

Passages from *Science and Metaphysics*, Chapter V

“I have emphasized that the concept of truth as S-assertibility is universal in scope...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.” [116 §1]

“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 Leibniz’s term ‘*verité de fait*.’ [116 §2]

“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 Chinese boxes which make up factual truth. For the domain of ‘is’ also has its ‘oughts’. Thus...law-like propositions tell us how we ought to think about the world. They formulate rules of criticism, and if, as such, they tell us what ought or ought not to be the case, that 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.” [117 §4]

“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 appropriate temporal senses or intensions. [117 §5]

“...law-like statements are at the metalinguistic (and meta-conceptual) level...” [117 §5].

“...it follows that law-like statements are, in our sense of the phrase, ‘semantical rules’...” [118 §6]

“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-factual discourse. These clues are contained in his discussion of language as a means of constructing ‘logical pictures’ of the world.” [118-119, §8].

Where he is going §102 (last ‘graph of Chapter V):

“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 structures 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 are identified have ‘successor’ concepts in the scientific image, and, correspondingly, the individual concepts of the manifest image have counterparts in the individual concepts of 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.”

“I speak of the distinctive *functions* of the first-level matter-of-factual discourse; for even within this level essential distinctions must be drawn...

The key distinction pertaining to matter-of-factual statements of the first level is...that between atomic and molecular statements. In first approximation it is atomic statements which make up ‘linguistic pictures’ of the world.” [119 §9-10]

“Basic factual predicates come in families of competing predicates, on or other of which must be satisfied by every object which can satisfy a predicate of that family.” [119-120 §12]

“...we must distinguish ‘pictorial’ from ‘logical’ complexity. Thus the complex picture of which the elements are an $\bullet fa\bullet$, an $\bullet aRb\bullet$, and a $\bullet gb\bullet$ must not be confused with the conjunctive statement $fa\&aRb\&gb$ [Sellars’s point here is muddled by the typesetter using *Principia*-type dots for conjunction in the latter phrase.] [120 §15]

“Without redundancy...in a non-subject-predicate language it might be, for example a_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 ‘aRb’.” [121 §17]

“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.” [124, §26]

“The difference between ‘a’, on the one hand, and ‘the g’ and ‘(ix)gx’ on the other, is that the latter carry on their sleeve the logical and empirical information relevant to their correct use.” [124 §26]

“...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.” [124-5, §27]

“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.” [125, §28]

Section IV:

“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 referring to *a*; for, as was argued in the previous chapter,

‘*a*’s (in L) refer to *a* =_{df.} (∃S) S ⊆ INSENSE and ‘*a*’ ⊂ [BB: does he mean ∈?] S and S materially equivalent to **a**.

Thus in explaining the job of referring expression 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 that involves language entry transitions, intralinguistic moves (consequence uniformities) and language departure transitions (willings-out-loud). Ftnt: These willings pertain to changing one’s situation w/res to objects[s] making possible new and, perhaps, surprising language entry transitions.
- (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 [the] 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’. [125-6, §30]

“ ‘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.” [126, §31]

“The above points...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 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.” [126, §32] [Emphasis added.]

“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.” [127, §33]

“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*.” [127, §34]

Section V is an aside about not extending this picturing account to terms like ‘triangularity’, which are nominalized forms of characterizing expressions.

WS is working with a general distinction between *referring* expressions and *characterizing* expressions (singular terms and predicates).

“...for a predicate to stand for an attribute or 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.” [127, §35.]

BB Note: Section VI makes the point that functional-role classification using the illustrating-instance mode, is both loose-textured (just how closely need the roles match? If pawns cannot capture *en passant* are they pawns? Is the game chess?) and permits illustrating uses that are *not* from the base vocabulary, but are of a certain kind. Thus he distinguishes the distinction between Euclidean and Reimannian triangularity from the distinction between scalene and equilateral triangularity. The former are kinds of *triangular* in belonging to different vocabularies. And this is not a matter of ordinary ambiguity. Those illustrating vocabularies can be sequentially ordered: Newtonian simultaneity and Einsteinian simultaneity, Lavoisierian oxidation...up to contemporary oxidation.

Section VII:

§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 a 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_i. 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.

BB Note:

Definition: Quoad means "as regards" or "with regard to."

