

**CHAPTER 2: THE ONTOLOGY OF REVISED FACTUALISM*****1. Atomic Facts.***

At a certain level of abstraction, at any given time, the world or universe consists of, or is constituted by, facts. As Bertrand Russell<sup>1</sup> and Ludwig Wittgenstein<sup>2</sup> made clear, the world is not the mere totality of things—is not the mere totality of particular things that enter into the facts that make up the world. This is because the facts, and, therefore, the world, could have been different even if the mere totality of particular things had remained the same. A world in which there is the fact that John loves Mary but not the fact that Mary loves John is different from a world in which it is a fact that John loves Mary and also a fact that Mary loves John. Nevertheless, the two worlds might very well have, include, or contain all the same particular things.

There are senses of the word, “kind,” in which there are many different kinds of facts. There are facts about me, facts about you, facts about things on my desk, and about things in places we have never seen. In addition, there are facts I am aware of, facts you are aware of, facts we are both aware of, and so on. There are also facts about animals, facts about plants, facts about planets, and facts about atoms. Furthermore, there are facts about love, facts about birth, and facts about death. There are many legitimate senses of the word, “kind,” in which there are many different kinds of facts. There is, however, another, quite different, but still legitimate, sense of the word, “kind,” in which, according to Revised Factualism, the facts that make up the

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<sup>1</sup> *The Philosophy of Logical Atomism*, p. xxx.

<sup>2</sup> *Tractatus Logico-Philosophicus*, p. 31

world are of just one kind. These are **atomic facts**. All of the various kinds of facts, in the former sense or senses of the word, “kind,” are, in the present sense of the word, “kind,” facts of a single kind; they are all atomic facts. According to Revised Factualism, there is a certain interesting level of abstraction at which the world or universe at any given time is just the totality of the atomic facts existing at that time.

Atomic facts are complex entities. Any given atomic fact has a structure or form that is specified or determined by that fact’s **relating**, relational constituent. The fact’s other constituent(s) fill in that structure. The ontology of Revised Factualism includes particular things such as people, tigers, trees, plankton, rocks, computers, clouds, molecules, atoms, subatomic particles, and stars. The ontology of Revised Factualism also includes n-place relations, for any positive integer, n. Properties, such as *being blue*, *being triangular*, *being a number*, and *being human*, are 1-place relations. Such relations as *loving*, *being numerically greater than*, *being taller than*, and so on, are 2-place relations. I shall assume that there are, at least in principle, relations of any arbitrary n-place.

Atomic facts are complex entities. An atomic fact is formed, or comes into being, when n entities come to be related by an n-place relation and ceases to exist when the n-place relation ceases to relate the n entities. For any given atomic fact, f, there is a positive integer, n, such that fact f has n+1 constituents. One of these constituents is f’s n-place relating relation,  $R^n$ , the remaining constituents are f’s n related entities,  $x_1$  through  $x_n$ . The fact that John loves Mary has three constituents: John, Mary, and the two-place *loves-relation*. The fact that Appleton is between Neenah and Green Bay has four constituents: Appleton, Neenah, Green Bay, and the 3-place *is-between-relation*.

Facts, their relating, relational constituents, and their non-relating, related constituents are real things. Therefore, our revised factualist ontology contains facts, relations—these are what Russell would have called “universals”—and nonrelational, nonfactual objects—these are what Russell would have called “particulars.” Revised Factualism neither recommends nor involves any kind of reductionist strategy for facts, relations, or particulars. Hence, for example, Revised Factualism does not involve an attempt to define objects or particulars as somehow or other abstracted from the facts into which they enter. John is not analyzed as, taken to be an abstraction from, or in any way reduced to, the thing common to all of the facts into which he figures. This is so even though he *is* the thing common to all of the facts into which he figures. The *greater-than* relation is not analyzed either as something common to all of the facts into which it figures or as a set of ordered-pairs. According to Revised Factualism, there **really are** non-relational objects, there **really are** relations, and there **really are** facts. Perhaps certain of these things could be defined in terms of the others, but for our present purposes they are all treated as equally real.

It is worth noting that we will not inquire here about issues involving tense, change, or process. This does not mean that I think that such issues are neither interesting nor important. On the contrary, I find them very interesting and important, and also very puzzling. I am inclined to hold that times, or instants, can be analyzed in terms of sets of facts. I would favor an account according to which any given time, *t*, is understood as the set of facts that exist, hold, or obtain at *t*. In such sets of facts we have entities that stand in relations to one another analogous to the temporal relations that we tend to think hold among times. In addition, I would attempt to treat process and change in terms of series or sequences of facts through time. The process, say, of

John falling in love with Mary would be treated as a series of facts involving such things as John and his attitudes toward Mary. Such accounts would need considerable development and refinement, however, before they could be proposed as finished products, and this is not the time or the place for such undertakings. I do believe, however, that such issues can be dealt with in ways that are compatible with the general picture presented here.

Examples of facts might be helpful. Let us suppose that the *loves-relation* is a 2-place relation, that John and Mary are objects, particulars, or individuals, and that John loves Mary. Since the 2-place *loves-relation* relates John to Mary, a certain fact or factual complex exists. We shall employ several ways of designating, denoting, referring to, or representing facts. First, we will use locutions of the form “the fact that N,” where “N” is a declarative sentence of English. Therefore, the expression, “the fact that John loves Mary,” designates the factual complex that exists in virtue of John’s loving Mary—it denotes the fact that John loves Mary. Second, we will use a kind of bracket notation,

$$[R^n, x_1, \dots, x_n],$$

where “ $R^n$ ” designates the fact’s n-place relating relation, and “ $x_1$ ” through “ $x_n$ ” designate the fact’s n non-relating constituents. In this notation the expression,

$$[\textit{loves}^2, \text{John}, \text{Mary}],$$

represents the fact that John loves Mary. In addition, the same fact might be represented, or expressed, by means of the expressions, “the fact of John’s loving Mary,” “the fact that the *loves-relation* relates John to Mary,” and “the fact of Mary’s being loved by John.”

It is important to realize that although, because John loves Mary, there really is such a

fact as the fact that John loves Mary, this fact did not exist before the *loves-relation* related John to Mary, and it will cease to exist if John stops loving Mary—that is, if the *loves-relation* no longer relates John to Mary. Contingent, temporary facts are things that come into being and pass away. This is one way in which facts differ from *states of affairs*, at least as some philosophers have conceived of states of affairs.<sup>3</sup> Such philosophers have held that there is such a thing as the state of affairs of John loving Mary, and that this state of affairs exists, but does not obtain, before John loves Mary and will continue to exist, but will cease to obtain, if and when John stops loving Mary. I will not here address the question of whether or not, in addition to facts, there are such things as states of affairs, but it does help us to understand facts better if we can contrast the notion of a fact with that of a state of affairs. As facts are understood here, many of the more familiar facts of everyday life are things that come into being, exist for some period of time, and then pass out of existence.

In addition, as will become clear later, it is important to realize that although John, Mary and the *loves-relation* may exist, it need not be the case that there is such a thing as the fact that John loves Mary. In fact, although (we are assuming that) there really is such a fact, there are many possible ways the world could have been—there are many possible worlds—in which John, Mary and the *loves-relation* exist but in which there is no such fact. In addition, since both John and Mary are mere contingent things, there are worlds in which one or both of them fail to exist. At no such world is there such a fact as the fact that John loves Mary. Facts exist only at worlds in which each of their constituents exist. The fact that John loves Mary exists only at

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<sup>3</sup> Roderick Chisholm presents such a view in *Person and Object*, pp. 114-37.

worlds in which John, Mary, and the *loves-relation* exist, but it does not exist at all of the worlds in which John, Mary, and the *loves-relation* exist.

