be 'more true' than another. Once again I find myself in the position of attempting to revitalize central themes in nineteenth-century Idealism.

55. My primary aim in this chapter is to explain this 'comparative' sense of truth with respect to matter-of-factual propositions, but it is worth noting that the concept is also relevant to mathematical truths. In the case of arithmetic, for example, the concept of truth (S-assertibility) coincides with that of provability. It follows, of course, from Goedel's results that, with respect to the conceptual structure (in the sense of axiomatics) to which it belongs, not every arithmetical proposition is either true or false. It also follows that not every arithmetical proposition which is in some sense true is true in the absolute sense, i.e. with respect to our current conceptual structure, if this is taken to be an axiomatics. On the other hand, a proposition which is not provable in a weaker axiomatics, A_i, and hence which is not true *quoad* A_i, can be said to be true in a derivative sense, if its counterpart in a richer axiomatics, A_j, which is also, in a sense difficult to define, an axiomatics of arithmetic, is provable in A_j. Thus a proposition in A_i can be said to be true *quoad* A_j. In the case of arithmetic there is no end to the series of 'more adequate' axiomatic systems. On the other hand, in the case of factual propositions we are haunted by the ideal of *the* truth about the world.

56. Truth, we have seen, is not a relation. Picturing, on the other hand, is a relation, indeed, a relation between two relational structures. And pictures, like maps, can be more or less adequate. The adequacy concerns the 'method of projection'. A picture (candidate) subject to the rules of a given method of projection (conceptual framework), which is a correct picture (successful candidate), is S-assertible with respect to that method of projection. Thus the S-assertibility of a matter-of-factual proposition formulated by the schema

The '*fa*' is S-assertible *quoad* CS_i

is a matter of '*fa*'s being elements of correct pictures of the world in accordance with the semantic rules of CS_i. The concept of basic matter-of-factual truth, however, is not *identical* with the concept of a correct picture, because it involves the generic notion of the correctness of *assertion*. As we have seen, the concept of a linguistic or conceptual picture requires that the picture be brought about by the objects pictured; and while bringing about of linguistic pictures could be 'mechanical' (thus in the case of sophisticated

robots), in thinking of pictures as correct or incorrect we are thinking of the uniformities involved as directly or indirectly subject to rules of criticism.

57. Linguistic picture-making is not the performance of asserting matter-of-factual propositions. The *criterion* of the correctness of the performance of asserting a basic matter-of-factual proposition is the correctness of the proposition *qua* picture, i.e. the fact that it coincides with the picture the world-cum-language would generate in accordance with the uniformities controlled by the semantical rules of the language. Thus the *correctness* of the picture is not defined in terms of the *correctness* of a performance but vice versa.

58. The concept of a linguistic picture is meta-linguistic in a sense which must be carefully distinguished from meta-linguistic statements in the Carnap–Tarski sense, however closely they are related. Thus

'*fa*'s (in L) correctly picture O as ϕ

must be carefully distinguished from

'*fa*'s (in L) stand for that ϕO, and that ϕO is true

The former tells us that (in L) utterances consisting of an '*f*' concatenated with an '*a*' are correlated with O, which is ϕ, in accordance with the semantic uniformities which correlate utterances of lower-case letters of the alphabet with objects such as O, and which correlate utterances of lower-case letters of the alphabet which are concatenated with an '*f*' with objects which are ϕ. These correlations involve the complex machinery of language entry transitions (noticings), intra-linguistic moves (inference, identification by means of criteria) and language departure transitions (volitions pertaining to epistemic activity),[1] and must not be confused with the pseudo-relation of *standing for* or *denoting*. Picturing is a complex matter-of-factual relation and, as such, belongs in quite a different box from the concepts of denotation and truth.

[1] Compare the tautolizingly obscure but suggestive account of the relation of doing to knowing in William James' *Pragmatism*, New York, 1907, *passim*.

