

Are All Things “Connected”?

[This is a short series of emails between me and a correspondent “Michael M.” in January 2008, concerning a topic in dialectics—the extent to which all things in the universe may be considered to be “connected”. I was too busy to respond to Michael’s last letter, so the correspondence ends there. Too bad; it was interesting! –S.H.]

In a message dated 1/19/2008 [Michael M.] writes:

Dear Scott

I would be grateful for your views on the following argument which I read on the web which claims to show that all reality cannot constitute a totality as Marxists claim:

It might be argued that connections exist between things to form a totality, but we are ignorant of them. Instead we are justified in speculating that such inter-connections exist, because science repeatedly finds them wherever it looks. But we are not justified because this proposal contradicts key scientific laws, such as the theory of relativity which tells us that some parts of reality cannot be physically connected, let alone interconnected. The argument within the special theory of relativity is that if an event, a flash of light, occurs, the fact that the speed of light is fixed in every inertial time frame means that light can only come to and emit from that flash from within a cone-shaped area defined by a 45 degree angle. That means that there are events which are outside those 'cones' that are mutually unobservable and cannot be causally connected. Thus there is a boundary to the causal future or past of an event and there are events which are outside that scope, to which it is not causally connected.

Michael

From: Scott H.
Date: Sun, 20 Jan 2008
Subject: Re: Argument against dialectics
To: Michael M.

Hi Michael,

Thanks for sending me this interesting question! It provides an opportunity to do some further thinking about some issues I haven't thought about sufficiently.

First, I agree that it is true that Marxists (along with most materialists) at least tacitly suppose that all reality “constitutes a totality”. This would seem to mean something like “there is only one universe” which is made up of interacting parts.

I should say at this point that the term ‘universe’ originally meant (and this is still the way I generally use the word) “the sum total of everything that exists”. And by that definition the statement that “there is only one universe” is a tautology. However, there are many cosmologists today who seem to reserve the term ‘universe’ for each of an immense number (perhaps infinite) of hypothesized space-time-energy-matter

“bubbles”, each of which forms and expands from a supposed “singularity”. They then call the sum total of all such “universes” the “multiverse”. On this conception (which I personally consider to be completely far-fetched or at least wildly speculative) what we have hitherto considered to be “all that exists” is merely one of innumerable “universes”, one which “began” as a “Big Bang” some 13 billion years ago or so. Thus all the “known universe”, and even quite probably greatly beyond what we can see or be aware of, is only one universe among many. Under this conception each “universe” is apparently “independent” of all others as far as the known laws of physics are concerned and indeed it is often supposed that the laws of physics themselves may greatly differ in these “independent universes”. In any case, there is supposedly no possibility of communication or any other interaction between any two such “universes” in the multiverse.

However, I consider that multiverse theory to be a mere flight of the imagination, and until there is actually some good evidence for it I think we should ignore the whole conception. So let’s just talk about the known universe and only grant that the “whole universe”—if it is not infinite—at least is almost certainly much larger than what we currently know of it.

The question, then, is whether the universe—as science has generally conceived of it since the time of Einstein and Hubble—can be properly viewed as a “totality” in *more* than just the tautological sense that it constitutes “everything that exists”. Obviously there are an enormous number of connections and interactions between physical things, via the four known physical forces (strong and weak nuclear forces, electromagnetic force, and gravity). Current theory views gravity as mutually attracting any two stars or galaxies in the entire universe, for example. The only exception is if there has not yet been time for that gravitational force to be initially communicated between the two stars or galaxies, since it is also assumed that this force can travel no faster than the speed of light. (This is similar to the light cone problem you raised about relativity, but a bit simpler to discuss.)

One thing to immediately mention here is that two things can be part of an interacting totality even if those two themselves do *not* directly interact in any way! Suppose, for example, that we have three equally spaced stars in a row, the first and third of which have just come into existence somehow. Further suppose that while the gravitational waves from the two stars at the ends have reached the middle star, they have not yet had time to reach each other. In this case the middle star would move toward the more massive end star, though not as fast as if the less massive star were not there. So we would have a system which would (at least in some respects) have to be considered as a totality *even though* there has so far been no direct interaction between the two furthest apart stars.

The general principle here could be called that of “guaranteed *local* interaction”. From the moment any energy or matter which is affected by gravity comes into existence (if indeed it can actually come into existence instead of merely being transformed!) there are virtually immediate effects in the immediate neighborhood, effects which then spread out all around at the speed of light. But each local neighborhood is already connected in various ways to the other local neighborhoods around it, and new interactions among them are occurring all the time. Consequently it seems quite reasonable to say that the universe as a whole consists of a massive web of actual and potential interactions between different things—*even if* there might be particular pairs of things which are not directly interacting in some particular way (or even in any way whatsoever).

