

Joseph E. Brenner, *Logic in Reality*, Springer 2008
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When analytic philosophers in the tradition of Carnap and Quine recommended the use of *modern logic*—the father of which was Gottlob Frege—then, they did so on the basis of the conviction that the use of logic in its modern form would increase the clarity and the stringency of philosophical argumentation. I happen to share this conviction, which is old-fashioned these days. I am not shaken in this conviction by a book like Brenner’s, which is called *Logic in Reality*, but contains hardly anything that is stringent and hardly anything which is clear—and little where a reader like me feels that he is making contact with reality. For the badness of the book is not the result of a use of logic. In Brenner’s eyes, “[t]he real world is only possible because it is conditionally logically contradictory, that is, partly inconsistent” (p. 134). Well, if that is the case and partial inconsistency is a necessary condition of reality, even of possibility, then it must be a methodological rule to be partly inconsistent in the description of reality. And, indeed, the author seems to have abided by this rule. On page 1, we read: “Deductive reasoning per se was disconnected [in classical logic] both from processes of scientific inference and from ordinary experience.” On page 2, we read: “This form of logic [classical logic] was and is so successful in practice in describing a wide variety of phenomena that it has come to be considered as an a priori, corresponding in some way to the laws of thought and reason.”

The general character of Brenner’s book is this: It is the collection of Brenner’s opinions on practically every subject that is or may be considered important in metaphysics and epistemology: causation, the mind–body problem, consciousness, quantum theory, the nature of time and space, laws of nature, cosmology, thermodynamics, teleonomy, evolution, cybernetics, emergence, biosemiotics, quantum morphogenesis, scientific realism, verificationism, etc. The connection of these opinions to Brenner’s logical system, LIR, seems to me somewhat tenuous, and in many cases, I do not find perusing Brenner’s opinions particularly illuminating. Here is a comparatively harmless example: “Based on

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combinatorial analysis *only*, if the actual world is logically possible it is logically necessary [*does this follow from a combinatorial analysis?*]. In this conception [*which conception? the one just described? Let's proceed on the assumption that the conception meant is the one described in the previous sentence*] its modal status is logically contingent [*non sequitur; what does follow is that the actual world, because logically possible, is logically necessary*], a matter of pure chance [*non sequitur again; that something is logically contingent does not entail that it is a matter of pure chance*], a position ascribed to Hawking, Heisenberg, Einstein, and Dirac [*Einstein, as far as I know, did not believe that the modal status of the actual world is one of pure chance*], among others. In the alternative realist logic I propose, a new definition of logical necessity and a contradictory relation between necessity and contingency can be found" (pp. 76/77) [*if the relation between logical necessity and logical contingency is contradictory, then nothing is neither logically necessary nor logically contingent; hence nothing is logically impossible. What is the good in having a logic then?*]. I refrain from giving further examples. But some passages of the book, I am sorry to say, seem simply *delirious* to me.

It is the author's aim to present a *logic in reality*. The aim is laudable. However, I do not believe that the author has achieved it. But first, what is Brenner's reality logic, LIR, supposed to replace or to improve upon? Classical logic. And what is classical logic? According to Brenner, the fundamental axioms of classical logic are the following items (p. 2; the items are presented in the very way in which the author presents them):

CL1: *Identity*: A is (is identical with) A (or B): $A=A$ or $A=B$.

CL2: *Non-Contradiction*: A is not non-A (not (A and non-A)). *Arguments* that lead to contradiction are *prima facie* false.

CL3: *Excluded Middle*: there exists no third term T that is at the same time A and non-A (A or non-A).

But this is no more than a bad caricature of the basics of classical logic. The comments of the author even suggest that his grasp of classical logic is shaky at best (nevertheless, he ventures to criticize it). The law of noncontradiction does not say that arguments that lead to contradiction are "prima facie false"; rather, this law implies that if a *logically correct argument* leads to contradiction, then at least one of the *premises* of this argument is bound to be false. The law of excluded middle, too, does not say what Brenner asserts it to say. It says, put in the metalinguistic way, that it cannot be the case that neither statement A nor statement non-A is true, which, according to the classical truth rules for the logical constants involved, amounts to "A or non-A" being logically true (for all statements that can be substituted for "A"; incidentally, the schemata "A is not non-A" and "not (A and non-A)" surely do not mean the same thing, contrary to what is suggested by Brenner). Finally, Brenner's CL1 does very little indeed by way of a characterization of identity. In order to achieve the classical characterization of identity (in first-order logic), it is, in the first place, necessary to replace the schematic letters standing for statements by schematic letters standing for *names*; that is, it is necessary to go from $A=A$ (which is syntactic nonsense) to $a=a$. In the second place, the so-called Leibniz Principle must be added to CL1: If $a=b$, then everything true of b is also true of a .