In what follows, I make frequent use of “possible worlds” locutions. I have not yet formulated a revised factualist account of possible worlds, but such an account might contain, though not consist wholly of, the view that alternative possible worlds are ways that the facts could have been but are not. The sorts of worlds I have in mind would be constituted by the particulars and relations of this the actual world, but would not need to include everything that is in the actual world. The really tricky part, or one of the really tricky parts—for there are almost certainly many tricky parts here, comes when one attempts to discuss worlds that contain things that do not actually exist. These would be possible worlds that contain individuals that do not exist at the actual world. Presumably, in some meaningful sense of “are,” if there are possible worlds, then there are possible worlds in which something exists which does not actually exist; that is, if there are possible worlds, then there are worlds in which there is an object distinct from any object that exists at the actual world. I am inclined to say that there is some very definite and important sense in which we cannot make certain kinds of assertions about such worlds, but, as I have tried to indicate, I have no official view about this. I will employ possible worlds locutions when doing so helps in the presentation of certain ideas and claims that follow. Nothing essential to Revised Factualism as so far developed--as far as I can tell—entails that there are possible worlds.

Although John loves Mary, she does not love him, and, therefore, neither the expression, “the fact that Mary loves John,” nor the expression

[*loves*<sup>2</sup>, Mary, John]

designates a fact. Generally, expressions of the form, “the fact that  $R^n$  relates  $x_1, \dots, x_n$ ,” and expressions of the form of

[ $R^n, x_1, \dots, x_n$ ]

designate facts only if the relation  $R^n$  actually relates the entities  $x_1, \dots, x_n$ . As will become increasingly clear, I believe that it is important to realize that neither the existence nor the use of an apparent name for a fact entails that there is such a fact. In fact, neither the existence nor the use of any apparent name for anything entails that the name actually names something. The existence of linguistic items that look and function grammatically like singular terms does not entail the existence of the usually non-linguistic things that one might naturally expect such terms to designate. Language just does not function **in this way** to make the world.

Mary is a female, and so there is the fact that Mary is a female. This fact can be represented in our bracket-notation by

[*female*<sup>1</sup>, Mary].

Like many of her contemporaries, Mary is interested in the property of *being-female*. It seems natural, then, for someone who holds that there are facts, to suppose that there is such a fact as the fact that Mary is interested in the property of *being-female*, or, in our bracket notation, as the fact,

[is interested in<sup>2</sup>, Mary, *female*<sup>1</sup>].

This fact, provided it exists, appears to have two relational constituents: the two-place relation of *being-interested-in* and the one-place relation, or property, of *being-female*. The property of

*being-female* is the relating relation of the fact that Mary is a female but is not the relating relation of the fact that Mary is interested in the property of being female. The fact that Mary is interested in the property of being female appears to have one non-relational constituent, Mary, and two relational constituents, namely the relation of *being-interested-in* and the property of *being-female*. In addition, it appears that only one of its relational constituents, namely the relation of *being-interested-in*, occurs in the fact as a relation. The one-place relation, or property, of *being-female* seems to occur in the fact as a non-relating constituent.

Though Revised Factualism is greatly inspired by reflections on Russell's The Philosophy of Logical Atomism,<sup>4</sup> Revised Factualism does not include Russell's thesis that every atomic fact is a complex consisting of an n-place relation relating n particular things. That thesis entails that relations cannot be non-relating constituents of facts, or, to put it in language that would have been more familiar to Russell,

RRT If f is fact and R is a relation, then R occurs in, or is a constituent of, f only if R occurs as a relation in f,

where, to occur as a relation in a fact is to be what gives the fact its structure, but is not to be among the constituents that help to fill in that structure. At least for now, we should allow for the **epistemic possibility** that there are atomic facts which, like the fact that Mary is interested in the property of being female, have non-relating relations as constituents.

Russell's Logical Atomism entails that there are no such facts. Russell maintained that there are no facts in which a relation occurs, but fails to occur as a relation. This caused Russell

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<sup>4</sup> Russell (1985).  
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great troubles when it came to his attempts to analyze beliefs. His earlier views about belief seem to commit him to what he would call “belief facts.” Belief facts, as Russell had conceived of them, would appear to have more than one relational constituent, and his rejection of facts in which relations occur as mere constituents helps to explain why he failed to present an account of belief that was to his own liking. Beliefs and belief-facts will be discussed in greater detail in Chapter III.

I find those passages in which Russell asserted RRT to be among the more puzzling passages in the Russellian corpus. The thesis itself is clear enough, but I find that Russell’s reasons for endorsing it are obscure. In the passages from around the period of Logical Atomism, the view seems ultimately grounded in Russell’s Theory of Types. Here is one such passage

The importance of that is in connection with the theory of types, which I shall come to later on. It is in the fact that a predicate can never occur except as a predicate. When it seems to occur as a subject, the phrase wants amplifying and explaining, unless, of course, you are talking about the word itself. . . Exactly the same applies to relations, and in fact all those things that are not particulars. Take, e.g., ‘before’ in ‘ $x$  is before  $y$ ’: you understand before if you understand what that would mean if  $x$  and  $y$  were given. I do not mean that you know whether it is true, but you understand the proposition. Here again the same thing applies. A relation can never occur except as a relation, never as a subject.<sup>5</sup>

Owing to their obscurity, Russell’s arguments for RRT are difficult to assess them. And although there are earlier passages in which Russell seems to be arguing for something like RRT, some of

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<sup>5</sup> ‘The Philosophy of Logical Atomism,’ pp. 67-68.  
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which predate the theory of types,<sup>6</sup> those passages are no less obscure. Russell's insistence on RRT is even more puzzling against the background of certain other central components of his view. RRT is clearly inconsistent with Russell's claim that we are directly acquainted with universals. Russell's universals *are* relations and properties, and a given person is directly acquainted with a given universal only if that universal occurs as a term—as a non-relating constituent—of the fact consisting of the *direct-acquaintance-relation* relating that person to that universal.

Suppose, for example, that Mary believes herself to be a female. On Russell's view—specifically on Russell's Doctrine of Direct Acquaintance (RDA), a doctrine discussed in Chapter 5--Mary can believe herself to be female only if she is directly acquainted with the proposition that she is female, and she can be directly acquainted with the proposition that she is female only if she is directly acquainted with each of its constituents. Therefore, it follows that if Mary believes herself to be female, then there is such a fact as

[is acquainted with<sup>2</sup>, Mary, female<sup>1</sup>].

There might be ways of getting around this particular example. One could argue, for example, that Mary cannot believe herself to be female. If, however, any given person has a belief that attributes a given property to a given object, then Russell's RDA entails that the person can be directly acquainted with that property. Therefore, RDA committed Russell to the view that there can be a fact consisting of that person being acquainted with that property. This contradicts the view that relations cannot occur except as relating relations in facts. Given this and the obscurity

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<sup>6</sup> *Principles of Mathematics*, p. 48.

of Russell's arguments for RRT, and given that Russell directly endorsed the view that we can be acquainted with universals, it seems to me prudent to admit that there are facts in which relations occur as mere non-relating constituents. In what follows, therefore, I shall assume that relations can occur non-relatingly as constituents of facts.

I have said that Revised Factualism is committed to atomic facts. Let us now consider certain epistemically possible kinds of facts that are excluded from the ontology of Revised Factualism. Certain of them, namely negative facts and general facts, found their way into the ontology of Russell's Logical Atomism, and certain others, namely molecular facts, did not. We shall discuss what Russell called "belief facts" in the next chapter.

## **2. *Molecular Facts.***

Some philosophers aver that Aristotle subscribed to a version of the Correspondence Theory of Truth. Such attributions lean heavily on this passage from Aristotle's *Metaphysics*.

To say that [either] that which is is not or that which is not is, is a falsehood; and to say that that which is is and that which is not is not, it true.<sup>7</sup>

Philosophers often take the preceding passage as evidence that Aristotle held something like the following naive version of the correspondence theory of truth:

NCT x is true (alternatively, false) if and only if x corresponds truly (alternatively, falsely) a fact.

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<sup>7</sup> Aristotle, *Metaphysics* 1011b26.  
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(The range of the variable,  $x$ , in NCT is not constant from philosopher to philosopher; some candidates include propositions, utterances, sentences, assertions, statements, and beliefs.) From the revised factualist perspective, the conjunction of NCT and the truth of (an utterance of sentence)

(1) John loves Mary

entails that there is the atomic fact

$f_1$  [*loves*<sup>2</sup>, John, Mary].

Although, because Mary does not love John, an utterance of sentence

(2) Mary loves John

is not true, since an utterance of sentence (1) is true, so is an utterance of sentence

(3) Either John loves Mary or Mary loves John.