59. A statement to the effect that a linguistic item pictures a non-linguistic item by virtue of the semantical uniformities characteristic of a certain conceptual structure is, in an important sense, an object language statement, for even though it mentions linguistic objects, it treats them as items in the order of causes and effects, i.e. *in rerum natura*, and speaks directly of their functioning in this order in a way which is to be sharply contrasted with the meta-linguistic statements of logical semantics, in which the key role is played by abstract singular terms. Thus it is essential to note that whereas in

'*a*' (in L) denotes O

the 'O' of the right-hand side is a meta-linguistic expression, in

'*a*'s (in L) represent O

it is not.

60. The same is true of the right-hand side of

'R (*a*, *b*)' (in L) correctly pictures O_1 and O_2

Furthermore, if we proceed to justify such a statement we must say

. . . because R* ('*a*', '*b*') and R (O_1, O_2)

rather than

. . . because Concat ('R', '*a*, *b*') and Exempl(R-ness(O_1, O_2))

The 'R' of 'R(O_1, O_2)' stands for a complex matter-of-factual relation and not the pseudo-relation of exemplification.

61. The objects which are pictured by a linguistic picture can thus be genuinely extra-linguistic (though, of course, linguistic episodes as items *in rerum natura* can also be pictured). *The concepts* of these objects are, of course, relative to a conceptual scheme, but the form of these concepts is not

O (in our conceptual scheme)

On the other hand, the 'O' of

'*a*' (in L) denotes O

has the form '·O·', which, by virtue of the considerations advanced in the above discussion of truth, does have the form

INSENSE (in our conceptual scheme)

We must not repeat Berkeley's mistake when he wrote, '. . . but it does not show that you can conceive it possible the object of your thought may exist without the mind: to make out this, *it is necessary that you conceive their existing unconceived or unthought-of, which is a manifest repugnancy.*'[1]

62. According to our previous analysis

'*a*' (in L) refers to O

has the form

For some INSENSE, '*a*' (in L) ⊂ INSENSE, and INSENSE materially equivalent to '·O·'

We must now take into account the fact that the individual sense in question belongs according to that analysis to our conceptual structure, as does '·O·'. This enables us to take into account the fact that we can define a sense in which expressions in a different but related conceptual structure can be said to refer to or denote that which is denoted by expressions in our conceptual structure. Using, once more, the informal or intuitive notion of a family of counterpart individual senses, we have

$INSENSE_j$ (in CS_i) denotes O ⟷ for some INSENSE and for some INFAM, INSENSE belongs to CSO, $INSENSE_j$ belongs to CS_i, INSENSE ⊂ INFAM, $INSENSE_j$ belongs to INFAM, and INSENSE materially equivalent to '·O·'

63. As in the case of truth, the importance of this analysis lies in the fact that it permits the extension of epistemic notions to conceptual items in a framework which is other than, but related to, the conceptual structure which is embedded in our language as it now stands. In other words, the connection of these epistemic notions with our current conceptual structure (which is necessarily the point of view from which we view the universe) is loosened in a way which makes meaningful the statement that our current conceptual structure is both more adequate than its predecessors and less adequate than certain of its potential successors.

[1] *Principles of Human Knowledge*, XXIII.

64. Thus the fact that, using the conceptual framework of common sense, we quite properly say,

Jones saw that O was red

does not commit us to the idea that there is such a thing as O *as conceived in the framework of common sense*, nor that O is red *as redness is conceived in this framework*. Jones sees that O is *f* involves that Jones has a conceptual episode of the '·O is *f*·' kind. This includes a component which refers to O, and, assuming that the conceptual structure in question is of the subject-predicate kind, a component by virtue of which it characterizes O as *f*. That there is no such thing as O as conceived in the framework of common sense, is compatible with the idea that there is such a thing as O as conceived in another framework, thus that of physical theory.

IX

65. It is a truism that we don't speak a more adequate language than we do. On the other hand, it makes sense to speak of people who speak a more adequate language than we do. The putative concept of a linguistic structure which permits a more adequate picturing of objects than we are able to do raises the question: In which framework are these objects conceived? If in CSO, then how can they be more adequately pictured than they are in CSO, i.e. by its method of projection? How, it might be asked, can a common-sense object be more adequately pictured than in common-sense terms?