The even more general philosophical point is that when we say that things in the world “are connected”, we should not mean that every two things are *directly* connected in the relevant way. It may possibly be that every two things are connected in *some way or other*, but the *relevant* connections are often quite indirect. In any case, everything (so far as is known) is part of a single universal physical world, a single universe which constitutes a single physical system overall. The primary connections and interactions within this vast universe are, however, mostly local.

It is often said that a principle of dialectics is the universal interconnections between things. But actually that is a sub-principle which is subordinate to the much more basic principle of contradiction *within* things. It is not interconnection which is “absolute”, but rather internal contradiction. To understand why this is so it is useful to think of how the notion of universal interconnection has at times been carried to ridiculous extremes. In ancient Greece, for example, Parmenides and his followers including [Zeno](#) argued that “All is One”, or in other words that there is just one universal motionless being. The point of Zeno’s clever paradoxes was to try to prove that “really” no such thing as motion is possible, and thus to “prove” Parmenides was correct. Of course that is actually all nonsense. Modern mystics also sometimes have strong emotional intuitions that “everything is really one”. Again, that is getting carried away! There is actually both unity *and* opposition in the world.

Yes, the world is full of interconnections between things, and it is very important to understand that. But, nevertheless, there *are* multitudes of separate things which possess these various interconnections, and it is just as important to understand that. When you push on something, you do *not* push on everything! (Cf. the particularity of contradiction.)

If one principle of dialectics is that it is important to recognize the actual interconnections between things, then another principle is that it is also important to recognize the separateness of individual things. Dialectics is, at the core, the recognition of both separateness and combination, *both* unity and opposition.

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I’m still not sure if I’ve fully answered your question. If not, I’d be happy to discuss it some more!

Best wishes,
Scott Harrison

BCC: Some other friends who might be interested

In a message dated 1/21/2008 [Michael M.] writes:

Scott

Thank you for your response. ... I just came across your website on the net. I take part in a site called www.revleft.com. There is a poster there called Rosa Lichtenstein who writes extensively on dialectics on her own website, <http://homepage.ntlworld.com/rosa.l/index.htm> .

Generally speaking I don’t think her critique of dialectics works well. She tends to make arguments based on suggesting that dialectics needs to have such and such a characteristic and then she argues that it doesn’t have that characteristic. In other words, she sets up a paper tiger and then knocks it down.

There are good things about her criticisms. She pays close attention to a large number of sources and many of her points depend on the fact that ideas about dialectics are often badly expressed.

She takes advantage of that, but in doing so draws attention usefully to how badly dialectics is often expressed. She is also reasonably well educated in philosophy and many of her criticisms of dialectics reflect philosophical positions which are widely accepted and worth dealing with.

However, there was this one argument in the totality essay (her site is divided into essays) to the effect that all reality cannot be inter-connected if the special theory of relativity is correct. (She changes her essays from time to time and that argument seems now to have been deleted — or at least I can't find it there now) It is my memory (with little understanding of physics) that the special theory is the less controversial part of that theory and that makes this an interesting claim.

Of your responses (for which I am most grateful), I think the argument that everything is in some way inter-connected is the weaker, if Rosa's argument is correct. Indeed in the version of her totality essay I summarized this argument from, the purpose was precisely to reject the suggestion that things are connected in some or other way but that this can vary and/or be unknown. It is precisely her response that some things are definitely not connected AT ALL, if we accept special relativity.

Your stars argument is to my mind a more effective response to her suggestion, but I just don't know enough about the special theory of relativity to know if the that kind of argument works to link something inside with something outside the 45 degree angle to which her argument refers.

To my mind, if her argument is true, what it does is to force us to differentiate clearly between the claim that subject matters we understand as 'objects' must be understood within broader totalities and the separate claim that all reality constitutes one totality. (I think you do that in your email message.) The latter is actually the ontological claim, rather than any part of dialectics. What it raises as the issue is what is really common to ALL reality — and contradicts idealism.

In other words the issue around a claim that there is one totality is what is the ontological claim? If, for example, the multiverse theory was true (and I appreciate your reservations), it would imply that what was 'universally common' is not any set of physical laws but the characteristic of being subject to some or other set of physical laws, i.e. to be part of a locality. That would then be the meaning of materialism (or one of the meanings of materialism) in a dialectical materialism that accepted the special theory of relativity.

Anyway, that is how it seems to me.

Michael