Given the truth of (3), NCT entails that there is such a thing as the disjunctive **molecular fact**,  $f_3$ --the fact that either John loves Mary or Mary loves John. We might attempt to represent such a fact in our bracket notation as follows:

$f_3$  [ $v^2$ , [*loves*<sup>2</sup>, John, Mary], [*loves*<sup>2</sup>, Mary, John]].

We will assume that Russell had something like  $f_3$  in mind when he discussed molecular facts. If there were such a fact as  $f_3$ , it would have three immediate constituents. One of which would be a disjunctive relation, represented by " $v^2$ ," that would hold between the  $f_3$ 's other two constituents. Still another of  $f_3$ 's constituents would be fact

$f_1$  [*loves*<sup>2</sup>, John, Mary],

the fact that John loves Mary.  $f_3$ 's remaining constituent would be

f2     [*loves*<sup>2</sup>, Mary, John],

the fact that Mary loves John. Here, then, is the rub: since (2) is not true, Mary does not love John, and there is no such fact as f2. This would seem to entail that there is no such fact as f3; for f3 exists only if each of its constituents exist. As facts are understood here, a fact exists only if each of its constituents exists. Yet NCT, together with the truth of various molecular sentences, seems to entail that there are such molecular facts as f3.

Again, one obvious problem for the view that there are disjunctive facts is that although there is no such fact as the fact that Mary loves John, there is, or would be, such a fact as the fact that either John loves Mary or Mary loves John. It is very hard to see how there could be such a thing as

f3     [*v*<sup>2</sup>, [*loves*<sup>2</sup>, John, Mary], [*loves*<sup>2</sup>, Mary, John]],

when there is no such thing as

f2     [*loves*<sup>2</sup>, Mary, John].

This is because f3 is supposed to have f2 as one of its constituents. Yet, if there is such a thing as f2, it would appear that (2) is true. We are assuming, however, that (2) is not true, and, therefore, that there is no such fact as f2.

Another problem about such facts is that it is hard to understand clearly exactly what their relating, disjunctive relation is. I have let “*v*<sup>2</sup>” represent this relation, but it by is hardly clear what this relation would be. Representing it by “*v*<sup>2</sup>” is, of course, suggested by, and is meant to be suggestive of, our use of “*v*” to represent the truth-function expressed by truth-functional uses of the inclusive sense of “or” in English. There is a danger in doing this,

however; for it might mislead us into thinking that “ $\vee^2$ ” represents the same thing, or roughly the same thing, as the “ $\vee$ ” we use in formal logic. It is not, however, the same thing, and it is difficult to see clearly exactly what “ $\vee^2$ ” might represent. What, exactly, is this disjunctive relation that would serve to relate two facts into a disjunctive fact? I can think of no clear and acceptable answer.

Russell also subscribed to some version of the correspondence theory of truth, but, as should be clear from the following passage, he eschewed nonnegative, molecular facts.

I do not suppose there is in the world a single disjunctive fact corresponding to ‘ $p$  or  $q$ ’. It does not look plausible that in the actual objective world there are facts going about which you could describe as ‘ $p$  or  $q$ ’... For the present I do not think any difficulties will arise from the supposition that the truth or falsehood of this proposition ‘ $p$  or  $q$ ’ does not depend upon a single objective fact which is disjunctive but depends on the two facts one of which corresponds to  $p$  and the other to  $q$ .<sup>8</sup>

Russell accounted for the truth of *atomic sentences* in terms of their correspondence to facts but opted a “truth-functional” account of the truth of non-negative, molecular sentences. He accounted for the truth of non-negative, molecular sentences truth-functionally in terms of the truth-values of their atomic components. Consistent with NCT, he held that truth for atomic sentences comes down to correspondence, but, contrary to NCT, he held that the truth-values of (nonnegative) molecular sentences are determined by the truth-values of their components. The

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<sup>8</sup> Russell, "The Philosophy of Logical Atomism," pp. 71-72.  
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correspondence theory of Russell's Logical Atomism is roughly equivalent to

RCT  $x$  is true (alternatively, false) if and only if either

(i) either

(a)  $x$  is atomic,

(b)  $x$  is general,

or

(c) there is a  $y$  such that  $x$  is the negation of  $y$ ,

and  $x$  corresponds truly (alternatively, falsely) to a fact,

or

(ii)  $x$  is a nonnegative, molecular whose truth-value is a function of the truth-values of its immediate components.<sup>9</sup>

We will consider the notion of "corresponding falsely to" when we get to the issue of negative facts. After we have considered negative facts, we will examine Russell's case for general facts. For our present purposes, however, only those parts of RCT relating to true atomic sentences and nonnegative molecular sentences are of concern.

Because he subscribed to something like RCT, rather than to something more like NCT, Russell avoided the need to hold that there is such a molecular fact as

f3  $[v^2, [loves^2, John, Mary], [loves^2, Mary, John]]$

to account for the truth of an utterance of sentence

(3) Either John loves Mary or Mary loves John.

<sup>9</sup> This does not treat negations of non-atomic sentences, as Russell did not seem to offer any treatment of them in Logical Atomism.

RCT entails that (3) is true if and only if at least one its disjuncts is true. Therefore, since (1) is true—true in virtue of corresponding to fact  $f_1$ --and since (1) is a disjunct of (3), (3) is true. In this way, under a truth functional account of the truth of molecular sentences, the truth of (3) does not commit us to any fact corresponding to the false sentence (2).

Is there a good reason to hold that in addition to atomic facts like  $f_1$ , there are (disjunctive) molecular facts like  $f_3$ ? More generally, is there a good reason to hold that in addition to atomic facts, there are nonnegative, molecular facts?

One apparent reason for maintaining that there is such a fact as  $f_3$  is that common speech includes such locutions as

(4) It is a fact that (either) John loves Mary or Mary loves John.

Sentence (4) makes good sense, seems true enough and seems to commit us directly to  $f_3$ . The truth of (4), then, is one apparent reason for maintaining that there is such a fact as  $f_3$ .

We should, however, resist the temptation to posit  $f_3$  based on this evidence. The issue here involves two rival hypotheses. On the one hand, we have the hypothesis that sentence (4) should be interpreted literally. On the other hand, we have the hypothesis that sentence (4) should be understood to abbreviate sentence

(5) Either it is a fact that John loves Mary or it is a fact that Mary loves John.

If we had good reasons to favor the first hypothesis over the second one, we would have good evidence that there is such a fact as  $f_3$ . We do not, however, have evidence that supports the first over the second. Although the truth of sentence (5), together with RCT, commits us to one of

$f_1$  [*loves*<sup>2</sup>, John, Mary],



or

f2 [loves<sup>2</sup>, Mary, John],

the truth of sentence (5) does not commit us to f3. Therefore, unless we can find something that is entailed by sentence (4) but that is not entailed by sentence (5), there is no reason not to think that we use sentences like (4) to mean what we mean when we use sentences like (5).

It will not do to say that one thing that (4) entails that (5) does not entail is that there is such a disjunctive fact as f3; for that would beg the very question before us. Is there something else entailed by (4) but not by (5)? Until we see that there is, we should not put much stock in arguments from the truth of sentences like (4) to apparent facts like f3.

We would have a good reason for positing the existence of molecular facts if their existence were “entailed” by a correct theory of truth. Recall sentences

(1) John loves Mary

and

(3) Either John loves Mary or Mary loves John.

According to NCT every true sentence is matched by a corresponding fact, and so is every false sentence. Given the truth of (1), NCT entails that (1) corresponds to a fact--fact f1. In a similar way, it follows on NCT that, since (3) is true, (3) corresponds to a fact--fact f3. Hence, NCT and the truth of various disjunctions would seem to commit us to the existence of various disjunctive facts.

NCT is not, however, the only viable version of the correspondence theory of truth. RCT is also in the running, and one who subscribes to RCT does not need to refer to a disjunctive fact

to account for the truth of (3). (3) is the disjunction of (1) and (2), and, according to RCT, (3) is true if and only if either (1) is true or (2) is true. Since (1) and (2) are atomic, they are true only if they correspond truly to the facts. Hence, under RCT a disjunction with atomic disjuncts is true if and only if at least one of its disjuncts corresponds truly to a fact. Since there are reasons to think that there are potentially acceptable correspondence theories, like RCT, which do not commit us to the move from the truth of (3) to the existence of  $f_3$ , the fact that a theory like NCT does so commit us does not count as a good reason to hold that there are molecular facts. Apparently, then, one can be a correspondence theorist and still consistently deny that there are such things as molecular facts.