66. Are the individual variables we use tied exclusively to the individual senses of our current conceptual structure? Are the predicate variables we use tied exclusively to our conceptual resources? It is obvious that the only *cash* we have for these variables is to be found in our current conceptual structure, but it is a mistake to think that the substituends for a variable are limited to the constants which are here-now possessions of an instantaneous cross-section of language users. The identity of a language through time must be taken seriously, and a distinction drawn between the *logical* or 'formal' criteria of individuality which apply to any descriptive conceptual framework, and the more specific (material) criteria in terms of which individuals are

identified in specific conceptual frameworks; and, similarly, between the logical criteria which differentiate, say, *n*-adic from *m*-adic predicates generally, from the conceptual criteria (material rules) which give distinctive conceptual content to predicates which have the same purely logical status.

67. Thus the purely formal aspects of logical syntax, when they have been correctly disentangled, give us a way of speaking which abstracts from those features which differentiate specific conceptual structures, and enables us to form the concept of a domain of objects which are pictured in one way (less adequate) by one linguistic system, and in another way (more adequately) by another. And we can conceive of the former (or less adequate) linguistic system as our current linguistic system.

68. It should be noted that statements to the effect that one linguistic system generates more adequate pictures of these objects than another, though in one sense a 'meta-linguistic' statement, is an object language statement in the sense explained in paragraph 59 above.

69. Let us now go one step further and conceive of a language which enables its users to form *ideally* adequate pictures of objects, and let us call this language Peirceish. Indeed, let us conceive of the conceptual structure which would be common to English Peirceish, French Peirceish and even Mentalese or inner episode Peirceish.

70. We might, to begin with, look at Peirceish 'externally', and construe the semantical uniformities it involves in terms of the electronic propensities of Peirceish robots, by means of which their tapes are filled with 'information' reflecting their environment and reflected in their behaviour. There is, however, another way in which we can conceive of Peirceish. To bring this out, notice that we can conceive of less perfect robots, robots which are programmed along Austinian lines: ordinary language robots.

71. It was pointed out above that when we characterize a statement made in French, thus,

La neige est blanche

as true, we conceive of it as belonging to a linguistic kind, thus,

'Snow is white'-kind

which is represented in the language game we play. We conceive, so to speak, of ourselves and Frenchmen as playing different forms of the same game and, indeed, 'the same game' in a stronger sense than that which is illustrated by two pairs of people playing chess. The conception is rather to be compared with that of teammates on the same football field. Thus we translate not only French arithmetic but French statements involving such expressions as '*ici*', '*là*', '*maintenant*', '*hier*' and '*moi*', and respond to these statements as we do when we turn Jones' 'I am here' into 'He (Jones) is there'.

72. To apply epistemic terms to Peirceish expressions we must think of it, too, as 'the same game', this time, however, in a more developed, more adequate form. We conceive of Peirceish speakers as a successor generation in a continuing scientific community or, at least, as an 'adopted' generation (as we might 'adopt' Martians).

73. If we represent the Peirceish conceptual structure by 'CSP we can sketch the following additional concepts of truth

$PROP_i$ (in CSP) is true *quoad* CSP $\leftrightarrow$ $PROP_i$ (in CSP) is S-assertible by users of CSP.

$PROP_j$ (in CS_i) is true *quoad* CSP $\leftrightarrow$ for some PROP, and for some PRFAM, PROP belongs to CSP, PROP belongs to PRFAM, $PROP_j$ (in CS_i) $\subset$ PRFAM, and PROP is true *quoad* CSP.

74. Two principles relating 'true *quoad* CSP' to other senses of 'true' with respect to basic matter-of-factual propositions would seem to be valid:

(*a*) If a proposition in CSO is true its counterpart in CSP is true *quoad* CSO, and true *quoad* CSP. (Roughly, if a system of natural linguistic objects tokening a proposition in CSO

pictures certain objects, then tokens of the counterpart proposition in CSP also picture these objects.)

(*b*) If a proposition in CSP is true *quoad* CSP its counterparts in such frameworks (CS_t) as contain a counterpart are true *quoad* CSP, but not necessarily true *quoad* CS_t, though not false *quoad* CS_t. (The law of bivalence analytically holds for matter-of-factual propositions in CSP, but it need not hold for matter-of-factual propositions in less developed conceptual frameworks.)

