Russell's external world: 1912-1921

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IN "The Relation of Sense-data to Physics",[1] *Our Knowledge of the External World*,[2] and "The Ultimate Constituents of Matter",[3] Russell presents a phenomenalistic reduction of physical objects. On this theory, the external world becomes a physical space of six dimensions, which must be logically constructed by a three-dimensional ordering of three-dimensional phenomenal spaces. In what follows, we will consider Russell's varying views, from causal realism in *The Problems of Philosophy*,[4] through phenomenalism, to neutral monism in *The Analysis of Mind*,[5] on the nature of the external world. We will pay particular attention to the relation between physical and phenomenal space, and the status of the causal theory of perception.

I. Realism (1912)

In *The Problems of Philosophy*, Russell distinguishes a single "real" space of science from the "apparent" spaces of perception. He begins with various cases of perceptual relativity, illusion, etc., and from these infers that those object which are immediately known to us are not the physical objects which the layman might take them to be. Rather, what are immediately known are sense-data, these being caused by, and so in some sense "corresponding" to, physical ob-

[1] "The Relation of Sense-data to Physics", *Scientia*, 4 (1914), reprinted as Chapter VIII of *Mysticism and Logic and Other Essays* (London, 1918).
[2] *Our Knowledge of the External World as a Field for Scientific Method in Philosophy* (London, 1914).
[3] "The Ultimate Constituents of Matter", *Monist*, 25 (1915), reprinted as Chapter VII of *Mysticism and Logic*.
[4] *The Problems of Philosophy* (London, 1946 [1st published, 1912]).
[5] *The Analysis of Mind* (London, 1921).

jects. Physical objects are located in "one public all-embracing physical space", while "our sense-data are situated in our private spaces, either the space of sight or the space of touch or such vaguer spaces as other senses may give us".[6] Through experience, we are able to correlate these various private sense-data spaces (i.e., in so far as we can correlate experiences in one with experiences in another).

What Russell does not go on to do here is define physical space in terms of private spaces. Given that

(a) Space is relational rather than absolute, and
(b) All that we can know about physical objects is that both they and their relations "correspond" to our sense-data and their relations, then
(c) "we may assume that there is a physical space in which physical objects have spatial relations corresponding to those which the corresponding sense-data have in our private spaces".[7]

Our knowledge of physical space is then merely knowledge of relative position, and other features, e.g., shape, are "only supposed to correspond to the physical space so far as is required for the preservation of the order".[8]

On this view, the existence of a physical space is necessitated solely by, and so is no more plausible than, the need for physcial objects. Russell's argument for accepting our "instinctive" belief that physical objects exist is less than compelling.

> Since this belief does not lead to any difficulties, but on the contrary tends to simplify and systemize our account of our experiences, there seems no good reason for rejecting it.[9]

In what follows, we shall see that Russell's phenomenalism is not explainable as differing from the realism found in *The Problems of Philosophy* merely in the rejection of this "instinctive" belief.

II. Phenomenalism (1914-?)

In his "Reply to Criticisms" in the Schilpp collection,[10] Russell seems to deny that he ever really accepted phenomenalism.

[6] *The Problems of Philosophy*, pp. 30-1
[7] *Ibid.*, p. 31.
[8] *Ibid.*, p. 33.
[9] *Ibid.*, p. 24.
[10] "Reply to Criticisms", in P.A. Schilpp (ed.), *The Philosophy of Bertrand Russell* (Evanston and Chicago, 1944), pp. 679-741.

> Mr. Boodin quotes a passage from me according to which it appears that at a certain time I thought only percepts were real. This was a technical hypothesis which I was trying to make logically adequate.[11]

However, only a few pages earlier he had remarked:

> There are some who would deny that physics need say anything about what cannot be observed; at times I have been one of them.[12]

Note that this last passage mentions things which *cannot be* observed, as opposed to things which *are not* observed. Hence what he had in mind would seem to be physical objects rather than unperceived appearances. Similarly, Russell's claim that in "The Relation of Sense-data to Physics" "I gave up the attempt to construct 'matter' out of experienced data alone"[13] seems not to be, as Merilee Salmon has implied,[14] a disclaimer of phenomenalism.

I do not want to say that Russell's phenomenalism was no more than the linguistic thesis that all statements about physical objects are somehow translatable into statements about sense-data. Given physical objects as the causes of sense-data, then a relational physical space is definable in terms of them, and so is more than just a logical construction of phenomenal spaces.