RCT--indeed, any correspondence theory that recognized that truth-bearers might be non-atomic--confronts a number of apparent problems. One is that sentences are not the only things that we regard as truth-valued. Beliefs, for example, are also among the kinds of things that can be true or false. RCT is applicable to beliefs only if sense can be made of the idea that beliefs, like sentences, divide into those that are atomic and those that are not. Hence, my belief that John loves Mary will be atomic as will my belief that Mary loves Paul, but my belief that John loves Mary and Mary loves Paul will be molecular. Beliefs are discussed in Chapter 3. The account offered there accommodates the notion that beliefs might be molecular.

A second apparent problem is rooted in the fact that there are non-truth-functional uses of sentential connectives. It might appear that RCT is ill-equipped to handle sentences generated from such connectives, and we must see what, if anything can be done to bring them in line. This must be done with the first problem in mind, for it might appear that we also have non-truth functional belief-connectives. Although I do not intend to consider modality in this work, I see

no reason why modalities cannot be treated within the framework of Revised Factualism.

For our present purposes, however, the important thing is that in RCT we have a version of the correspondence theory that might enable us to avoid commitment to certain kinds of apparent facts. The two apparent problems for RCT will be apparent problems for any interesting version of the correspondence theory. They are apparent problems for NCT, and, with respect to the question, “Are there molecular facts?” it should not count against a negative answer based on RCT that RCT does not solve them. It is reasonable to suppose that any widely applicable solution will permit them to be solved in a way consistent with RCT.

We turn now from molecular facts, apparent facts that Russell refused to admit into the ontology of Logical Atomism, to negative facts and general facts, apparent facts that Russell did not see his way to avoiding. A fourth apparent kind of fact, what one might call “belief-facts,” is considered in Chapter 3. In what remains of the present chapter, I argue that Russell did not provide good reasons for holding either that there are negative facts or that there are general facts. In chapter 3, I maintain that there are facts that are appropriately regarded as belief-facts. My account of belief facts differs significantly from the one Russell entertained in LA, and, for that very reason, my account does not raise the concern that led Russell to despair of finding an adequate account of belief.

### 3. *Negative Facts*

In addition to holding that there are positive, atomic facts, such as the fact that Socrates taught Plato, the fact that the North won the American Civil War, and the fact that Saul Kripke is a philosopher, Russell held that there are **negative facts** such as the fact that Socrates is *not* alive, the fact that the South did *not* win the American Civil War and the fact that Saul Kripke is

not a tree. Negative facts are among the more exotic elements of the ontology of Logical Atomism. We need to see if among the reasons Russell gave for including them in the ontology of Logical Atomism, there are compelling reasons to admit them into the ontology of Revised Factualism.

Following his discussion of molecular facts, Russell turned his attention to negative facts:

There is one special point that has to be gone into in connection with this, that is the question: Are there negative facts? Are there such facts as you might call the fact that ‘Socrates is not alive’? I have assumed in all that I have said hitherto that there are negative facts, that for example if you say ‘Socrates is alive’, there is corresponding to that proposition in the real world the fact that Socrates is not alive.<sup>10</sup>

One interesting feature of Russell’s view about negative facts is that, according to Russell, the negative fact that Mary does not love John--provided there is such a thing--contains no more constituents than would the positive fact that Mary loves John--were there such a fact. One might think that the negative fact would contain an additional constituent, something corresponding to the negation operator in the sentence,

(6) Mary does not love John,

to which it would correspond. Hence, where the atomic fact that Mary loves John would be represented as

f1 [loves<sup>2</sup>, Mary, John],

the negative fact that Mary does not love John would, one might think, be represented as,

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<sup>10</sup> *Ibid*, p. 74  
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$f_6$   $[\neg, [loves^2, Mary, John]]$ ,

where the “ $\neg$ ” in  $f_6$  represents an operator which turns a fact into a negative fact. One problem for such a view is that it leads to a contradiction. If there is such a fact as  $f_6$ , then each of its constituents must exist, but, then, if each of the constituents of  $f_6$  exist, then

$f_2$   $[loves^2, Mary, John]$ ,

must exist. If, however, both  $f_6$  and  $f_2$  exist, then

both

(6) Mary does not love John,

and

(2) Mary loves John,

will both be true, which, in turn, entails that their conjunction,

(7) Mary loves John and Mary does not love John,

a manifest contradiction, must be true. This may explain the second problem with representing the negative fact corresponding to (6) as  $f_6$ , namely, Russell explicitly rejects such an account.

He puts it as follows,

**Missing Passage.**

Given Russell’s “truth functional” treatment of sentences that appear to commit us to non-negative, molecular facts, one might reasonably retrodict that he opted for an analogous “truth functional” treatment of sentences that might commit us to negative facts. But he did not. As we have seen, Russell treated non-negative, molecular sentences truth-functionally. When he came to negative sentences and negative facts, however, Russell pursued a very different

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Find the passage in which Russell says this. If you don’t, then you need to modify what you’ve said so that you do not say Russell said it.



strategy.

A truth-functional treatment of negation analogous to Russell's truth-functional treatment of non-negative, molecular sentences would proceed as follows. Where  $\phi$  is a simple atomic sentence, its negation, or denial,  $\neg\phi$ , is true just in case  $\phi$  is false, or not true. For example, consider sentence

(6) Mary does not love John.

Russell the Logical Atomist would aver that (6) is true in virtue of **corresponding truly** to the negative fact that Mary does not love John. In contrast, a truth-functional analysis of negation would entail that (6) is true just because the sentence it denies, namely

(2) Mary loves John,

is false.

A truth-functional account of the truth of negations of atomic sentences appeals to the falsehood of the atomic sentences negated. The truth-functional account of the truth of (6) rests on, or makes reference to, the falsehood of (2), and, so far at least, we have only RCT's "corresponds falsely to the negative fact" that

f6 [not-loves<sup>2</sup>, Mary, John]

to explain, or account for, the falsehood of (2).<sup>11</sup> Hence, our truth-functional account of negation needs to be supplemented with some account of falsehood or non-truth.

Russell held that every atomic sentence, whether true or false, has its truth-value in virtue of

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1. The expression f6 is already in use to represent a different bracket fact.
2. This f6 does not have the same constituents as the fact that would hold if Mary did love John.

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<sup>11</sup> I have opted to represent negative facts this way, even though it doesn't accord with Russell's view that negative facts have the same constituents as the atomic facts that would exist if their negations didn't exist. It is simpler to represent them this way, and nothing that follows hinges on this decision.



corresponding to a fact. True atomic sentences are true because they correspond-truly to atomic facts, and false atomic sentences are false because they correspond-falsely to negative facts. Here is how he put it for falsehood,

A thing cannot be false except because of fact, so that you find it extremely difficult to say what exactly happens when you make a positive assertion that is false, unless you're going to admit negative facts. (LA p. 78)

Hence, although Russell would agree that (6) is true if and only if (2) is false, he would have denied that (2)'s being false accounts for the truth of (6). For such an account of the truth of (6) would depend ultimately on the falsity of (2), and Russell would have insisted upon accounting for the falsity of (2) in terms of (2)'s corresponding falsely to the negative fact that Mary does not love John.

It seems perfectly reasonable, however, to reject such an account in favor of an alternative account according to which a given atomic sentence is true if, but only if, it corresponds to some atomic fact, and false if it does not. Hence, since there is no fact consisting of the *loves-relation* relating Mary to John, i.e., since there is no such fact as

f2     [*loves*<sup>2</sup>, Mary, John],

sentence

(2)     Mary loves John,

does not correspond to an atomic fact and is, for just that reason, false. Furthermore, since sentence (2) is false, its denial, sentence

(60 Mary does not love John,

is true.

