

RAMSEY'S INFLUENCE ON RUSSELL'S CONSTRUCTION OF POINTS

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In *The Analysis of Matter* (1927) Bertrand Russell constructs point-instants from events. During the writing of the manuscript, he encountered a problem with the initial definition of a point-instant and revised the definition accordingly in the published version. My principal aim is to show that the problem was brought to his attention by F. P. Ramsey. Secondly, I explain the reason why Russell investigates, and consequently endorses, a different method of construction of point-instants in *Human Knowledge* (1948), even though he was able to overcome the difficulties involving the construction of point-instants in *The Analysis of Matter*.

There are two reasons why Russell undertook a project to construct point-instants from events (or transient particulars¹). The first is that relativity theory proclaims that there are no absolute points in space or absolute instants in time as the Newtonian theory maintained. The laws of physics do not require that such entities be inferred.² Thus, the space and time series could no longer be constituted by inferred entities. The second reason, though not a good one on its

¹ According to Russell in *The Analysis of Mind* and *The Analysis of Matter*, the fundamental kind of reality is events, which are short-lived particulars. He writes, "The stuff of the world, so far as we have experience of it, consists, on the view that I am advocating, of innumerable transient particulars such as occur in seeing, hearing, etc., together with images more or less resembling these ..." (*AMi*, pp. 143–4). These transient particulars are distinguished from ordinary particulars, which are to be constructed out of the transient ones.

² *HK*, pp. 267–9.

own, is that points or instants are not things we can experience.³ But Russell wants to base our knowledge of the external world on elements that we can experience. Since we can and do experience events (or rather, a subset of them), he argues, events make a good candidate from which to construct points.⁴

I. UNIVERSALS, PARTICULARS, AND POINT-INSTANTS

Russell, throughout most of his early career, espouses a dualist ontology with both particulars and universals (qualities and relations). At any given time in his career, if he defends the ontological category of particulars, he appeals to various combinations of three reasons for this category: (i) to account for qualitatively identical but numerically distinct individuals,⁵ (ii) to give an account of events, and (iii) to construct point-instants on the hypothesis that space and time are relative. Russell's argument for (iii) is that, having abandoned absolute space and time for relative space-time, we must have numerically diverse particulars in order to generate spatio-temporal series in relative space-time (*MPD*, p. 121). Around 1911 it seemed to him that "the time series and the space of geometry could not be constructed without the use of materials that had unique spatio-temporal position, and that such materials could not be found if particulars were rejected" (*ibid.*).

The later Russell (in *An Inquiry into Meaning and Truth* [1940] and *Human Knowledge* [1948]), however, explains all of the above using universals alone.⁶ He shows in the *Inquiry* that individuals are reducible to

³ Inference to unobservable entities, such as points or instants, cannot be justified if "physics can be interpreted without assuming [them]" (*HK*, pp. 268–9).

⁴ *HK*, pp. 276–7.

⁵ An individual is to be understood as what can be counted as one. We could think of a transient particular, i.e., an event, such as the falling of a leaf, which takes some finite amount of space-time, or of an ordinary particular such as Russell's example of Caesar, who is the series composed of transient particulars which constitute the individual who was called "Caesar". Russell's project in the later period is to analyse individuals in such a way that there are no longer two fundamental ontological kinds (particulars and the qualities that they exemplify), but only one, that is, universals (qualities and relations).

⁶ *IMT*₂, Chap. 6, "Proper Names", pp. 94–107. Russell announces in the beginning of this chapter that he "propose[s] to abolish what are usually called "particulars", and

qualities, and in *Human Knowledge* that events need not be taken as ultimate since they can also be explained in terms of qualities.⁷ Again in *Human Knowledge*, he employs qualities, instead of events, for the construction of point-instants.⁸ Thus, the later Russell shows that there is no theoretical need for a distinct ontological category of particulars.

2. INITIAL DEFINITION OF A POINT-INSTANT IN “THE ANALYSIS OF MATTER”

In the *Analysis of Matter*, a point-instant is defined as “a group of events having the following two properties: (1) Any two members [events] of the group are compresent;⁹ (2) No event outside the group is compresent with every member of the group” (p. 295).