Nor do I want to say that Russell's phenomenalism is merely an epistemological working hypothesis, rather than in addition a metaphysical thesis. Given that interpretation, a physical object could still be accorded the status of a *Ding an sich*. However, Russell's avoidance of the inference to the existence of physical objects is not motivated just by Humean scruples in regard to induction. Rather, that inference is forestalled by Occam's razor. What we must consider, then, is whether or not Russell's phenomenalistic construction of the external world is sufficient to warrant this application of Occam's razor.

As was explained above, in *The Problems of Philosophy* Russell used sense-data as the objects of the mental act of sensation. The rejection of naive (or, direct) realism seems to force the introduction of sense-data, while the spectre of Berkelian idealism leads to distinguishing these objects of sensation as being nonmental, and so dis-

[11] *Ibid.*, p. 718.
[12] *Ibid.*, p. 701.
[13] *My Philosophical Development* (New York, 1959), p. 105.
[14] Merrilee Salmon, "On Russell's 'brief but notorious flirtation with phenomenalism'", *Russell*, no.16 (1974-5), pp. 13-20; p. 14.

tinct from the act of sensation. However, if sense-data are distinct from physical objects, yet are also nonmental, then what are they? In steering between the extremes of realism and idealism, Russell seemed to have ended up with a tripartite ontology.

Russell's retreat to his neutral-monistic position is not a one-step affair, and proceeds by first coming back to a dualism of mental and physical. This step is accomplished by merging the realm of sense-data with the realm of physics.

> I believe that the actual data in sensation, the immediate objects of sight or touch or hearing, are extra-mental, purely physical, and among the ultimate constituents of matter.[15]

This position is realistic in that it does accept the existence of physical entities. Where Russell's realism is decidely nonstandard is in its rejection of the notion that what is physical must be persistent. It would then seem that this view is phenomenalistic in going on deny that what is physical must be something other than sense-data.

The main advantages of this merger would seem to be two-fold. First, drawing from the virtue of Berkelian idealism, the external world is constructed out of knowable entities. Russell sees this as an application of Occam's razor.

> The above extrusion of permanent things affords an example of the maxim which inspires all scientific philosophizing, namely "Occam's razor": *Entities are not to be multiplied without necessity*. In other words, in dealing with any subject-matter, find out what entities are undeniably involved, and state everything in terms of these entities.[16]

Though this does not categorically rule out the postulation of unobservable entities, it does demand a compelling reason behind any such postulation.

The second benefit of Russell's merging of the experienced with the physical is that it affords a unification of "the order of causation as affirmed by physics, and the order of evidence as revealed by the theory of knowledge".[17] Given that sense-data are among the ultimate constituents of matter, then in regard to our experience of, e.g., seeing the sun, the starting point in each order is that sense datum of which we are aware. This is opposed to having that sense-datum as the last link of a causal chain beginning with the sun as physical

[15] "The Ultimate Constituents of Matter", p. 128.
[16] *Our Knowledge of the External World*, p. 107.
[17] "The Ultimate Constituents of Matter", p. 135.

object. What happens here is that the order of physics becomes no more than the order of evidence.

What we want to see now is just how these physicalized sense-data can serve those purposes for which physical objects are usually postulated. We understand these sense-data to be the appearances which physical objects, if they existed, would cause. We then expect that the sense-data which we perceive (i.e., how an object will appear) will depend upon our point of view. Apparent size will depend upon distance, shape will depend upon the angle of viewing, and so on. At any given moment, for every spatial position from which a physical object, if it existed, would be perceptible, there is either an actual or a possible sense-datum for that object. Russell as phenomenalist takes the physical object to be just the class consisting of all of these sense-data.

There are two rather obvious sets of problems, mostly anticipated by Russell, for this theory. First, sense-data are usually taken to be the actual data in senstion, not in addition some unperceived yet possible data. Further, it has been argued by some[18] that the postulation of unperceived sense-data is on the same level as the postulation of physical objects. Hence Russell's ontological economization is a sham.

Russell admits that he is unable to construct physical objects wholly in terms of actually sensed data. Defining sense-data as the momentary particulars actually experienced in sensation, he goes on to fill those gaps where no observers are present.

> I shall give the name *sensibilia* to those objects which have the same metaphysical and physical status as sense-data, without necessarily being data to any mind.[19]

Hence all sense-data are sensibilia, but not vice versa. Given that sensibilia are momentary existents, then a sensible either is also a sense-datum, or it never is.

