

Novelty, indeterminism, and emergence

An introduction

June 30, 2006 · Classic Paper

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Stace WT, Goldstein J. Novelty, indeterminism, and emergence: An introduction. *Emergence: Complexity and Organization*. 2006 Jun 30 [last modified: 2016 Nov 26]. Edition 1. doi: 10.emerg/10.17357.2da60847e83c3aee452bc0722e302acb.

Background

The Classical Paper of this issue was written in 1939 by the philosopher W. T. Stace who argued against the metaphysical viability of emergence in a manner similar to that found in two previous reprints *in E:CO*, namely, that of Stephen Pepper (1926, 2004) and Charles Baylis (1929, 2006). Stace, born in London and educated in Scotland and Ireland, spent his early years, 1910-1932, in the civil service in Sri Lanka (Ceylon), becoming mayor of its main city, Colombo, at the end of this period. In 1932, Stace's official role of philosopher started when moved to the US in order to become a member of the Department of Philosophy at Princeton University where he stayed until his retirement in 1955. Stace's philosophical writings covered a variety of topics including Hegel, aesthetics, mysticism, and the free will/determinism controversy. He was a well regarded philosopher who authored numerous books and articles. In particular, he championed a view of philosophical 'compatibilism' which attempted to reconcile strict determinism with free will (Stace, 1952). This is relevant to his attitude toward emergence which we'll come back to later.

Incidentally, Stace retired to Laguna Beach, California when it was becoming a center of the counter culture, eventually becoming the home of the Brotherhood of Eternal Love, the Timothy Leary inspired commune and source of the infamous 'Orange Sunshine' brand of LSD (the area used to be an important center for orange groves). I mention this because in his later years Stace wrote about mysticism, including the use of psychedelic drugs to induce mystical experiences. As far as I can tell, Stace didn't fall under the spell of Leary (by the way, another frequent visitor to Laguna Beach in those years was Charles Manson!). But not a few notable British intellectuals spent their waning years waxing high on psychedelics and contemplating the blue Pacific, e.g., Aldous Huxley, Gregory Bateson, and others. Thus, I find it interesting that Stace (1960) concluded,

"[I]t is sometimes asserted that mystical experiences can be induced by drugs, such as mescaline, lysergic acid, etc. On the other hand, those who have achieved mystical states as a result of long and arduous spiritual exercises, fasting and prayer, or great moral efforts, possibly spread over many years, are inclined to deny that a drug can induce a 'genuine' mystical experience, or at least look askance at such practices and such a claim. Our principle says that if the phenomenological descriptions of the two experiences are indistinguishable, so far as can be ascertained, then it cannot be denied that if one is a genuine mystical experience the other is also. This will follow notwithstanding the lowly antecedents of one of them, and in spite of the understandable annoyance of an ascetic, a saint, or a spiritual hero, who is told that his careless and worldly neighbor, who never did anything to deserve it, has attained to mystical consciousness by swallowing a pill" (pp. 29-30).

Arguments against emergence

Even though Stace's arguments were critical of the idea of emergence, we can take some of his points, just as we did in the cases of Pepper (Goldstein, 2004) and Baylis (Goldstein, 2006), as indicators of conceptual hurdles that emergence must pass if it is to amount to a viable possibility for nature. In this regard, Stace's paper is instructive for revealing not untypical dispositions towards emergence and its relation to the determinism issue as well as the subjective nature of the recognition of emergent novelty.

Stace's arguments were directed at those philosophical uses of the idea of emergence found in both Emergent Evolutionism, which flourished until the end of the nineteen thirties, as well as the work of Henri Bergson and William James, which had a large influence on the development of the idea of emergence. In particular, Stace disputed the claim that emergent novelty amounted to anything of ontological significance. In a manner calling to mind Baylis's (2006) contention about the arbitrariness of emergent novelty, Stace tried to demonstrate how the recognition of emergent novelty in each case was an arbitrary assignment dependent on the subjective interests of the recognizers.

Moreover, Stace held that the emphasis on novelty *per se* among emergentists arose out of their revolt against the hegemony of science. In that scientific inquiry aimed at explanations expressed in terms of scientific laws (regularities) that came with a version of strict causal determinism, these emergentist thinkers held that science must disallow the emergence of genuine novelty. Furthermore, because the emergence of novelty had to thereby transgress scientific determinism, the emergence of

novelty was linked by these thinkers to *indeterminism* and to *organicity* as such, the latter also thought to transgress strict determinism. Such an attitude placing emergence in contrast to science also showed up in the purported antagonism between living organisms and machines. It is worthwhile to point out that a similar attitude about life in contrast to determinism outlived proto-emergentism, finding expression, e.g., in such later ideas as Rosen's (2005) "M/R systems" and Marturana and Varela's (1991) notion of autopoiesis.