75. Notice that although the concepts of 'ideal truth' and 'what really exists' are defined in terms of a Peirceian conceptual structure they do not require that there ever be a Peirceish community. Peirce himself fell into difficulty because, by not taking into account the dimension of 'picturing', he had no Archimedeian point outside the series of actual and possible beliefs in terms of which to define the ideal or limit to which members of this series might approximate.

76. Nor need ideal matter-of-factual truth be conceived of as one complete picture existing in simultaneous splendour. The Peirceish method of projection must enable picturings (by observation and inference) of *any* part, but this does not require a single picturing of *all* parts.

77. What of statements such as 'a drop of water fell into the Pacific at place *s* and time *t*', where '*t*' refers to a time before the human race began? Does S-assertibility with respect to *us* require that we be able, in principle, to infer this statement from observations we might make in the future? No, it requires only that if we had been at the appropriate place and time with our conceptual framework we could have observed it to be the case. Thus, to generalize, although Peirceians are our conceptual descendants, truth defined with respect to them does not require that Peirceians be able to infer the previous history of the world from their observations, though, of course, to the extent that they actually do picture the past which they have not observed, their pictures will be constructed by inference.

78. The concepts of ideal matter-of-factual truth and of what there really is are as fraught with subjunctives pertaining to con-

ceptualization as the idealists have ever claimed. But *no* picture of the world contains *as such* mentalistic expressions functioning *as such*. The indispensibility and logical irreducibility of mentalistic discourse is compatible with the idea that in *this* sense *there are no mental acts*. Though full of important insights, Idealism is, therefore, radically false.

X

79. I shall conclude this chapter with some remarks on the truth of scientific theories. This will enable me to make a token payment on the promissory note issued in Chapter II, where I agreed with Kant that the world of common sense is a 'phenomenal' world, but suggested that it is 'scientific objects', rather than metaphysical unknowables, which are the true things-in-themselves.

80. I emphasized at the beginning of this chapter that the crux of the problem of matter-of-factual truth concerns the truth of singular statements. This point holds not only of statements belonging to the perceptual framework (common sense) but also, though in a more complicated way, of statements belonging to ampliative theories, thus micro-physics.

81. I have also emphasized that a correct account of matter-of-factual truth, even at the perceptual level, must contain 'instrumentalist' components. Both law-like statements (in the metalanguage) and molecular (and quantified) statements in the object language were construed as, in a sense, 'instruments' for constructing pictures of objects in the world. Thus the idea that an adequate account of the meaning and truth of theoretical statements will also contain an instrumentalist component should cause no surprise. The fundamental issue in the debate between 'instrumentalist' and 'realist' is, from this point of view, *not* whether theories can be fruitfully compared to instruments—for this is true even of the conceptual framework of common sense—but whether basic singular statements (in a sense to be defined) in the language of such a theory can meaningfully be said to 'correspond' to the world in the 'picture' sense of 'correspond' (as contrasted with the Carnap–Tarski sense of 'correspond', the

extension of which to theoretical statements of all types seems to be quite unproblematic).

82. The instrumentalist, from our point of view, is one who holds that theoretical statements of *all* kinds, including singular statements, are *essentially* instruments for generating statements *in the observation framework*. Thus, if he went along with our distinctions he would hold that (ampliative) theoretical statements are simply more sophisticated instruments which along with molecular, quantified and law-like statements in the observation framework are means of constructing *observation framework* pictures of objects and events. Picturing, to put it bluntly, would be the inalienable prerogative of the perceptual level of our current conceptual structure.

83. Instrumentalists (and philosophers of science generally) lay little stress on the role of singular statements in micro-physical theories. They concentrate, rather, on the relation of theoretical principles to empirical laws; and the singular statements they emphasize are observation framework statements. Again, for the most part, they do not explicitly recognize the picturing dimension of factual truth, or fail to distinguish it clearly from the '*p*' *is true* $\longleftrightarrow$ *p* dimension. Thus, even when they recognize the existence of properly singular statements in theoretical discourse, and recognize that the latter are properly characterized as true or false, this does not raise for them the question whether these statements can be regarded as conceptual pictures in their own right.