There are two objections to this maneuver. The first is that since sense-data are the actual data of sensation, they themselves must be mental. Hence nothing like them could exist except at a place where there is a mind. Russell's response to this was that though "the fact of being a datum is mental", "the sense-datum is *not* mental".[20]

[18] E.g., W.T. Stace, "Russell's Neutral Monism", in Schilpp, pp. 351-84, esp. Section IV; and R.J. Hirst, "Phenomenalism", in Paul Edwards (ed.), *The Encyclopedia of Philosophy* (New York, 1967), VI, 130-5.
[19] "The Relation of Sense-data to Physics", p. 148.
[20] Letter to the Editors, *The Journal of Philosophy*, XII (1915), pp. 391-2. The Archivist brought this letter to my attention.

Sense-data, as objects of sensation, are causally dependent on a person's sense-organs, nerves, and brain. The mind is said to add nothing to those sensibilia which are sense-data.

> If my body could remain in exactly the same state in which it is, although my mind had ceased to exist, precisely that object which I now see . . . would exist, although of course I should not see it, since my seeing is mental.[21]

The second objection is that, even if we allow that sense-data are nonmental, it nevertheless seems otiose to claim that all sensibilia are physical entities of the exact same type. Unperceived sensibilia, being momentary, are in principle unobservable. Hence the inference to them from sense-data is no safer than the inference to physical objects.

This objection need not detain us. It is assumed that all sensibilia have the same metaphysical status. This differs from the relation between sense-data and physical objects in that while physical objects are by nature unobservable, unperceived sensibilia just happen to pass unobserved. Though no unperceived sensibilia are observed, their nature would not have to be changed if they were to be observed.

A second set of problems deals, not with the nature of Russell's ultimate constituents of matter, but with the space in which they are situated. According to Russell's phenomenalism, at every place we find a member of every physical object which would be perceptible, at that moment, from that place. Hence,

> It might seem at first sight as if we had packed the world much fuller than it could possibly hold . . . throughout the world, everywhere, there will be an enormous amount of particulars (i.e., sensibilia) co-existing in the same place.[22]

Russell's solution to this, and other related problems, is his theory of six-dimensional space. He begins, as in *The Problems of Philosophy*, with the space of a person's immediate sensible experience. This he takes to be both three-dimensional and private. As in the earlier work, there is the notion that the spaces of the various senses are correlated to produce "the one private space which embraces all our own sense-data".[23]

Russell does *not* (as Carnap does in the *Aufbau*[24]) take the whole of

[21] "The Ultimate Constituents of Matter", p. 141.
[22] *Ibid.*, p. 138.
[23] "The Relation of Sense-data to Physics", p. 159.
[24] Rudolf Carnap, *Der Logische Aufbau der Welt* (Berlin, 1928).

one's immediate sensible experience as primitive. Rather, this whole is differentiated (in some manner or other) into those particulars which Russell calls 'sense-data'. Russell's term for this whole, i.e., "the assemblage of all my present objects of sense",[25] is 'perspective'. Corresponding to the division among sensibilia into those which are perceived (sense-data) and those which are not, there is a distinction between those perspectives which serve as a person's "private world" and those perspectives which pass unperceived. So as to avoid both the problem of spatially interrelating the spaces of the various senses, and mention of an actual percipient, a single perspective is defined as all particulars which have the direct (as opposed to constructed) time-relation of simultaneity.[26]

Another way of grouping together particulars (i.e., sensibilia) is as appearances of the same "thing". This same "thing" is what two different persons could be said to be perceiving at the same time. Given the absolute privacy of sensible experience, which follows from the momentary existence of the objects of this experience, such "things" are literally impossible. Still, they can be inferred (or, constructed) by correlating similar particulars from different perspectives. These particulars, occurring as members of different perspectives, are then classified as appearances of the same nonprivate "thing".

Russell goes on to distinguish two different types of "places" associated with every sensible.

> There is first the place which is the perspective of which the "sensible" is a member. This is the place *from* which the "sensible" appears. Secondly there is the place where the thing is of which the "sensible" is a member, in other words an appearance; this is the place *at* which the sensibile appears.[27]

Each of these places, identified as a (momentary) perspective, contains its own three-dimensional private space. As these perspectives are given as private, there is no direct relation between particulars in different perspectives. There is, however, what Russell calls "the one all-embracing perspective space", in which these perspectives themselves are the elements.