Events a , b and c form a point if and only if any two are compresent— $K(a, b)$, $K(b, c)$, and $K(a, c)$ —and there is no event x such that $K(x, a)$ and $K(x, b)$ and $K(x, c)$. The region where all these events are compresent in this manner is to be called a point.

Russell does not define a point as a class where *all* events in a group are compresent and no event outside the group is compresent with every event in the group. For this would make the definition circular:¹⁰ events are particulars which take up some finite space-time, and the require-

be content with certain words that would usually be regarded as universals, such as “red”, “blue”, “hard”, “soft”, and so on” (pp. 94–5).

⁷ Events are explained as incomplete complexes of compresent qualities (*HK*, p. 305). I should note that in an early chapter of *Human Knowledge* on proper names, Russell contemplates events as complete complexes of qualities (p. 83), which suggests that he wants to keep events as the elements of construction. But at the end of this chapter he notes that this “discussion of proper names is not intended to be conclusive. The subject will be resumed in other contexts, especially in Part Four, Chapter VIII” (p. 84n.).

⁸ In *Human Knowledge*, Russell first gives an account of the construction of point-instants from events, but later in the book he concludes that we should instead construct point-instants out of qualities.

⁹ The compresence relation in perceptual terms is the simultaneity and overlapping of experience, and in physical terms it is the overlapping of qualities in physical space-time (*AMa*, p. 294; *HK*₂, p. 329).

¹⁰ Russell hints at this circularity in his discussion of A. N. Whitehead’s constructions: “Starting from events, there are many ways of reaching points. One is the method adopted by Dr. Whitehead, in which we consider ‘enclosure series’. Speaking roughly, we may say that this method defines a point as all the volumes which contain the point. (The niceties of the method are required to prevent this definition from being circular ...)” (*AMa*, pp. 291–2).

ment that all events be compresent assumes a common particular point instead of yielding a "particular" point as a result of the definition. But when the relation of compresence is limited to "any two events", there is no circularity.

However, this initial definition of a spatial point creates a problem. It can be unproblematically employed in constructing instants in one dimension, such as a merely temporal series. But when using two-dimensional elements, such as circles, a two-place compresence relation does not suffice to yield a point. If you take three circles *a*, *b* and *c*, where any two overlap with each other, it is possible that there is no region common to all three of them. That is, it is possible that any two events may overlap, while all three do not, in which case we will not have constructed a point (*AMa*, p. 295).

H. Hochberg claims that this problem is the same type of problem facing constructions¹¹ for which N. Goodman became famous for naming "the imperfect community problem" in *The Structure of Appearance* in 1951.¹² Goodman shows that Carnap's attempt to construct a quality class (like redness) out of *erlebs*—total momentary experiences (particulars)¹³—confronts the problem of imperfect community with a two-place similarity relation. Suppose we have three *erlebs*: an *erleb* whose parts include the qualities of blackness and blueness, another of blueness and redness, and another of redness and blackness. Such a group of *erlebs* would satisfy the two conditions for the identity of a quality class, which are: (1) Any two elements of a colour class stand in the relation of similarity to one another. (2) There is nothing outside of a colour class

¹¹ Hochberg claims that the order of construction is reversed in *Human Knowledge: particulars are constructed out of qualities* (*The Positivist and the Ontologist: Bergmann, Carnap, and Logical Realism* [Atlanta: Rodopi, 2001], pp. 40–1). Goodman calls the problem of "constructing repeatable 'universal' 'abstract' qualities from concrete particulars" the problem of abstraction, and the converse problem of "constructing unrepeatable concrete particulars from qualities" the problem of concretion (*The Structure of Appearance*, ed. Geoffrey Hellman [Dordrecht: Reidel, 1977 (1st edn. 1951)], p. 106). Even though there are interesting differences between the two problems, Goodman holds that they are "so closely parallel that to explain one is to explain a good deal about the other" (*ibid.*).