It is noteworthy that such a truth-functional treatment of false atomic sentences was not foreign to Russell. In fact, in The Problems of Philosophy, a work that pre-dates Logical Atomism, Russell seems to recommend what we might call the “No Fact Theory” of false atomic sentences. Here are some representative passages from Problems

Thus a belief is *true* when it *corresponds* to a certain associated complex, and *false* when it does not. Assuming, for the sake of definiteness, that the objects of the beliefs are two terms and a relation, the terms being put in a certain order by the ‘sense’ of the believing, then if the two terms in that order are united by the relation into a complex, the belief is true; if not, it is false. (PP 128)

We may restate our theory as follows: If we take such a belief as ‘Othello believes that Desdemona loves Cassio’, we will call Desdemona and Cassio the *object-terms*, and loving the *object-relation*. If there is a complex unity ‘Desdemona’s love for Cassio’, consisting of the object terms related by the object relation in the same order as they have in the belief, then this complex unity is called the *fact corresponding to the belief*. Thus a belief is true when there is a corresponding fact, and is false when there is no corresponding fact. (PP 128)

Revised Factualism treats falsehood as Russell treated it in Problems and will, therefore, include a both a no-fact theory of false atomics and a truth-functional account negation. According to Revised Factualism, an atomic sentence is false when it lacks a corresponding fact. Hence,



according to Revised Factualism, sentence

(2) Mary loves John,

is false not because it corresponds falsely to some negative fact, but because it fails to correspond to any fact. Simply put, (2) is false because it is not a fact that Mary loves John—that is, because there is no such thing as the fact that Mary loves John. If there were such a fact, then (2) would be true. According to Revised Factualism, (2) is false because the sort of fact whose existence would have made it true, namely the fact that would be represented as

f2 [loves<sup>2</sup>, Mary, John],

does not exist.

Obviously, we are in the process of stating and defending a version of the correspondence theory that differs from RCT as well as from NCT. Such a theory is considered in Chapter 4. The revised factualist correspondence theory defended in Chapter 4 is

RFT (The statement, utterance or belief that) p is true if and only if p is true on some realistic sub-model.<sup>12</sup>

RFT is stated in terminology that would not have been familiar—at least as it is being used in RFT—to Russell during the period of Logical Atomism. A more familiar formulation of roughly the same theory would be,

RFT' p is true if and only if either (a) p is atomic and p corresponds to some fact, (b) p

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<sup>12</sup> I am using "model" here to mean what some formal semanticists call "models" and others call "interpretations." Some formal semanticists reserve the word "model" for a certain subset of the set of interpretations. They would say that an interpretation of a sentence is model for that sentence provided the sentence is true on that interpretation. I am not using model in that sense. I am using model to mean interpretation.

is the denial of some atomic,  $q$ , and  $q$  fails to correspond to any fact, (c)  $p$  is molecular and its truth-value is a function of the truth-values of its atomic components, (d)  $p$  is a universal generalization of the form,  $\forall x (Fx \rightarrow Gx)$ , and for every fact of the form  $[F, x]$ , there is a fact of the form  $[G, x]$ , or (e)  $p$  is an existential generalization of the form  $\exists x (Fx \& Gx)$ , and there is a fact of form  $[F, x]$  and also a fact of form  $[G, x]$ .<sup>13</sup>

For our present purposes, the important clauses are (a) and (b).

It *appears* that Russell subscribed to RCT simply because he could find nothing other or better than the relation of “corresponding falsely to” to account for the falsehood of false atomic sentences. Indeed, that is the impression he gives. For he writes

...one of the men to whom I was lecturing at Harvard, Mr. Demos, subsequently wrote an article in Mind to explain why there are no negative facts....I think he makes as good a case as can be made for the view that there are no negative facts.<sup>14</sup>

As described by Russell, John Demos’ “case” against negative facts consists primarily, if not wholly, of an attempt to provide an account of the truth-value of the negations of sentences that avoids the notion of corresponding falsely to negative facts.

Let us compare Russell’s view, represented by RCT, Russell’s version of Demos’ view, as presented by Russell in the preceding passage, and the truth-functional alternative recommended here, represented by RFT’. **Russell’s view** entails that truth-valued atomic

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<sup>13</sup> Note that (d) and (e) are obviously inadequate. Still, they work well enough for the simple universal and existential generalizations we will encounter later in this chapter. In addition, RFT, which succeeds where RFT’ fails, is our official correspondence theory. I am presenting RFT’ only so that we can have something analogous to RFT but stated in terms that would have been easily recognized by Russell during the period of Logical Atomism.

<sup>14</sup> *Ibid*, p. 74.

sentences correspond to facts in exactly one of two ways: either truly or falsely. If  $\phi$  is a true atomic sentence, then  $\phi$  is true in virtue of corresponding truly to an atomic fact. If  $\neg\phi$  is the denial of a true atomic sentence,  $\phi$ , and  $f$  is the fact that  $\phi$  corresponds to truly, then  $\neg\phi$  is false in virtue of corresponding falsely to  $f$ . If  $\phi$  is a false atomic sentence, this is because there is a negative fact,  $\neg f$ , to which  $\phi$  corresponds falsely. Finally, if  $\neg\phi$  is the true denial of a false atomic sentence  $\phi$ , then  $\neg\phi$  is true in virtue of corresponding truly to,  $\neg f$ , the negative fact to which  $\phi$  corresponds falsely. **Russell's version of Demos' view** entails that  $\neg\phi$ , the denial of atomic sentence  $\phi$ , is true just in case there is an atomic sentence,  $R$ , such that  $R$  is true and  $R$  is incompatible with  $\phi$ . Where  $\phi$  is an atomic sentence, **Revised Factualism's truth-functional alternative**, like the view Russell endorsed in Problems, entails both that  $\phi$  is true when it corresponds to an atomic fact and false if it does not, and also entails that  $\neg\phi$  has the opposite truth-value of  $\phi$ .

Unlike either Russell's view or Revised Factualism's alternative, Demos' view, or at least *Russell's version* of Demos' view, contains no account of the falsity of atomic sentences. Russell seized on this in his discussion

...I think you will find that it is better to take negative facts as ultimate. Otherwise you will find it so difficult to say what it is that corresponds to a proposition. When, e.g. you have a false proposition, say 'Socrates is alive', it is false because of a fact in the real world. A thing cannot be false except because of a fact, so that you will find it extremely difficult to say what exactly happens when you make a positive assertion that is false,

unless you are going to admit negative facts.<sup>15</sup>

This view--the one Russell attributed to Demos--fails even to attempt to explain why false atomic propositions are false. That alone constitutes a decisive objection to it. Revised Factualism's the truth-functional alternative, however, does at least attempt to account for the falsehood of false atomic sentences, and, therefore, the truth-functional alternative avoids the objection that Russell leveled against the view that he attributed to Demos. So far, at least, we've found nothing in Russell's critique of his version of Demos' view to establish that Russell's "negative fact" account is superior to Revised Factualism's "truth functional" alternative.

Nevertheless, we do have Russell's assertion that, "A thing cannot be false except because of a fact." Is that a good reason for favoring Russell's view over the view recommended here? I think the reply depends on one's reading of

(8) A thing cannot be false except because of a fact.

For (8) has at least two readings:

(8') Necessarily, if a given thing is false, then there is some fact in virtue of which it is false, and

(8'') There is no way other than being false in virtue of some fact in terms of which one can account for the falsity of something that is false.

(8') is just a different, though perhaps slightly *stronger*, version of part of RCT, and, as such, cannot be used to argue for RCT. Using (8') in this context would be question begging. (8''), however, is something which, if true, would support acceptance of RCT as the only viable

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<sup>15</sup> *Ibid*, p. 78.

option. We have seen, however, that there are ways other than being false in virtue of corresponding to a fact in terms of which one can account for something's being false. Hence, we have good reason to reject (8").

On the basis of this discussion, we may conclude that Russell offered no good reason for holding that there are negative facts. Hence, so far at least, the ontology of Revised Factualism is free of such things. As we shall see, however, a line of thought associated with Russell's reasons for thinking that there are general facts might also seem to support the claim that there are negative facts. In fact, as we are about to see, Russell might well have held that there were negative facts for roughly the same reason that he held that there were general facts.

#### 4. *General Facts*

In addition to containing atomic facts and negative facts, the ontology of Russell's Logical Atomism contains general facts. On Russell's view, a universal generalization such as

(9) All humans are mortal,

is true in virtue of corresponding to a universal, general fact, namely,

f9  $[\forall x^1, [\rightarrow^2, [H^1, x], [M^1, x]]]$ .