Perspective space, "which consists of relations between perspectives, can be rendered continuous, and (if we choose) three-dimensional".[28] The result is a compact plenum of perspectives, a

[25] "The Ultimate Constituents of Matter", p. 139.
[26] *Ibid.*, pp. 140-1.
[27] "The Relation of Sense-data to Physics", pp. 162-3.
[28] *Our Knowledge of the External World*, pp. 88-9.

"monadology" consisting of perspectives rather than monads. It "is a world of six dimensions, since it is a three-dimensional series of perspectives, each of which is itself three-dimensional".[29] Each perspective counts as one point in perspective space, and it is this constructed space of perspectives which serves as the one all-embracing space of physics. The place at which a physical "thing" is, is that place, i.e., a point in perspective space, *at* which all of its appearances appear.

III. Neutral Monism (1921)

In *The Analysis of Mind*, both the dualism of act and object of awareness, and that of mind and body in general, are abandoned. Talk of sensibilia and sense-data is replaced with talk of appearances, sensations, perceptions, and images. Also, belief in the "real" existence of physical objects, as opposed to defining them as merely logical constructions, is once again accepted.

Perspectives and momentary "things" are defined as they had been earlier, though their constituent particulars are now neutral rather than either mental or physical. "Perceptions", defined as appearances "from a place where there is a brain with sense-organs and nerves forming part of the intervening medium", are distinguished from "the appearances of objects in places where there is no living being" by two characteristics: "(1) They give rise to mnemic phenomena; (2) They are themselves affected by mnemic phenomena".[30] "Sensation" is defined as "the part (of perception) which proceeds without mnemic influences out of the character of the object",[31] and is the only type of appearance which can be classified as both mental and physical.

For any appearance, the "place *at*" which it appears is its "active" place, while the "place *from*" which it appears is its "passive" place. This presents a means of classifying a living being as both physical (i.e., active) and mental (i.e., passive).

> We can thus, without departing from physics, collect together all particulars actively at a given place, or all particulars passively at a given place. In our own case, the one group is our body (or our brain), while the other is our mind, in so far as it consists of perceptions.[32]

[29] "The Relation of Sense-data to Physics", p. 162.
[30] *The Analysis of Mind*, p. 131.
[31] *Ibid.*
[32] *Ibid.*, p. 130.

Using the earlier terminology, a person's body is a group of particulars classified together as a "thing", while his mind is a group of particulars classified together as a perspective. Any collection of particulars which appears *from* a place *at* which a living being's body appears is distinguishable in that it is subject to mnemic (in addition to the usual physical) causal laws.

Elizabeth Eames has claimed that Russell was forced to admit the existence of "real" physical objects, along with the attendant "real" (as opposed to the constructional) causal theory of perception, in order to maintain his distinction between sensations and images.[33] Her textual evidence is the chapter entitled "Sensations and Images", where Russell's final distinction reads:

> And I think that, if we could regard as ultimately valid the difference between physical and mnemic causation, we could distinguish images from sensations as having mnemic causes, though they may also have physical causes. Sensations, on the other hand, will only have physical causes.[34]

I do not see how this distinction necessitates the existence of physical objects. For Russell, for an appearance to have a physical cause is for it to be a member of a system of appearances which obeys, i.e., is explainable by means of, the (causal) laws of physics. As he explains in "Reply to Criticisms", causal laws are just "any principles which, if true, enable us to infer something about a certain region of space-time from something about some other region or regions".[35]

In the concluding section of "The Relation of Sense-data to Physics", Russell explains illusions, hallucinations, and dreams as being composed of somewhat "wild" particulars, which is to say they merely "differ as regards their correlations or causal connections with other 'sensibilia' and with 'things'".[36] At that time, i.e., 1914, he had only applied his phenomenalistic analysis to physical reality, leaving the mental as both separate, and given. However, given his later "neutralization" of particulars, and the abandonment of consciousness, *et al.*, in favour of mnemic causation, images would seem distinguishable from sensations in the earlier fashion without the need for a "real" causal theory of perception.