¹² According to Hochberg (p. 40 n.51), the same problem was noted by E. v. Aster in *Prinzipien der Erkenntnislehre* in 1913, before Russell made note of it in the *Analysis of Matter*.

¹³ R. Carnap, *The Logical Structure of the World*, trans. Rolf A. George (Berkeley: U. of California P., 1967), §67.

which stands in the relation of similarity to all things in the class.¹⁴ Yet, our three particulars do not form a quality class, because there is nothing common to all of them.¹⁵ Similarly, when constructing points from events, a two-place compresence relation does not necessarily yield a point in two or more dimensions. The reason is that starting from the second dimension a two-term relation will allow the possibility that any two pairs in a group overlap, but not all of them do. Consider lines *A*, *B* and *C*, which are one-dimensional. If any two intersect and there is no line *D* outside the group which intersects all of them, then there will be a point they all have in common. But if we take planes (two-dimensional), any two pairs of planes might have an area in common, without all of them having an area in common.

Hochberg claims that Russell was aware of this problem and provided a solution for it in the *Analysis of Matter*. It is true that Russell provided a solution for it in that work, but he was not aware of the problem until Ramsey brought it to his attention in a letter dated simply “Oct 29th”, which I shall show was written in the year 1926.

3. RAMSEY’S LETTER TO RUSSELL

Ramsey’s letter suggests that Ramsey had either read the manuscript of the *Analysis of Matter* or discussed the theory of compresence with Russell earlier. For in this letter, Ramsey identifies a problem with the theory of compresence. But there is no other correspondence available between Ramsey and Russell, before the publication of the book, to suggest that Ramsey was already acquainted with Russell’s theory of compresence. There is a letter written by Bertrand to Dora Russell on 20 March 1926,¹⁶ in which Russell tells Dora that he met with Ramsey and discussed mathematical logic the previous day;¹⁷ but he does not mention any topic in particular. Admittedly, Ramsey would already have been acquainted with the method of constructing points and instants in general, since it is neither a method original to the *Analysis of Matter*, nor original with

¹⁴ *Ibid.*, §70.

¹⁵ Goodman, *The Structure of Appearance*, pp. 118–19. Hochberg notes that Goodman mentioned this problem earlier in 1938 in a letter to Carnap (*The Positivist and the Ontologist*, p. 40).

¹⁶ *SLBR* 2: #367.

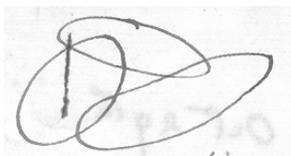
¹⁷ This meeting is scheduled for 19 March in Russell’s 1926 diary (RA, box 9.18).

Russell.¹⁸ But in his letter to Russell, Ramsey mentions Russell's theory of "comprentence", a relation which Russell uses in the *Analysis of Matter*, and not earlier in *Our Knowledge of the External World* (1914), where he uses instead the relation of "overlap" in space and time to construct points and instants.¹⁹

Dear Russell,

I should be awfully pleased if you would come and dine with me in hall in King's next Friday at 7.30. If you can come, I think it would be best for us to meet at the Porter's Lodge at 7.30, as my room is so hard to find.

There is a difficulty about "comprentence" which I'm sorry not to have seen before. The three circles each intersecting the other two or like this



(any two are comprentent)

can form a "copunctual set" but in the ordinary sense they may contain no common point. I don't see an easy way of getting over this. Of course with only 1 dimension like psychological time it would be all right[.]

Yours fraternally,
F. P. Ramsey²⁰

Actually, Ramsey dated his letter only with the day and the month in ink: October 29th (which was a Friday in 1926). He did not record the year. Somebody wrote "1927" on it in pencil. Sheila Turcon and Kenneth Blackwell, archivists at McMaster University, identify the handwriting

¹⁸ Whitehead defines a point as an abstractive set of events: (i) of any two of its members one extends over the other, (ii) there is no event which is extended over by every event of the set (*An Inquiry Concerning the Principles of Natural Knowledge* [Cambridge: Cambridge U. P., 1919], p. 104).