Clearly, the above axioms, as stated, are insufficient not only for characterizing “=”, but also for characterizing “and” and “non”. Other logical constants (as for example *quantifiers*—Frege’s epochal logical innovation) are not even mentioned by Brenner when he states the fundamental axioms of classical logic. Brenner assures us (p. 2): “All standard logics provide for the addition of additional axioms, and/or for recasting the indicated axioms [CL1–CL3] in other terms in order to define the logic more completely.” But this does nothing to dispel the bad impression one is left with at this point: the impression that the author severely misrepresents modern classical logic, which is one of the greater achievements of the human spirit. If one wishes to improve on this achievement, one is surely not on the right track if one treats it with disrespect. It is true that the bad first impression made by Brenner is to some extent corrected later on (see pp. 12–19), but only in a very cursory fashion.

For his own system, LIR, Brenner provides six axioms (pp. 4/5; the list is repeated on p. 113). Here is a sample (in Brenner’s own words):

LIR2: *Conditional Contradiction*: A and non-A both exist at the same time, but only in the sense that when A is primarily actual, non-A is primarily potential, and *vice versa*, to a reciprocal extent.

Let us apply this to *the truth of LIR2*. Hence: *The truth of LIR2* and the negation of it: *the falsity [non-truth] of LIR2*, both exist at the same time, but only in the sense that, when the truth of LIR2 is primarily actual, the falsity of LIR2 is primarily potential, and vice versa, to a reciprocal extent. *To what extent?* Is it that the truth of LIR2 is to the extent of 95% actual and to the extent of 5% potential, whereas the falsity of LIR2 is to the extent of 5% actual and to the extent of 95% potential? Or is it that the truth of LIR2 is to the extent of 51% actual and to the extent of 49% potential, whereas the falsity of LIR2 is to the extent of 49% actual and to the extent of 51% potential? Or is it otherwise again? I have no idea, and I do not see how anybody could have one. However, what cannot be—according to Brenner’s axiom LIR6—is that the truth of LIR2 is to the extent of 100% actual (and to the extent of 0% potential), which means that its falsity must be actual to *some* extent that is greater than 0% (we just do not know to *which* extent its falsity is actualized). In other words: If one assumes *the truth* (the simple truth, the 100% truth) of LIR6, then one cannot, in reason, assume *the truth* (the simple truth, the 100% truth) of LIR2. This leads to two fundamental questions: (1) What, really, is a person doing when she *accepts* LIR, but cannot reasonably accept both *the truth* of LIR6 and *the truth* of LIR2? (2) How can LIR be a *logic in reality* if it cannot even be reasonably accepted *as true* (about reality)?

There is, therefore, a *problem* with regard to the relationship of Brenner’s axioms among each other: They cannot be *true* together, in other words: they are *inconsistent*—and the normal conclusion to be drawn from this is this: they cannot be a correct description of reality. But the axioms are also problematic in themselves. According to LIR6, no process of actualization of any element (item) ever goes to 100% completeness. Does this imply that it is never 100% correct to say that a child has been born, that a war has ended, that a book has appeared? LIR6 had better not imply such things. For if it did imply them, then the falsity of LIR6 would be actual to the extent of 100% and its truth actual to the extent of 0%. But what is it, then, that LIR6 means (in accordance with its wording, of course) and that does not lead to absurdity?

Consider, finally, LIR1. According to this principle, “[t]here is no A at a given time that is identical to A at another time”.¹ If this were true, nothing would exist at more than one moment of time; for if something existed at (at least) two moments of time, then there would of course be an *a* at a time that is identical to *a* at another time. Since I am sure (and I am certainly not alone in this) that I have existed at more than one moment of time, I conclude not merely that the falsity of LIR1 is actual to some extent greater than 0% (this much must already be admitted if one accepts *the truth* of LIR6), but that it is *false*, that is: that its falsity is actual to the extent of 100%.

The reader of this review may feel that what I have to say about Brenner’s book is all too negative and unsympathetic. To counteract this impression, let me point out that the book has a very positive and sympathetic review built right into it: the foreword by Lorenzo Magnani. According to Magnani (p. xii), “[t]his excellent and demanding book opens up the door to a deeply informed attitude in logic and epistemology.” Magnani remarks humbly (*ibid.*) that “the book overwhelms the reader with references. Of course, if the reader is appropriately grounded in the vast literature that Brenner affords in a bibliography,² the reference to particulars can be very deeply informative. The rest of us must rely on the sheer weight of putative examples, still extremely informative and epistemologically rewarding.” I agree that the book overwhelms the reader with references; I very much doubt, however, that the “putative examples” are weighty supportive illustrations of *logic in reality* if that logic is to be the system LIR (one reason for this being that LIR cannot be true). Contrary to Magnani, I do not feel “deeply informed” by the book at all. But my final recommendation is this: Take a close look at Brenner’s book and arrive at your own opinion about it.

¹ “This formulation,” says Brenner (p. 4), “is essentially that of Leibniz.” As far as I remember, Leibniz believed in *substances*, and substances are transtemporally self-identical—also for Leibniz.

² As a matter of fact, the book has no comprehensive bibliography. The references are listed at the end of each chapter.