Salmon takes the passage just cited as evidence that Russell did not

[33] Elizabeth Ramsden Eames, *Bertrand Russell's Theory of Knowledge* (London, 1969), p. 102.
[34] *The Analysis of Mind*, pp. 150-1.
[35] "Reply to Criticisms", p. 701.
[36] "The Relation of Sense-data to Physics", p. 179.

reject the causal theory of perception in 1914.[37] Rather, he adopted (and thereafter maintained) a different causal theory which, in constructing chains of sensibilia from (some) sense-data to physical objects, made it plausible that both ends of a chain were of the same metaphysical type. I agree with Eames that Russell did revert to his earlier belief in physical objects. He admits that his belief "exists antecedently to evidence, and can only be destroyed, if at all, by a long course of philosophical doubt". It is pragmatically justified, as simplifying the laws of physics, and after warning that "from the standpoint of theoretical logic it must be regarded as a prejudice, not as a well-grounded theory", he concludes that "with this proviso, I propose to continue yielding to this prejudice".[38] This is the same sort of justification as was found in *The Problems of Philosophy*, one which belies both Eames' claim that acceptance of this "prejudice" was in fact necessitated, and Salmon's claim that Russell's physical objects did not differ metaphysically from sense-data.

Russell nevertheless does allow that a physical object

> . . . may be defined, for purposes of physics, as consisting of all those appearances which it presents *in vacuo*, together with those which, according to the laws of perspective, it would present elsewhere if its appearances elsewhere were regular (i.e., unaffected by any intervening medium).[39]

The only place *from* which it would not appear would be that place *at* which it would appear *from* every other place. Hence Russell's phenomenalism, though no longer a metaphysical thesis, does remain as an epistemological working hypothesis.

IV. The Russellization of the Monadology

Russell considered the Leibnizian monadology to be the nearest relative to his own system of perspectives.

> The monads, Leibniz tells us, reflect the world each from its own point of view, the differences of points of view being analogous to differences of perspective. The arrangement of the whole assemblage of points of view gives us another kind of space, different from that in the private world of each monad. In this public space, each monad occupies a point or, at any rate, a very small region. . . . We may call . . . the space consisting of the diverse points of view of diverse monads "physical" space.[40]

Russell's crucial departure from Leibniz is that perspectives, unlike monads, are not in any sense minds or souls.[41] I will show briefly how this departure breaks the analogy between the two systems, at least in regard to the relation between physical and phenomenal space.

Perspectives and monads are similar in that both contain momentary perceptions, and changes in these perceptions (except for their distinctness) are explainable in terms of the laws of efficient causation. Also, Russell's use of mnemic influences to mark off those perspectives which are the minds of living beings is similar to Leibniz's marking off, as "Souls", "those (monads) whose perception is more distinct and accompanied by memory".[42]

In Leibniz's monadology, all perception must be veridical, for all of the monads have the same perceptions as God does, though with varying degrees of distinctness. Russell also denies that any perceptions are illusory, or any less "real" than any other perceptions. As long as physical objects are nothing more than classes of appearances, then we can say that the possibility of illusion is removed, for there is no reality beyond appearances to be deceived about. Still, the world as represented *from* any perspective need not be the same as it is *from* any other perspective. This will be due to more than just the vicissitudes of perceptual relativity. Though all perspectives may be said to be causally interconnected, it is clear that the entire physical world will not appear from any one perspective. Though it may be difficult to establish at what point the appearances of a classifiable "thing" would end, it is still the case that, e.g., one end of the universe is just too far away to be perceptible from another end. Hence Russell drops Leibniz's "assumption of completeness".[43]

For a monad to be able to perceive the entire physical world, it seems that monadic perception can be no more than a form of awareness. Monads do not *have* perceptions as if they were perceiving the entire world. Rather, they have some sort of awareness of the entire world, which would be explainable if they had perceptions of it. Such an explanation would be highly improbable in that it seems that no mind of any sort could literally "perceive" as much as is required. Hence it seems that, in the system of Leibniz, something

[37] Salmon, pp. 18-19.
[38] *The Analysis of Mind*, p. 133.
[39] *Ibid.*, p. 134.

[40] *My Philosophical Development*, pp. 24-5.
[41] "Reply to Criticisms", p. 708.
[42] G.W.F. von Leibniz, *Monadology* (1714), Section 19.
[43] "The Relation of Sense-data to Physics", p. 160; and "Reply to Criticisms", p. 709.

such as God is needed to prearrange the perceptions of the monads, and thus guarantee both the completeness and the accuracy of these perceptions.