¹⁹ An instant is defined as a group of events where any two overlap with each other, "so that there is some time, however short, when they all exist" and there is no event outside the group simultaneous with all the events inside the group (*OKEW*, p. 118; *OKEW*, p. 124). A point is defined as a set of overlapping spatial objects or volumes, which would be sense-data (and sensibilia) at the time (p. 120).

²⁰ Ramsey to Russell, 29 Oct., RAI 710.054637. The vertical line is a rust mark where the letter was once paperclipped.

as Russell's. But the dating cannot be right. As Turcon pointed out to me, Ramsey could not have written the letter in 1927, since Ramsey, in the same letter, also proposed to meet Russell for dinner the following weekend. But Russell was on a US lecture tour in 1927, between 29 September and 15 December,²¹ so Ramsey and Russell could not have entertained the possibility of meeting for lunch in the UK in the autumn of 1927.²²

However, in the autumn of 1926, both Ramsey and Russell were in the UK. In 1926, Russell was in London from 13 January to 29 March, when he moved to his house in Cornwall for the summer.²³ He finished writing the manuscript of the *Analysis of Matter* on 17 August 1926.²⁴ He was back at his house in London to deliver chapters of the manuscript as the Tarner Lectures at Trinity College in Cambridge from 15 October to 3 December.²⁵ As well, Ramsey was in Cambridge during 1926, since he was made a lecturer in mathematics at Cambridge that year. Before that he was a Fellow of King's College as of 1924.²⁶ And 29 October 1926 was the scheduled date for the third Tarner lecture.²⁷ Hence there is sufficient evidence that the correct year of the letter is 1926.

²¹ "Russell's fourth trip to America took place in 1927, during the first term of Beacon Hill School. This was his most professionally arranged tour to date, and was mainly concerned with earning money to run the school.... Russell arrived in New York on 29 September" (*BRA* 1: 103); "Russell's 1927 tour was extremely successful. Russell left for home aboard the *Berengaria* on 15 December" (1: 107).

²² In Russell's 1926 diary, he scheduled an event for the Friday following 29 October. It says, "Isaacs 47 Hill Road Camb?". And the following Friday, 12 November, he had a lunch scheduled with Ramsey. In his 1927 diary, Russell had no meeting scheduled with Ramsey in October, and Turcon told me that the addresses in the 1927 diary around October are US addresses, not UK addresses.

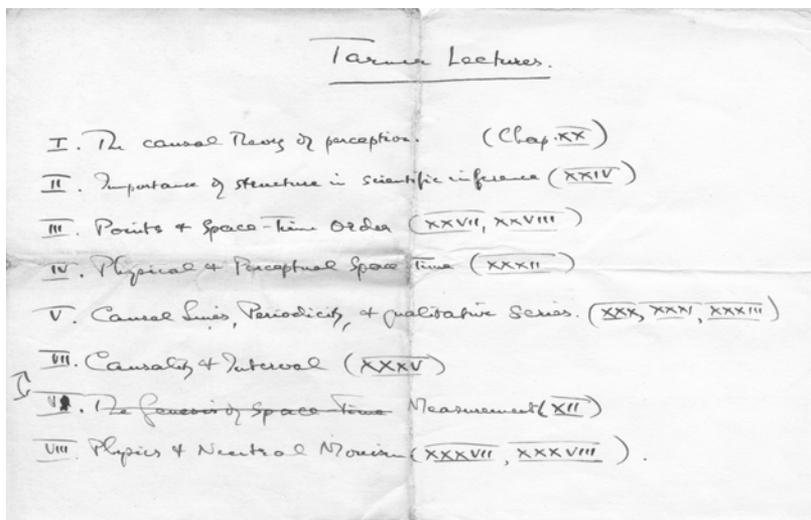
²³ *Papers* 9: xxxix.

²⁴ Russell dated the end of his manuscript 17 August 1926. And in a letter to Ottoline Morrell of 8 September 1926, Russell wrote: "I just finished a long dull book on 'Analysis of Matter'" (*RA3 REC. ACQ.* 69).