It is a Latin term that is often used in legal or formal contexts. For example, if someone has a pledge, they may continue to possess it *quoad the world at large*, This means that even though the debtor has pledged something as collateral, they still have possession of it as far as the rest of the world is concerned.

“This approach can be generalized still further by introducing the 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.” [134, §53]

Section VIII:

“...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 ‘more true’ than another. Once again I find myself in the position of attempting to revitalize themes in nineteenth-century Idealism. My primary aim in this chapter is to explain this ‘comparative’ sense of truth with respect to matter-of-factual propositions....

In the case of factual propositions we are haunted by the ideal of *the* truth about the world.” [134-135, §54-55]

“Truth...is not a relation. Picturing...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 [the] 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." [135, §56]

"Linguistic picture-making is not the performance of asserting matter-of-factual performances. The *criterion* [BB: cf. rules of *criticism*] 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 [normatively] controlled by the semantical rules of the language**. Thus the *correctness* of the picture is not defined in terms of the *correctness* of the performance, but vice versa." [136, §57] [Bold added.]

"The concept of a linguistic picture is meta-linguistic in a sense which must be carefully distinguished from the meta-linguistic statements in the Carnap-Tarski sense, however closely they are related....Picturing is a complex matter-of-factual relation and, as such, belongs in quite a different box from the concepts of denotation and truth." [136 §58]

"A statement to the effect that a linguistic item pictures a nonlinguistic 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 metalinguistic statements of logical semantics, in which the key role is played by abstract singular terms." [137, §59]

"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)." [137, §61]

§62 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.

“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 statements that our current conceptual structure is both more adequate than its predecessors and less adequate than certain of its potential successors.**” [138, §63]

“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 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.” [138, §64.]

Section IX, §65: It is a truism that we don’t speak a more adequate language than we do...How, it might be asked, can a common-sense object be more adequately pictured than in common-sense terms?

§67 Thus the purely formal aspects of logical syntax [in §66 his example is the distinction between *n*-adic and *m*-adic predicates] 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.

There he said:

“A statement to the effect that a linguistic item pictures a nonlinguistic 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 [BB: bad word, given the contrast he is making] in this order in a way which is to be sharply contrasted with the metalinguistic statements of logical semantics, in which the key role is played by abstract singular terms.” [137, §59]

§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 Peircish.

§75 Notice that although the concepts of ‘ideal truth’ and ‘what really exists’ are defined in terms of Peircean conceptual structure, they do not require that there ever be a Peircean community. Peirce himself fell into difficulty because, by not taking into account the dimension of ‘picturing’, he had **no Archimedean 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 approximate.**

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

§78 The concepts of ideal matter-of-factual truth and of what there really is are as fraught with subjunctives pertaining to conceptualization as the idealists have ever claimed. But *no* picture of the world contains *as such* mentalistic expressions functioning *as such*. The indispensability 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.

§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 issue 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.

Ch VI §61: As I see it, in any case, a consistent scientific realist must hold that the world of everyday experience is a phenomenal world in the Kantian sense, existing only as the contents of actual and obtainable conceptual representings, the obtainability of which is explained not, as for Kant, by things in themselves known only to God, but by scientific objects about which, barring catastrophe, we shall know more and more as the years go by.

§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 [BB: see §94 below where these are contrasted with *idealizing* 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 [BB: that is, *particulars*]. Picturing, to put it bluntly, would be the inalienable prerogative of the perceptual level of our current conceptual structure.

§86...But by interpreting theoretical meaning and truth as essentially instrumental with respect to the observation framework, construed in naively 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.

§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.

§94: I distinguished in Chapter II between idealizing and ampliative theories. Micro-physics is an ampliative theory. Is it also *essentially* and 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. Ftnt:To deny the physical reality of Cantorian entities one does not need to construe a Cantorian framework as useful 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.

§95: The claim that the common-sense framework is transcendently ideal, i.e. that there really are no such things as the objects of which it speaks, can no 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 Peircean framework, the framework which is the regulative ideal which defines our concepts of ideal truth and reality.

§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 '!xfx'.

§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 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 pictures I have been sketching, the concepts in terms of which the objects the common-sense or 'manifest' image 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.

Note: There is a footnote to §102, to one of his few looks back at the image image.

The footnote starts:

“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 [PSIM].”

[End of Chapter V.]