84. This failure, as we have seen, is aided and abetted by a naïve realism which, as we have seen, construes the meaningfulness of perceptual predicates as a relation between persons, sign designs *and attributes construed as independent entities*. Naïve realism conceives of this relation as brought about by a learning process in which acquaintance with facts involving these attributes enables sign designs to be associated with them.

85. In effect naïve realism construes

S sees that *a* is *f*

as

S sees that *a* exemplifies *f*-ness

where exemplification is taken to be a relation (or 'tie') between extralinguistic objects. But this, according to our analysis, is on a par with construing 'S sees that *a* is *f*' as

S sees that it is true that *a* is *f*

86. Since the coming to have meaning of theoretical predicates obviously involves no such process of association, and since these predicates are not introduced by explicit definition, however broadly construed, their very meaning becomes, for these philosophers, *essentially* instrumental with respect to the perceptual level of our current conceptual framework. The sophisticated instrumentalist does not, indeed, deny that theoretical predicates have 'cognitive' meaning; any more than he denies that theoretical statements are true or false. But by interpreting theoretical meaning and truth as essentially instrumental with respect to the observation framework, construed in naïvely realistic terms, he gives this meaning and truth an *essentially* derivative or second-class status.

87. I say *essentially* derivative or second-class status, for although there is a legitimate methodological sense in which micro-physical theory is dependent on, and instrumental with respect to, the perceptual level of our current conceptual framework, it is vital not to transform this *methodological* dependence into an *ontological* thesis to the effect that 'real' (as contrasted with 'instrumental') existence, meaning and truth are limited to objects as conceived at the perceptual level of our current conceptual structure.

88. *Prima facie*, it makes just as much sense to speak of basic singular statements in the framework of micro-physics as pictures, according to a complicated manner of projection, of micro-physical objects, as it does to speak of basic singular statements in the observation framework as pictures of the objects and events of the world of perceptible things and events. The instrumentalist, however, even if he recognizes that there is a sense in which there can be theoretical pictures of theoretical objects, must interpret the picturing as *itself* essentially second class. For the statements which formulate this picturing relation are contaminated by the Pickwickian character, analysed above, of the reference to the micro-physical entities which serve as the non-linguistic terms of the picturing relation.

89. 'Language entry' uniformities are, as we have noted, essential to the meaning and truth of singular statements in the common-sense or observational framework. Thus, if singular statements in the framework of micro-physical theory could *independently* be shown to be *in principle* the sort of statement which is inferred, by the machinery of the theory, from singular statements in the observation framework, this would reinforce the instrumentalist contention. Actually, however, the arguments which are given are invariably reformulations of the naïvely realistic theory of concepts and concept formation criticized above.

90. Thus the Scientific Realist need only argue that a correct account of concepts and concept formation is compatible with the idea that the 'language entry' role could be played by statements in the language of physical theory, i.e. that in principle this language could *replace* the common-sense framework in *all* its roles, with the result that the idea that scientific theory enables a more adequate picturing of the world could be taken at its face value.

91. Needless to say, the epistemological thesis that such a direct use of theoretical language in perceptual response to the world could stand on its own feet and not presuppose the 'stand-by' presence of the common-sense framework to underwrite its reasonableness must not be confused with the methodological thesis, appropriate to a developing science, that it would be irrational, at least for the foreseeable future, to abandon the dualism of observational and theoretical frameworks which the instrumentalist transforms into an ontology.[1]

XI

92. The idea that singular statements in the language of micro-physics might constitute pictures of micro-physical objects and events is open to a number of more or less obvious objections. Thus, (1) it might be argued that the requirement that pictures not be molecular or quantified statements, i.e. that their complexity be

[1] I have argued this point in a series of papers, most recently in 'Scientific Realism or Irenic Instrumentalism: a critique of Nagel and Feyerabend on Theoretical Explanation', in *Boston Studies in the Philosophy of Science*, Volume Two, edited by Robert S. Cohen and Marx W. Wartofsky, New York, N.Y., 1965.