²⁵ *Papers* 9: xl. The lectures were from this manuscript. The titles of the lectures match those of the table of contents of the Tarner Lectures (*RA1* 710.048007, box 5.6). Furthermore, on 10 May 1926, Russell writes to Ottoline Morrell that "[he] is inventing a new geometry", and that "[he has] to give it in lectures at Trinity in the autumn."

²⁶ Nils-Eric Sahlén, *The Philosophy of F. P. Ramsey* (Cambridge: Cambridge U. P., 1990), p. 222.

²⁷ Since the title of the third lecture was "Points and Space-Time Order" (see the illustration for Russell's list of his eight Tarner lectures), it is very likely that Ramsey attended Russell's third lecture on point-instants on 29 October and wrote Russell a letter right afterwards.



Russell's list of his eight Tanner lectures. Lecture III was to include Chapters 27 ("Particulars and Events") and 28 ("The Construction of Points") of the manuscript of *The Analysis of Matter*. (RAI 710.048007, box 5.6)

I compared Chapter 28 ("The Construction of Points") of the manuscript²⁸ of the *Analysis of Matter* with the published version. They are virtually the same until the end of the preliminary definition of a point on page 295, quoted above under §2. From here on in the published version, the text changes with Russell discussing the problem that Ramsey mentioned in his letter. Four pages later in the published version, toward the end of page 299, Russell returns to where he left off in the manuscript. It seems clear that he had not recognized the problem before Ramsey brought it to his attention. Russell must have found Ramsey's problem worrying enough that he sought a solution before the book's publication. He does acknowledge Ramsey's "valuable help in regard to certain portions of the work" in the Preface and (concerning Zermelo's axiom) on page 299 of that work, but he does not do so in regard to this specific problem.²⁹

²⁸ RA3 REC. ACQ. I.

²⁹ The acknowledgement on page 299 was already in the manuscript (fol. 326).

4. THE SOLUTION TO THE PROBLEM IN “THE ANALYSIS OF MATTER”

In those four pages in the published version, Russell gives the solution to the problem and entertains a further difficulty in relation to topological spaces. As a solution to the problem raised by Ramsey, i.e., that there may be no common point to three circles with a two-place compresence relation between them, Russell suggests that we take the compresence relation among events in two dimensions to be three-place so that all three events (represented by circles) would have to have a region in common (*AMa*, p. 295). This is the “ $n+1$ method”: if the number of spatial or spatio-temporal dimensions of the elements of construction is represented by n , the number of the terms of the compresence relation has to be $n+1$. It is in *Human Knowledge* that Russell expresses the solution using the phrase “ $n+1$ ”: “In n dimensions the definitions are the same, except that the original relation of copunctuality has to be between $n+1$ regions” (*HK*₂, p. 280). The number of terms of the compresence relation is based on the number of dimensions involved in construction (*ibid.*). Thus, if we are constructing a point using planes, which are two-dimensional, we will need a compresence relation with three places. And when we are constructing a point-instant using events we will require a five-place compresence relation because events are both in space and time; hence they are four-dimensional.

The further difficulty that Russell discusses in relation to topological spaces is this. Suppose there are three circles, a , b and c and one odd-shaped region, d , such as a horseshoe. Since the elements of construction are two-dimensional, they should form a point if any three are compresent and no region outside the group is compresent with all the regions in the group. Owing to the odd-shaped region, d , it may be that even though any three of the regions are compresent, all of them are not. In other words, the two conditions of the definition of a point in the revised form—i.e., that any three members in the group are compresent, and there is no member outside of the group that is compresent with all the members in the group—would be satisfied, but still we would not get a point. Russell, after a detour in topology (or *analysis situs*) in the *Analysis of Matter*, concludes that such odd shapes will not constitute a problem because we can safely assume that every such odd shape is topologically

equivalent to a spherical volume in metric space (p. 299).³⁰ Thus, if such an odd shape is among the members, it can be turned into a sphere, in which case there would always be a common region between all the members of the group with the $n+1$ method.