Before we inquire into Russell's reasons for holding that there are such facts, let us attempt to understand what such facts would be.

If there were such a fact as f9, its simplest constituents would be the "factual functions,"  $[H^1, x]$  and  $[M^1, x]$ , and  $\rightarrow^2$ , a function that maps ordered pairs of factual functions to more complex factual functions. In this case, the function  $c^2$  maps the ordered-pair  $\langle [H^1, x], [M^1, x] \rangle$

to the factual function  $[\rightarrow^2, [H^1, x], [M^1, x]]$ , which is still another constituent of  $f_9$ . If there were such a thing as  $f_9$ , its remaining constituent would be a property of factual functions,  $\forall x^1$ ; this would be a property a given factual function has just in case every object is a constituent of some fact consisting of that factual function being exemplified by that object.

In addition to universal general facts like  $f_9$ , Russell held that there are existential general facts. On Russell's view, since

(10) Some human is mortal,

is true, there is a corresponding existential general fact

$f_{10} \quad [\exists x^1, [\&^2, [[H^1, x], [M^1, x]]]]$ .

Were there such a fact as  $f_{10}$ , its simplest constituents would be the factual functions  $[H^1, x]$  and  $[M^1, x]$ , a function,  $\&^2$ , which maps factual ordered pairs of factual functions to more complex factual functions, the factual function  $[\&^2, [H^1x, M^1x]]$ , and the property,  $\exists x^1$ , that a given factual function has just in case some object is a constituent of a fact consisting of that factual function being exemplified by that object.

When Russell proposed his truth functional account of the truth of molecular sentences, he did not proclaim with confidence that there were no molecular facts. Part of the reason, I think, lies with the sorts of considerations introduced in the two preceding paragraphs. Suppose, as Russell maintained, that there really is such a fact as

$f_9 \quad [\forall x^1, [\rightarrow^2, [H^1, x], [M^1, x]]]$ .

It then follows that the factual function  $[\rightarrow^2, [H^1, x], [M^1, x]]$  has the property  $\forall x^1$ . But the

factual function  $[\rightarrow^2, [H^1, x], [M^1, x]]$  has the property  $\forall x^1$  only if every particular object is a

constituent of a fact of the form of  $[\rightarrow^2, [H^1, x], [M^1, x]]$ . Yet, if that is the case, there are molecular facts. I think that his awareness of this backdoor to molecular facts is partly responsible for his reluctance to insist that there are no molecular facts. Revised Factualism, unlike Russell's Logical Atomism, is not committed to general facts. Therefore, in contrast to Logical Atomism, Revised Factualism has no backdoor to molecular facts.

Before we inquire into Russell's reasons for accepting general facts, we should be clear about an apparent problem raised by use of the expression "factual function." That expression is not to be found in Russell's statements of Logical Atomism. Russell used the expression "propositional function," and one might be inclined to object to the preceding discussion of general facts because in Russell's descriptions of general facts, Russell mentions propositional functions in places analogous to places in which the preceding discussion mentions factual functions.

This objection misses an important point about the connection between language and reality that runs through much of Russell's work of the period. Early in his lectures on Logical Atomism, Russell lists some of the characteristics of a logically perfect language. One important feature of a logically perfect language is that the propositions (that is, the sentences) of such a language mirror the structure of the facts corresponding to those sentences, and mirror them in such a way that every constituent of the sentence, or proposition, will correspond to a constituent of the corresponding fact. This permits Russell, when talking about facts, to speak in terms of the propositions or sentences in the logically perfect language which correspond to those facts. Hence, we must guard, especially in our interpretations of the later lectures in the series, against assuming that when he is talking about the constituents of propositions or sentences, he does not

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mean to be talking, instead, or also, about the constituents of the corresponding facts.

When Russell mentioned propositional functions, he was probably talking about both a linguistic entity, a complex predicate, and a constituent of a fact, in this case what I am calling a factual function and what he would have called a propositional function. If you do not like the expression, “factual function,” and prefer to use the more familiar expression, “propositional function,” then you are invited to substitute the more traditional terminology for mine in what follows. Little turns on the distinction, and I make it only because I want to be clear the distinction between language—even a logically perfect language—and the facts corresponding to the true sentences of the language.

Russell presented two arguments for the thesis that there are general facts: the “Enumeration Argument” and the “Epistemological Argument.” He offers two statements of the Enumeration Argument. The first occurs here:

It would be a very great mistake to suppose that you could describe the world completely by means of particular facts alone. Suppose that you had succeeded in chronicling every single particular fact throughout the universe, and that there did not exist a single particular fact of any sort anywhere that you had not chronicled, you still would not have got a complete description of the universe unless you also added: ‘These that I have chronicled are all the particular facts there are.’ So you cannot hope to describe the world completely without having general facts as well as particular facts. (PLA 42)

Roughly the same argument and part of the Epistemological Argument are offered later in the lectures. Here is Russell’s second statement of the Enumeration Argument:



I do not think that one can doubt that there are general facts. It is perfectly clear, I think, that when you have enumerated all the atomic facts in the world, it is a further fact about the world that those are all the atomic fact there are about the world, and that is just as much an objective fact about the world as any of them are. It is clear, I think, that you must admit general facts as distinct from and over and above particular facts. The same applies to 'All men are mortal'. When you have taken all the particular men that there are, and found each one of them severally to be mortal, it is definitely a new fact that all men are mortal; how new a fact, appears from what I said a moment ago, that it could not be inferred from the mortality of the several men that there are in the world. (PLA 103)

In the Enumeration Argument passages, Russell called attention to four things: (i) a chronicle of all the particular facts that there are, (ii) an enumeration of all of atomic facts that there are, (iii) the sentence, "All men are mortal," for which I will substitute sentence (9) All humans are mortal, and (iv) an inference from the mortality of several humans to the mortality of all humans. For our purposes, (i) and (ii) will be regarded as one and the same thing, and Russell's statements mentioning it will be treated as statements of the same argument, the Enumeration Argument. We will consider it first.

Let  $L$  be a list of all of the atomic sentences, of a logically perfect language, that are true at time  $t$ , where  $t$  is the moment at which  $L$  was finally compiled.  $L$  is a list of all atomic sentences that correspond to atomic facts at time  $t$ .  $L$  is a complete list of atomic facts (at  $t$ ); for it contains every true atomic sentence, or every atomic sentence that is true at time  $t$ .  $L$  is not,

however, a list of all the true sentences that there are at  $t$ . For true, general sentences like

(9) All humans are mortal,

(10) Some human is mortal,


and

(11) L contains all atomic facts

do not occur on L.

We are now in a position to state one version of Russell's Enumeration argument for general facts.

### Russell's Enumeration Argument-Version I:

1. If L contains all facts, then (11) is true.
2. If (11) is true and if CT, then there is a fact,  $f$ , such that (11) is true in virtue of  corresponding to  $f$ .
3. If there is a fact,  $f$ , such that (11) is true in virtue of corresponding to  $f$ , then either L contains (11), L contains a sentence that entails (11), or L contains a set of sentences that entails (11).
4. It is not the case that either L contains (11), L contains a sentence that entails (11), or L contains a set of sentences that entails (11).

Therefore,

5. It is not the case that L contains all facts.

The antecedent of premise 1 is, of course, the target of the Enumeration Argument. If L really contains all of the atomic facts, then, since sentence (11) seems to assert that L contains all

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Obviously, L will not contain (11). That's because L contains only sentences true just before L was compiled and (11) isn't true until after L is compiled. Let us suppose, that L is compiled in such a way that (11) if it were added would be added as a final sentence. (11) would still not get added or inserted and that is because (11) is not atomic and not because it does not get to be true until too late.

of the atomic facts, it would seem patently obvious that premise 1 holds. Russell maintained that truth comes down to correspondence, with the important exception of truth for non-negative, molecular sentences. Hence, it would appear that if sentence (11) is true, then its truth must come down to a matter of its corresponding to some fact. This, of course is precisely what is asserted in premise 2. Premise 3 is probably a bit more carefully stated than it needs to be in order to represent Russell's argument. Russell seems only to maintain that if sentence (11) is true, then some sentence corresponding to the fact in virtue of which sentence (11) is true will need to occur on L. Premise 3 has it that if sentence (11) is true then either Russell's stated condition—some sentence corresponding to the fact in virtue of which (11) is true will occur on L—or one of two other conditions must hold. Premise 3 is, therefore, weaker than the premise most explicitly suggested by Russell's own formulation of the argument. Finally, we have premise 4. The rationale behind premise 4 is simply this: sentence (11) is a universal generalization and, as such, will not be entailed by any set of atomics of the sort that occur on L.