matter-of-factual rather than logical, rules out the idea that the language of micro-physics could permit the formulation of pictures. For, it might be said, no singular statement about individual micro-physical particles can occur in a language entry transition, or observation. Statements formulating observations, if in micro-physical terms, would have to be logically complex, and enormously so. This objection assumes, however, that statements which are basic as the constituents of pictures must also be epistemically basic in the sense that they formulate observable states of affairs. It is, indeed, true of the common-sense framework that statements which are basic in one sense are also basic in the other. Yet the two senses of 'basic' are different, and a transcendental philosophy which rises to a level of abstraction which distinguishes the generic character of epistemic concepts (e.g. language entry transition, conceptual picture, object) from the specific forms they take in common-sense discourse will not assume that the basic constituents of conceptual pictures must be statements of the kind which occur as conceptual responses to sensory stimulation.

93. A more serious objection, (2) is that properly singular statements in micro-physical theory would be about 'ideal objects' in the sense in which the point-masses and instantaneous events of macro-mechanics are ideal objects. Unlike the case of point-masses, however, there would seem to be no non-ideal counterparts of which they are the idealization. Thus one who takes an 'instrumentalist' view of the 'ideal objects' which the mathematics of the Space–Time continuum manipulates so handily would seem to be forced back to Instrumentalism just when we seem to have cleared the way for Scientific Realism. This objection raises serious issues about the conceptual structure of micro-physical theory, issues which are so intricate that I can do little but look them in the eye and walk on.

94. I distinguished in Chapter II between idealizing and ampliative theories. Micro-physics is an ampliative theory. Is it also *essentially* an idealizing theory? I.e. does it *essentially* involve the structure of real number theory and the continuum? Or can we conceive that in principle a 'finitist' micro-theory could be formulated which would stand to the framework which uses all the

resources of mathematical analysis, as a mechanics of finite differences stands to the idealized macro-mechanics of Newton and Einstein? I wish I could say something helpful on this point. I can only confess that it seems to me that the possibility of such a micro-physics is an unavoidable implication of Scientific Realism. If this looks a 'transcendental' deduction of 'finitism', I can only plead that I am not alone in thinking that the issue is not an empirical one.[1]

XII

95. The claim that the common-sense framework is transcendentally ideal, i.e. that there really are no such things as the objects of which it speaks, can now be reassessed and reformulated. We must distinguish carefully between saying that these objects do not really exist and saying that they do not really exist *as conceived in this framework*. For they do really exist as conceived in what, omitting the qualifications which were introduced in the preceding section, we have called the Peirceian framework, the framework which is the regulative ideal which defines our concepts of ideal truth and reality.

96. Just as we distinguish between truth with respect to CS_i, truth *simpliciter* in the sense of truth with respect to *our* conceptual structure (CSO), and (ideal) truth in the sense of truth with respect to a Peirceian framework, so we must draw corresponding distinctions with respect to such related epistemic concepts as denotation and existence. The latter is the one which concerns us here. If we use 'ATT' to refer to attributive senses, as 'INSENSE' refers to individual senses, something like the following seem to capture the relevant concepts of existence (which must not be confused with the concept of 'something' which is captured, the 'existential' quantifier):

[1] It might seem that if the above is a transcendental deduction of 'finitism' it is also a transcendental deduction of 'quantism'. I do not think that this is so. To deny the physical reality of Cantorian entities one does not need to construe a Cantorian conceptual framework as a useful tool for dealing with a quantized world (cf. Whitehead). One can suppose that the world is continuous in a more Aristotelian sense, and, hence, that though any mesh in terms of which we conceptually cut up the world into objects to be pictured will have a finite grain, it can, however, be replaced, in principle, by a still finer mesh. In this case the concept of an *ideally* adequate method of projection would be an 'idealization' in the sense in which mathematical geometry is an idealization.