5. FINAL PROPOSAL FOR THE CONSTRUCTION OF POINT-INSTANTS IN "HUMAN KNOWLEDGE"

Initially in *Human Knowledge*, Russell repeats the account he gave in the *Analysis of Matter* for the construction of point-instants. But after completing the exposition of the account, he notes that

"Events" are to be taken, in the present discussion, as the undefined raw material from which geometrical definitions are to be derived. In another context, we may have to inquire as to what can be meant by an "event", and we may then be able to carry analysis a step further,* but for the present we regard the manifold of "events", with their spatial and temporal relations, as empirical data.
(*HK*, p. 281)

One of the places to which the starred footnote in the above passage directs the reader is Chapter 8 of Part Four. In this section, Russell explains that in the earlier chapters of *Human Knowledge* he used events as "raw material" for the construction of points and instants. He notes that he has so far "assumed, in [his] constructions, that a single event may occupy a finite amount of space-time, that two events may overlap both in space and in time, and that no event can recur." He explains that he provisionally regarded events as particulars, that is, as ultimately diverse and indefinable (*HK*, p. 293). But in Chapter 8 of Part Four, he works on constructing space-time order using raw materials that *do not* recur, in distinction from raw materials that *cannot* recur (*ibid.*). What Russell refers to by the former phrase are complete complexes of qualities. These complexes are such that it is highly unlikely, but logically possible, for them recur. Events, on the other hand, are such that they cannot recur since they are taken to be particulars (i.e. substances).

As of 1940, Russell aimed to eliminate particulars in the sense of un-

³⁰ Russell proposes the same solution in *Human Knowledge*: "We shall assume that the areas with which we are concerned are all either circles, or such shapes as can result from circles by stretching or compressing in a manner which leaves them oval" (p. 280).

knowable substances. In the *Inquiry* and *Human Knowledge* he is working towards an ontology with universals as the only ultimate kind of reality. In *Human Knowledge*, he manages to reduce all particulars to complexes of compresent qualities. But unless he is able to construct the space-time series without appeal to events, which are particulars, he will not have succeeded in his project. Thus, Russell rejects events as ultimate because he aims to eliminate all kinds of particulars (events as well as individuals) so as to avoid taking an unknowable entity as fundamental to empirical knowledge—and thereby leaving a more parsimonious ontology with universals as the only fundamental kind of entity.

In *Human Knowledge*, Russell, writing retrospectively, explains his discontent with the construction of point-instants out of events since events are particulars, which are unknowable substances in which qualities inhere (p. 293):

It is difficult to see how something so unknowable as such a particular would have to be can be required for the interpretation of empirical knowledge. The notion of a substance as a peg on which to hang predicates is repugnant, but the theory that we have been considering [the construction of points and instants from events] cannot avoid its objectionable features. I conclude, therefore, that we must ... find some other way of defining space-time order. (*HK*, p. 294)

This “some other way” is to construct space-time order out of complete complexes of qualities.³¹ That is, in order to avoid the unknowable substance, Russell rejects events as the raw elements of construction. Instead, complete complexes of compresent qualities are the elements of construction. And events are explained away in terms of qualities: they are *incomplete* complexes of qualities.³²

³¹ In *My Philosophical Development* Russell reiterates this point that he had to find another way because he wanted to avoid the traditional notion of substance as pegs from which predicates hang (pp. 119–20).

³² D. Bostock raises the question as to whether one could construct both points and events from a “more neutral source” (“Whitehead and Russell on Points”, *Philosophia Mathematica* 18 [2010]: 1–52 [at 43]). Qualities for the later Russell may be interpreted to be this source. Bostock points out that both constructing points from events and constructing events from points result in ontological economy (*ibid.*). I take him to mean quantitative economy, since both events and points are of the same ontological kind, i.e., particulars. Russell, when he takes qualities as the only fundamental kind, and defines both events and points in terms of qualities, achieves a more significant ontological economy since the economy is qualitative.