It is noteworthy that although the Enumeration Argument that Russell presented is an argument about L and sentence (11), it could be easily restated as an argument about L and sentence (9). For just as no set of sentences of L entails sentence (11), no set of sentences on L entails sentence (9).

The case of universal generalizations, thus, differs from the case of molecular sentences. The fact that universal generalizations are disanalogous to molecular sentences in this way might explain why Russell treated these two categories of apparent non-atomic facts differently. The atomic facts of L would determine the truth values of conjunctions and disjunctions of atomic sentences of L in the sense that for any non-negative molecular sentence, m, the truth-value of m

is determined truth-functionally by the truth-values of a set of (atomic) sentences of L.

Russell maintained that general sentences are true just in case they correspond truly to general facts. Furthermore, he would have claimed that since L lists only atomic facts, it fails to determine the truth-values of (9), (10), or (11). Because L contains no quantified sentences, L apparently fails to list those general facts that Russell would have held such sentences to be true or false in virtue of corresponding to. Russell's view seems to be that a given list of all of the facts that there are can account for the truth of such sentences only if it contains certain true generalizations. Is this a reasonable view? Is it reasonable to hold that unless such a list contains generalizations it cannot account for the truth of generalizations?

To help us to answer this question, consider the following model-theoretic rival to RCT's account of general truths. L determines a set of realistic models ("r-models"). A model is realistic model, is an "r-model," provided it gets right every sentence it interprets and it interprets every atomic sentence. The truth-values of quantified sentences are determined in standard, model-theoretic fashion by whether they are true on some r-model. Since L contains "Smith is a human," every appropriate r-model's interpretation assigns a member of the extension of "human" to the name "Smith." Similarly, since L contains "Smith is mortal," every such interpretation assigns a member of the extension of "mortal" to the name "Smith." L lists both every atomic fact of the form **x is human** and every atomic fact of the form **x is mortal**. Clearly, then, for every fact of the form **x is human** that is listed on L, there is another fact of the form **x is mortal** that is also listed on L, and, since L lists all the atomic facts that there are, there is no fact of the form **x is mortal** that is not listed on L. In this way, L determines that every sentence of the form of "**x is human** → **x is mortal**" is true on every r-model and, therefore, that (9) is true.

L also determines that some sentence of the form of “x is human & x is mortal” is true on every r-model and, therefore, that (10) is true.

We do not need to state this account in the language of model theoretic semantics; for it can also be stated in terms of facts. Sentence (9) is true just in case every atomic fact consisting of a given object being human is matched by an atomic fact consisting of that very object being mortal. Sentence (10) is true just in case some atomic fact consisting of a given object being human is matched by an atomic fact consisting of that very object being mortal. Since L lists all the atomic facts, L “makes” (9) true; L lists every fact of the form **x is human** and every fact of the form **x is mortal**, and there is no fact consisting of a given object being human that goes unmatched by a fact consisting of that object being mortal. L also “makes” (10) true; there is a fact consisting of a given object being human and a fact consisting of that very same object being mortal.

Although L accounts for the truth of universal generalizations like (9) and existential generalizations like (10), L does not say that a universal generalization like

(11) L contains all atomic facts

is true. The question before us now is, “Does L say that (11) is true?” and not, “Is (11) true?” For (11) is true in virtue of the facts list on L even though L does not say that (11) is true. It is consistent with the truth of any set of sentences of L that there is what might be called a “missing (atomic) fact.” That is to say, it is consistent with the truth of any set of sentences of L that there is some true atomic sentence that is not on L. If there were such a sentence, then the fact to which it would correspond would be missing from L; that fact would be a missing atomic fact. Given this “missing fact problem,” L does not tell us that (11) is true. It does not say that (11) is

true, and, therefore, L leaves open the epistemic possibility that there are unlisted atomic facts.

Russell would have argued that L completely describes the world only if—by containing (11) (or some equivalent sentence)—L says that (11) is true, and therefore only if—by containing (11) (or some equivalent sentence)—L asserts that there is no missing fact. Therefore, Russell held that a complete description of the world would list all of the true atomic sentences, and, to solve or avoid the missing fact problem, would also contain a sentence like (11) that directly asserts that there are no missing atomic facts. Since he also held that truth for non-molecular sentences consists in correspondence, Russell would have argued that since such a list would include (11), there is the general fact that every atomic fact is listed on L, and, therefore, that there is at least one general fact.

Here, then, is a second version of Russell's Enumeration Argument for general facts.

**Russell's Enumeration Argument-Version II:**

1. In addition to listing all of the atomic facts, a complete description of the world would say that it lists all the atomic facts.
2. If in addition to listing all of the atomic facts, a complete description of the world would say that it lists all the atomic facts, then a complete description of the world would contain a sentence like (11).
3. If a complete description of the world would contain a sentence like (11), then there is at least one general fact.

Therefore,

4. There is at least one general fact.

Against this line of thought, we should remind ourselves that L accounts for the truth of (11) without saying that (11) is true. In addition, we should maintain that although it *is* reasonable to expect L to account for the truth of (11), it is *not* at all reasonable to expect L to assert or to say, and to do so by containing a sentence that might be used to assert or say, that (11) is true. In fact, Russell's theory of types, which includes the following "vicious circle principle,"

VCP      Whatever involves all of a collection must not be one of the collection (PM 37), entails that (11) cannot occur on L. This is because sentence (11) involves, or is about, all of L. Therefore, Russell's own theory of types, as represented by VCP, entails that neither sentence (11) nor the sentence that Russell himself used, namely

(11R) These that I have chronicled are all the particular facts there are, can occur on L. Hence, apparently, premise 1 of Russell's Enumeration Argument-II is both dubious and incompatible with Russell's own VCP.

It might help to consider another list, L'. List L' is a kind of "super-list" that contains both sentence (11) and every sentence that occurs on list L. L' appears to be more comprehensive than L, and (11) can occur on L' without violating VCP. This is because, although (11) says something about L, (11) does not make a claim about L'. Perhaps it is L' and not L that we should regard as our complete enumeration of all of the facts.

There is, however, another true sentence which is very similar to (11) and which VCP prohibits us from including on L', namely

(12) L' lists both every true atomic sentence and a sentence that asserts that L lists every true atomic sentence.

Therefore, even L' is not complete in the sense of "complete" that Russell seemed to demand, and it should be clear that this kind of "incompleteness" will plague any such list—even a list that contains universal generalizations like (11) and (12). The kind of completeness required by premise 1 just isn't in the offing, and Russell's own views are incompatible with the claim that we should aspire to such completeness.

Consider essentially the same point state in terms of model theoretic semantics. Assume that M is a very comprehensive realistic-model—it accounts for the truth-values of all atomic sentence and also for the truth-values of general truths like (10) and (11). M is not incomplete for its failure to account for the truth of a sentence like

(11') Every true atomic sentence is true on M,

but to demand of L that it say that (11) is true is analogous to demanding of M that it account for the truth of (11'). (11') is a statement in the meta-language about M and about other statements in the object-language. M is not incomplete in some achievable sense of "complete" for failing to "make" (11') true. In addition, we can imagine a kind of "super-model," M', which "contains" both all that M contains and also enough to "make" (11') true. Despite all that, however, there will then be a true sentence in the new meta-language, namely

(12') M' "makes" true both all atomic sentences and also sentence (11'),

that M' will not "make" true. Surely, either M is complete or no model is complete. The same holds of L: either L is complete or no list is complete.

If list L is complete, then premise 1 is false; a complete list need not pronounce itself complete. If L is not complete, then no list is complete. But if no list is complete, then premise 3



is false; arguments from alleged features of complete lists to the existence of certain kinds of things succeed only if there could be such lists.