Russell at times makes it seem as if a monad's perception of the entire world must be due to heightened powers of perception, this being merely an extension of normal perception. If that explanation is accepted, then there might be some reason to suppose that its perceptions are located in a subjective space which is, though private to that monad, correlatable with objective physical space. However, given the enormous extent of the perceptions of monads, it seems that they can not be the photo-copy type of entity of which Russell's perspectives are constituted. Hence there seems to be no good reason for supposing that these perceptions constitute a private three-dimensional space in the way that the perceptions of a perspective do.

The perceptions of any single monad could be used to construct physical space simply because monadic perception is both complete and veridical. Russell noticed this, and despite locating monads as points in physical space, he does not seem to limit their point of view due to this spatiality.

> In Leibniz's system, in which each monad necessarily mirrors the whole universe, there is necessarily a one-one correlation between objective space and any subjective space; the geometries of the two will be identical.[44]

The same is not true for any of Russell's perspectives, due to the distance limits of normal perception, and the problem of perceptual relativity.

Russell's claim that a one-one correlation exists between objective space and any monad's subjective space is, given the nature of monadic perception, unfounded. It is also unnecessary, for what is required is just that each monad contain all of the relevant information. Perhaps this claim is an admission that the perceptions of monads must differ in kind from normal perceptions. The Leibnizian characterization of "perception", as a kind of awareness, is not open to Russell because his perspectives are not in any sense minds or souls. Hence they can only be limited collections of sense-data-like entities.

v. A Refutation of Russell's Phenomenalism

How, then, can Russell's perspectives be ordered into a six-

[44] "Reply to Criticisms", p. 708.

dimensional physical space? First we should examine reasons for believing that the private worlds of perspectives are three-dimensional. Given that we (as philosophers, and as persons) seem more adept at describing things in visual terms, we will deal only with visual appearances. The role of the other senses, especially that of touch, would seem to be in making those discriminations, among visual appearances, which are not immediately presented, e.g., distance, and depth perception in general. Given that we conceive of the world as constituted of objects occupying three spatial dimensions, then any appearances which are not given as connected with any visual appearances are assumed to be caused by a "thing" *at* a place not visible *from* the present point of view.

That visual appearances are spatial seems uncontroversial. Nothing taking up less than two spatial dimensions is discernible by the sense of sight. However, it is by no means clear that even perceptions are any more than just two-dimensional. Russell's "photographic plate" analogy[45] would seem to stand against his claim for the three-dimensionality of visual space, at least in regard to sensations and unperceived appearances. Perceptions might still be regarded as three-dimensional in so far as the proper interpretation is added to sensations.

An argument in favour of perspectives being three-dimensional might run as follows. Granted that a visual appearance is only two-dimensional, the combination of visual appearances in a given perspective might have to be three-dimensional. As some of these visual appearances would not be simultaneously perceptible, they can not be combined, or rather, overlaid in a space of two dimensions. Hence, in order to accommodate these appearances, their perspective would have to have a space of more than just two dimensions.

At first glance, this argument must seem compelling. However, it rests on the unstated premiss that visual appearances take up two dimensions of physical space. As we have seen, a whole perspective occupies merely a point in physical space, and an appearance is merely a region within the private space of that point. As those combinations of visual appearances which would require at least a third spatial dimension to be simultaneously perceptible are not, by our initial hypothesis, simultaneously perceptible, there is then no need for any private visual space of more than two dimensions. At most, we can say that some perspectives are interpreted, by brains appearing *at* those places, as being three-dimensional.

[45] *The Analysis of Mind*, pp. 99ff.; and *My Philosophical Development*, p. 106.

Now our task is to explain how appearances from different perspectives, in being classifiable as members of the same physical "thing", can thereby determine a three-dimensional ordering of their perspectives. Suppose that we are given several photographs, taken simultaneously, of a single object. Using what Russell loosely refers to as "the laws of perspective", we would place those photographs of which the object takes up a greater part as being closer to the place *at* which the object appears. Given two photographs in which the object appears to have the same shape, the one in which the object appeared larger would be placed somewhere along the line projected between the other photograph, and the projected place *at* which the object appears. The more similar the shape of the object's appearance, the less the angle between the lines running from the photographs to the projected location of the object.

There are several problems here. First, given that a photograph will not reveal the "real" size of the object, we do not know how to locate it distance-wise relative to the place *at* which the object appears. Second, for some irregularly-shaped object, it may be even in principle impossible to determine its "real" shape no matter how many photographs we are given. Third, given an object with some amount of symmetry to its shape, photographs of indiscernible aspects, taken from the same distance, will be indiscernible.