The relation of compresence is a key universal in Russell's bundle theory of particulars, developed in the *Inquiry* and *Human Knowledge*. On his realist version of the bundle theory, a particular is reduced to a complete complex of universal qualities which are compresent.³³ A complex of compresent qualities is "complete" when the complex cannot be enlarged any further without all the qualities in the complex ceasing to be compresent (*HK*, p. 303). "Complete complexes of compresence are the subjects of spatio-temporal relations in physical space-time.... A complete complex of compresence counts as a space-time point-instant" (*ibid.* p. 304). Hence Russell's final account of the construction of point-instants is one where the elements of construction are not events, but qualities.

Russell explains the shift from events to qualities within the realm of private spaces in *My Philosophical Development*. Earlier he employed events as elements of construction, for he thought he needed elements which have some finite extension and which are intrinsically diverse (p. 121). The reason he needed elements which were numerically diverse was that he thought both physical and perceived space are relative. But once he realized that perceived space is in fact absolute, constructing a series in perceived space no longer required elements which are already diverse, since the absolute positional qualities³⁴ accompanying qualities that we perceive will yield regions that are diverse. Russell employs a similar strategy in constructing temporal series in private times. He recognizes that he does not need numerically diverse elements to account for why a number of rings of the phone we hear are two, and not one. At the time that we hear the first ring, the noise is accompanied by the sensation of presentness. And at the time that we hear the second ring, we think this one is different from the first because the first ring is now accompanied by the sensation of pastness, or immediate memory with a certain degree of remoteness, while the second ring is now accompanied by the

³³ Universals are immanent: qualities are not exemplified in instances; rather they inhere in things. For instance, whiteness is not exemplified in a white tablecloth; instead whiteness is a constituent of the complex, white tablecloth. Russell states this view as follows: "Such complete complexes take the place of particulars, and in place of such a statement as 'this is white', we have 'whiteness is a constituent of a complex of compresence consisting of my present mental content'" (*MPD*, p. 127).

³⁴ "Spatial position in the momentary visual field is a quality, varying according to distance from the center of the field of vision, and also according as the region in question is above or below, to the right or to the left, of the center" (*HK*, p. 263).

sensation of presentness. Thus, the temporal order in perceived time³⁵ is accounted for by the compresence of qualities, such as the sound of a phone, with other qualities, such as presentness, pastness or degrees of remoteness. In *My Philosophical Development* Russell notes that he developed this theory in *Human Knowledge*³⁶ and still finds it satisfactory. He prefers this theory “because it gets rid of the need for the unrecognizable and unknowable entities which particulars would otherwise be” (*MPD*, p. 122).

Consequently, Russell’s final position in *Human Knowledge* on the construction of point-instants is to use qualities for their construction instead of events, and to allow for an unrestricted number of places for the compresence relation. The number of places is no longer restricted to $n+1$; the relation will have as many places as there are qualities which stand in that relation. Thus a point-instant is a complete complex of compresent qualities, where (a) all the qualities in the group are com-present, and (b) there is no quality outside the group which is com-present with every quality in the group (*HK*, p. 304).

Russell employs *all* of the members of a compresent group, but this definition does not face the problem of circularity (as did the definition which employed events as members of construction). All the members of the group, yielding a *particular* point as a result of the definition, are universals and not particulars. Therefore, requiring *all* of the members to be compresent does not result in a circular definition of a point-instant.

Thus, even though he was able to provide a satisfactory solution to the problem that Ramsey noted in relation to the construction of point-instants out of events, Russell’s final method of construction is one where the elements of construction are not events but qualities, due to his effort to eliminate unknowable substances.³⁷

³⁵ And according to Russell, once the series in perceived spaces is constructed, the series of physical space-time can be constructed out of the series in perceived spaces.

³⁶ At *HK*, pp. 263–5, 295–9.

³⁷ I would like to thank N. Griffin, P. Loftson, R. Arthur, G. Landini, the Editor and my referees for their comments and suggestions.