We can even allow super-list  $L'$  to list some atomic facts that come to exist when  $L$  comes to exist. These are facts of the form  **$x$  is a(n atomic) fact**, i.e.,  **$x$  is an element of the set of atomic facts**, (or sentences of the form “ $N$  is a true atomic sentence”) and  **$L$  lists  $x$**  (or “ $L$  contains  $N$ ”). Listing such facts on list  $L$  would violate VCP, but listing them on  $L'$  would not. In addition, since  $L'$  contains all true sentences of the form “ $N$  is a true atomic sentence” and “ $L$  contains  $N$ ,”  $L'$  will make (11) true. Hence, the truth of (11) will be determined by a list,  $L'$ , that contains no general truths. Rather than showing that there are general facts, these Russellian considerations seem to entail that there are what we might call **list-atomic facts**—facts about facts listed on lists of atomic facts. List atomic facts are not, however, general facts. They are new kinds of atomic facts whose existence would be entailed by the existence of a list of atomic facts.

We are entitled to conclude that neither Version-I or Version-II of Russell’s Enumeration Argument for general facts is acceptable. The second part of the second of the two passages quoted above contains part of Russell’s second argument for general facts.

It is clear, I think, that you must admit general facts as distinct from and over and above particular facts. The same applies to ‘All men are mortal’. When you have taken all the particular men that there are, and found each one of them severally to be mortal, it is definitely a new fact that all men are mortal; how new a fact, appears from what I said a moment ago, that it could not be inferred from the mortality of the several men that

there are in the world. (LA 103)

In “what I said a moment ago,” Russell claimed,

You cannot ever arrive at a general fact by inference from particular facts, however numerous . . . You never can arrive at a general proposition by inference from particular propositions alone. You will always have to have at least one general proposition in your premises. (LA 101)

Russell held that to have a general proposition as a conclusion, or to have a justified general belief, one must have a general proposition, or a general belief, as a premise. Let us assume that while making inferences about humans and mortality, from the facts that  $h_1$  is mortal,  $h_2$  is mortal, . . . , and  $h_n$  is mortal, I conclude that (9). Those facts alone, however, do not entail that (9). To get a valid argument to the conclusion that (9), I need the additional universal generalization. I need something like

(13) For all  $x$ , if  $x$  was human, then  $x$  was identical to  $h_1$  or  $h_2$  or . . .  $h_n$ .

I cannot validly derive (9) from atomic sentences alone. I also need something like (13).

Russell’s second argument for general facts is based on such epistemological considerations.

**Russell’s Epistemological Argument for General Facts:**

1. We are warranted in believing universal generalizations, but as the case of (10) shows, we are never so warranted solely based on atomic propositions (or atomic beliefs).
2. If so, then there are general facts.

Therefore,

3. There are general facts.

Russell has given us good reasons for taking seriously the claim that there are general truths, i.e., general sentences and general beliefs. That claim, however, is not what he tried to prove. Given his tendency to identify sentences with the facts to which they correspond, it is easy to see how he might have taken the claim that there are general truths for the claim that there are general facts, but they are not one and the same claim, and the former does not entail the latter. In addition, he may have given us good reasons for holding that every deductive argument with a simple universal generalization as a conclusion must have at least one generalization as a premise. That, too, is an interesting claim, one that should be taken seriously, but it is not a new reason for holding that there are general facts.

Russell's motivation for accepting general facts seems, at bottom, epistemological. To know that (9) one needs to know that  $h_1$  is mortal, that  $h_2$  is mortal, and . . . and that  $h_n$  is mortal, and also that there is no missing fact of the form **x is human** unmatched by a fact of the form **x is mortal**. General knowledge seems to entail knowing that there are no facts of a certain sort.

Unless we have reason to believe that L is a list of all atomic facts—or at least a complete list of all the facts about who is human and who is mortal, we cannot determine, just by looking at L, that there are no missing facts of a certain sort, and, hence, we cannot determine, just by consulting L, that any given simple, universal generalization is true. This is because L contains only atomic sentences. L does not contain sentences asserting that L contains all the true atomic sentences that are true. Nothing about there being general facts follows from this, but it is not difficult to appreciate why this might *appear* to entail that there are general facts.

We should deny premise 1 of the Epistemological Argument. To be justified in believing that (9), one makes a reasonable attempt to find facts of the form **x is human**, and, for every found fact of the form **x is human**, to find matching facts of the form of **x is mortal**. Induction from atomic facts supplies us with evidence and the atomic facts determine truth. In verifying universal generalizations we don't worry unduly about the possibility of missing facts. If we confine ourselves to questions of truth, the epistemic possibility of a missing fact is irrelevant, and if we confine ourselves to questions of justification, evidence, or warrant, although it might keep us from obtaining various kinds of certain knowledge, the epistemic possibility of a missing fact is not enough to prevent us from having knowledge.

Russell once wrote that questions of truth and questions of justification are distinct.

We are not asking how we can know whether a belief is true or false: we are asking what is meant by the question whether a belief is true or false. It is to be hoped that a clear answer to this question may help us to obtain an answer to the question what beliefs are true, but for the present we ask only 'What is truth?' and 'What is falsehood?' not 'What beliefs are true?' and 'What beliefs are false?' It is very important to keep these questions entirely separate, since any confusion between them is sure to produce an answer which is not really applicable to either. (PP 118-120)

It now appears that he did not always heed his own good advice.

It is worth noting that Russell's concern about missing facts might have led him to the view that there are negative facts. L does not say of itself that it is complete. On the Naive Correspondence Theory, NCT, sentence

(2) Mary loves John

is true if there is a corresponding fact and false if not. L does not tell us that there is no corresponding fact, and so we appear to need more than a mere list of atomic facts, and hence appear to need negative facts, to account for the falsehood of (2).

This suspicion is supported in part by the fact that the account of falsehood that Russell offered in The Problems of Philosophy is similar to the sort of account offered by RFT'. Recall that in the Problems, Russell wrote, "Thus a belief is true when there is a corresponding fact, and is false when there is no corresponding fact." (PP 128) As long as Russell was worried about the possibility of missing atomic facts, he would be inclined to worry that a true atomic sentence might be counted as false because of a failure to locate the missing atomic fact to which it corresponds.

As before, we should be cautious. L accounts for the falsehood of (2). If (2) were true, it would occur on L. Still, L does not contain a sentence that asserts that (2) does not occur on L, and since L is a list of atomic facts, it does not contain sentence

(6) Mary does not love John,

a sentence L would contain if (there were negative facts and) L were a list of all facts. Indeed, L's containing a sentence apparently asserting that (2) does, or does not, occur on L would violate VCP. Yet, although L accounts for the falsehood of (2), unless we can be certain that there is no missing fact consisting of Mary's loving John, we cannot be certain that (2) is false. Although L accounts for the falsehood of (2), L does not assert or say that (2) is false. False atomic sentences are analogous to true universal generalizations.

As in the case of knowledge of universal generalizations, knowledge that something is false does not entail or guarantee that there are no missing facts. To acquire knowledge that (2) is false, one makes a reasonable attempt to find a fact consisting of Mary's loving John. If a reasonable attempt fails, one has reason to believe that (2) is false and that (6) is true. One need not first both exhaust all of the facts and then verify that one has exhausted all of the facts.

Suppose that we make an exact duplicate of a fairly simple list. Is our duplicate list any less accurate because it fails to say of itself, "I contain every sentence that is on the original list"? It seems to me that it is not; in fact it seems to me that if it did say, "I contain every sentence that is on the original list," our duplicate would, for so saying, be a less exact duplicate than one that did not.

The actual world does not say of itself that it is the actual world or that it contains, or consists of, all of the atomic facts that there are. Nevertheless, it is the actual world and it does contain, or consist of, all of the atomic facts that there are, and a description of the actual world which contained all that L contains and also sentence (11) would, because it contained sentence (11), be a less exact description of the world than L. It might be more

informative than L, but it would not be as faithful to the original as L.

We have examined both Russell's case for negative facts and Russell's case for general facts. We have found them wanting. We may also have found that a single concern about missing atomic facts was Russell's basic reason for committing himself to negative facts and to general facts. Finally, we have seen that such an ontological commitment is not warranted by the epistemological concerns involved in the missing fact problem. The ontology of Revised Factualism does not include any non-atomic facts.