$INSENSE_i$ (in CSO) exists *quoad* CSO $\leftrightarrow$ for some ATT, ATT belongs to CSO, and ATT [$INSENSE_i$] is true *quoad* CSO

$INSENSE_i$ (in CSP) exists *quoad* CSP $\leftrightarrow$ for some ATT, and for some $INSENSE_j$, and for some INFAM, ATT belongs to CSP, $INSENSE_j$ belongs in CSP, $INSENSE_i$ belongs to INFAM, $INSENSE_j$ belongs to INFAM, and ATT [$INSENSE_j$] is true *quoad* CSP

97. Corresponding to the principles concerning 'true *quoad* CSO' and 'true *quoad* CSP', which were formulated in paragraph 74 above, we would have:

(*a*) If INSENSE (in CSO) exists *quoad* CSO, then its counterpart in CSP exists not only *quoad* CSO, but *quoad* CSP.
(*b*) If INSENSE (in CSP) exists *quoad* CSP, then its counterpart (if any) in CS_i exists *quoad* CSP, but not necessarily *quoad* CS_i.

98. To say that an object doesn't exist *as conceived in CSO* (as opposed to saying that it doesn't exist *period*) is to claim that there are significant differences between the way in which the object is conceived in CSO and the way in which it is conceived in CSP—i.e. the conceptual form of its counterpart in CSP.

99. On the other hand, to say that an object doesn't *really* exist is to make the stronger claim that its counterpart in CSP is not an object but, say, a virtual class of objects, in which case the counterparts would stand to one another as

'*a*'

to

'$\hat{x}\,fx$'

100. But why not construe the counterpart in CSP of an observable thing as a *whole* of micro-particles, for example, rather than a virtual *class* of molecules? Notice that *within* CSO we can choose between saying that a wall is a class of bricks, and that it is a whole of which bricks are parts. If we say that the counterparts of physical objects in CSP are wholes rather than virtual classes, then these counterparts would also be objects and we could use the 'doesn't exist as conceived in CSO' locution as contrasted with the 'doesn't really exist' locution.

101. Is there any reason for supposing that the concept corresponding in CSP to the concept of a material object in CSO must be a class concept rather than a whole concept? I think there is, for, after all, the logic of whole and part doesn't replace the logic of predication, but builds on it. Discourse about wholes and their parts presupposes subject-predicate talk about the objects which are to be described as 'parts'.

102. To what extent does the positive account I have been giving amount to a Kantian-type phenomenalism? Should I say that the *esse* of the common-sense world is *concipi*? It is not too misleading to do so provided that this is taken to be a vigorous way of stressing the radical differences in conceptual structure between the framework of common sense and the developing framework of theoretical science. Yet, according to the picture I have been sketching, the concepts in terms of which the objects of the common-sense or 'manifest' image[1] are identified have 'successor' concepts in the scientific image, and, correspondingly, the individual concepts of the manifest image have counterparts in the scientific image which, however different in logical structure, can legitimately be regarded as their 'successors'. In *this* sense, which is not available to Kant, save with a theological twist, the objects of the manifest image do *really* exist.

[1] For an earlier exploration of the relations between these two 'images' of the world which touches on important topics not dealt with in this book see my essay on 'Philosophy and the Scientific Image of Man', in *Frontiers of Science and Philosophy*, Robert Colodny (ed.) (Pittsburgh, 1962), reprinted as Chapter I in my *Science, Perception and Reality* (London and New York, 1963).

VI

APPEARANCES AND THINGS IN THEMSELVES: 2. PERSONS

1. In the third and fourth chapters we were concerned to understand what it means to say of candid overt speech episodes that they *stand for* various kinds of *senses*, thus attributive senses, state-of-affairs senses, individual senses, logical-connective senses, etc., and to understand what it means to say of those senses which can be called intensions—i.e. those which correspond to extensions—that, depending on what they are, they *obtain*, or are *exemplified* or *exist*.

2. The broader context in which this endeavour was embedded was an attempt to construe the language of conceptual episodes proper as though it had been introduced, in a community whose conceptions of rational behaviour were purely Ryleian, as a theory to explain the fact, among others, that a person's verbal propensities and dispositions change during periods of silence as they would have changed if he had been engaged in specific sequences of various types of candid linguistic behaviour called 'thinkings-out-loud' by our Ryleians, though the hyphenated phrase, useful for our purposes, did not imply to them, as it does to us, that this candid linguistic behaviour is the manifestation at the overt level of imperceptible conceptual episodes.

3. We distinguished the sense of 'manifestation' in which a perceptible episode is a manifestation of a disposition or propensity, as the dissolving of salt is a manifestation of solubility,