Perhaps these difficulties can be handled by making our experiment more true to real (as opposed to still) life. Instead of simultaneous photographs, we might assume that our object and all of its surrounding conditions remain constant while an observer views them from various perspectives. By correlating the data of his various senses, such an observer could, it would seem, determine the real size and shape of the object, and so accurately construct a space of three dimensions in terms of the appearances of this object.

The problem with this procedure is that it deals solely within the framework of a private series of private worlds, which Russell calls a 'biography'.[46] At any given moment, there is the perspective of the observer, which he will interpret as the three-dimensional public world of physics. As the observer can never go beyond the two-dimensional world of his own perspectives, there is no justification for inferring that the world of physics is other than a three-dimensional interpretation of his private world. The inference to a public world would seem to require a correlation between appearances which are *not* part of the same biography.

In the earliest published exposition of his phenomenalism, Russell

[46] "The Relation of Sense-data to Physics", p. 169.

talks as if he is correlating appearances from the perspectives of two or more observers.[47] As these appearances are alleged to be private to each observer, it is difficult to see how even close to exact correlations could be made. Even if there were some language by means of, and in which, different observers could compare their appearances, there would still be the problem of arranging these appearances relative to each other. This would involve comparing their appearances of each other's relative position. And so on. Whether or not Russell did take such considerations into account is unclear, as he only seems willing to note, in passing, a more general problem, viz., the less than conclusive nature of arguments for the existence of other minds.[48]

In "The Ultimate Constituents of Matter", the latest of the phenomenalistic works under consideration, it is still assumed that appearances in different observers' perspectives can be compared, though the discussion is phrased as if some neutral observer were doing the comparing.[49] Here we might wonder if, rather than additional observers, the solution to solipsism can be effected by the removal of our initial observer. Then any subjective factors in judging, e.g., relative size, would be eliminated, as would be any discrepancies occasioned by any inherent differences between the perspectives of different observers.

Russell gives his definition of a "thing" in this last work as if all problems of judgment and subjectivity have been solved. A particular from a "neighbouring" perspective is correlated with a given particular if it is "very similar" to the given particular,

> . . . differing from the given particular, to the first order of small quantities, according to a law involving only the difference of position of the two perspectives in perspective space, and not any of the other "things" in the universe.[50]

As we have dropped the notion of an observer moving from perspective to perspective, we must wonder by what means the "neighbours" of a given perspective are to be identified. It would seem that we must rely on the similarities, together with a notion of consistent yet gradual change, between particulars in order to identify perspectives as neighbours. In other words, the rest of the particulars in the perspectives must be compared, so as to guarantee continuity of the "things" serving as background for that "thing" we are interested in. Hence neighbouring perspectives must contain, if

[47] *Ibid.*, pp. 154, 157.
[48] *Our Knowledge of the External World*, pp. 93-6.
[49] "The Ultimate Constituents of Matter", p. 139.
[50] *Ibid.*, p. 141.

not a member of every "thing" represented in the given perspective, at least some basis for explaining its absence.

For example, some particulars which can not be linked to particulars in apparently neighbouring perspectives would be explained as being due to mnemic influences. On the strictly physical level, particulars which appear together within a perspective will, in a neighbouring perspective, "pass out of view" together, while other clusters will come into view together. These cases would be explained in terms of those same laws which would explain the changes in the appearances of a momentary "thing" from perspective to perspective.

We are supposing here that a number of our perspectives are given, as opposed to starting from a single given perspective and then constructing its neighbours as containing particulars differing minimally from those in the given perspective. We could not do the latter because, as we have noted above, a given perspective does not necessarily represent either the "real" shapes or the "real" sizes of the "things" which appear *from* it. Let us then assume that we are given a suitable number of existent perspectives, i.e., so that at least a few physical "things" appear enough times so that the "real" size and shape of each can be determined. Can we then arrange these perspectives in the proper three-dimensional order, and go on to describe those perspectives which would fill the rest of our perspective (i.e., physical) space?

Unfortunately, we are not even assured of completing the arrangement of those perspectives which we are given. We would not, it seems, have any more reason to assume that the Identity of Indiscernibles holds for perspectives (even if they were three-dimensional) than we do in the case of appearances. Since correlations between appearances are what we found necessary to identify perspectives as being neighbours, we are then left without the means of uniquely locating every given perspective. Given two indiscernible perspectives, there is no logical basis for properly placing either one of them.

We might well suppose that the above problem would plague any system which used nonrepeatable particulars as its basic unit. Why not, then, use repeatable universals, e.g., the qualia of C.I. Lewis[51] and Goodman[52] instead? A perspective would then be a collection of qualia, these representing the properties "things" would appear to have *from* the given perspective. Indiscernible perspectives would then be at least interchangeable, and identical given the identity of

[51] C.I. Lewis, *Mind and the World Order* (New York, 1929).

two instances of a repeatable universal.

Russell's objection to this would be that qualia are not "among the ultimate constituents of matter". Russell's proposed project is not the construction of a system which is isomorphic to the external world. Rather, it is a logical construction of the external world itself, in terms of entities which physics, psychology, and common sense (and therefore philosophy?) could jointly accept as basic data. In claiming that the "actual data in sensation" are "among the ultimate constituents of matter", Russell is attempting to provide the necessary base.

Though the problem of indiscernibility seems to preclude the carrying out of Russell's proposed construction of the external world, we should not yet reject his phenomenalism in its entirety. It may still be the case that he had at least been using the proper materials. Therefore we should try to see just what sorts of things perspectives and particulars are, and in what sense they exist. From there we can go on to determine if they can plausibly be construed as being the ultimate constituents of the external world.

Russell's arguments for the existence of unperceived sense-data could be construed as analogous to those for the existence of unactualized possible worlds. For example: "Look, you admit that you know something about the nature of (the actual world/your own sense-data). At least, you have to admit that there is something there! Well, (unactualized possible worlds/unperceived sense-data) are just like that, only they're (unactualized/unperceived)".

The obvious retort to the possible worlds argument is: "What is it like for a world to exist unactualized?" Similarly, we must be concerned with the status of unperceived sense-data. We are asked to suppose that something analogous to whatever-it-is-that-we-experience-in-sensation exists simply because there is some part of those perceived entities which is not affected by our minds, brains, or sense-organs. Let us grant that there is some part of what we perceive which is (causally) explainable as being an appearance of a physical "thing". Nevertheless, this is not to admit that unperceived appearances are any more than merely potential, for it may still be the case that a mind (or brain) is a necessary condition for their actual existence.

Russell could not allow this, and not just because it opens the door to causation at a distance. Given that there would no longer be continuous series of appearances, the causal theory of perception, with "real" physical objects, would then seem necessary in order to

[52] Nelson Goodman, *The Structure of Appearance* (Cambridge, Mass., 1951).

provide a non-idealistic explanation for perceived appearances. We should now see how much, if any, of a realism does seem plausible in regard to unperceived appearances.

We have seen that when a percipient is present, his private visual space is only two-dimensional, and can take in only some of the visual appearances visible from that point in physical space. Though other appearances are perceptible, they are not all simultaneously perceptible with those appearances which are perceived. Given that we locate perceived visual appearances in a two-dimensional private space, there is then no place left to locate the unperceived appearances of this perspective.

It seems that unperceived appearances in a perspective in which some other appearances are perceived are exactly similar in status to appearances in perspectives which go totally unperceived. They are merely potential, i.e., what would have been perceived if the percipient had been facing in a direction different from the one that he was, just as other unperceived appearances are what would have been perceived if someone had been located *at* the place *from* which they would have appeared. Given that we have found no place to put the first type of unperceived appearances, it then seems that we have no place to put any unperceived appearances.

This talk of "having no place to put" unperceived appearances is no mere metaphor. We have seen that we can not locate any appearances as physical objects in physical space simply because appearances are parts of perspectives, each of which is said to take up only a point in physical space. Now we have seen that unperceived appearances do not occupy any private space either. Hence, as there is no space left to put them in, they just do not exist.

Given that unperceived appearances do not exist, we would hardly want to say that they are "among the ultimate constituents of matter". Given that we are left only with perceived appearances, we would hardly want to say that they alone are the ultimate constituents of matter. Constructing "things" out of these appearances would result in "things" persisting (through rather constant changes) only through those times at which they were being continuously perceived by the same observer. The physical world would then be no more than a collection of independent spatio-temporally continuous series of collections of perceptions, with "things" existing only with these private worlds. In order to establish an external world of physical "things", we must then resort to "real" physical objects, and so to the causal theory of perception.

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