It should be noted that the purported enmity between life and machines was questioned as far back as early emergentist thinking and these questions have continued on up to our day. Thus, such diverse thinkers as the proto-emergentist philosopher Samuel Alexander (2004), the mathematicians and computer pioneers Alan Turing (Hodges, 1983) and John von Neumann (2002), and the contemporary artificial intelligence researcher Douglas Hofstadter (1996) have all speculated that over a certain threshold of complexity, 'machines' can behave in ways indistinguishable from the behavior of living organisms. Of course, in this regard we can also consider all the different manifestations of artificial life whose very phrase suggests an overcoming of the earlier stark antagonism between the living and the mechanical.

Stace also challenged the claim that emergentist novelty would necessarily be of ameliorative value, so that a world wherein emergence of novelty takes place would be a better world. The article by David Bella in this issue of *E:CO* also belies such an understanding of emergence.

Determinism/indeterminism

As mentioned above, Stace was committed to upholding a strictly deterministic world view, his doctrine of 'compatibilism' seeking to allow for the co-existence of this commitment along with free will. To accomplish this reconciliation between two apparently contrary philosophical positions, Stace had recourse to a distinction between internal and external 'forces' behind an action. If an action's immediate causes were *internal* psychological states of agent, that is, instigated by a person's thoughts, wishes, emotions, or desires, then it was free. But if, instead, the immediate causes of an action were 'states of affairs' that were *external* to an agent, it was not free. We can see that Stace's 'resolution' of this age old dilemma was based on positing a free arena where determinism didn't reign, namely, the inner world of psychological states and the actions prompted by these states. However, when it came to the world outside of our subjectivity, Stace held to a strict determinism, a presupposition that showed up in his criticism of how some emergentists took up an indeterminist perspective in order to account for emergent novelty in the *external* world.

Stace understood determinism in the customary terms of a predictable causal chain connecting two events, A and B, so that whenever A took place, then B happened and nothing else. In contrast, indeterminism allowed for A to be followed sometimes by B, sometimes by C, sometimes by D, and so on. In such an indeterministic scheme, no conditions existed which could absolutely predict which would follow A, whether B, C, D, or anything at all. In a nod to quantum mechanics, Stace admitted that indeterminism was supposed to rule subatomic realms where it was unpredictable whether an electron would jump to the right or the left (a rather lame example of quantum indeterminacy). But even here, Stace held that an electron's indeterministic unpredictability as to whether it would go left or right, was not really the kind of novel event that emergentists wanted since electrons jumping in that way have been going on for a long time. For Stace, what emergentists really got with indeterminism was the unexpected and not the novel.

Furthermore, Stace pointed out that novelty could indeed take place according to a strictly deterministic viewpoint. For example, an element, A*, from a star, A, not found in our solar system, might in some future scenario combine with a different element, B*, from our sun, B, resulting in a novel combination even though deterministic laws presumably govern the natural processes that led to element A*, element B*, and their combination <A*&B*>.

Repression of the random

Using Stace's own schemata of events A, B, C, ..., it needs to be pointed out that quantum indeterminacy does not imply that whatever follows A is altogether unpredictable. Instead, it posits a rather constrained unpredictability having to do with the Uncertainty Principle, which has it that there is an incompleteness involved in the description of a quantum level physical system. This indeterminacy is different from ubiquitous errors in measurements accompanying any experiment; errors which can be corrected for by means of statistics, or improvements in measuring devices. Instead, quantum indeterminacy has it that instead of being understood as a determinate state, a physical system could only be fundamentally characterized by a probability distribution. It was Einstein's uneasiness with this view which prompted his famous remark, "God does not play dice with the universe." But the only way 'dice' would play a role in Stace's characterization would be the direction of the jumping electron, to the left or to the right.

What, therefore, seems to be a bigger issue for Stace was the very rationality of the notion of indeterminism as such. Indeed, this was the position adopted by the Classic Paper of Pepper (2004) who held that a rational explanation had to eschew any sense of indeterminacy. As I've discussed elsewhere (Goldstein, 1997), there is a decided strain in Western thought characterized by not only a dislike and distrust of randomness in rational thought, but even a revulsion towards it, what I've

called a “repression of the random.” It was in the context of this attitude that Hegel once declared, “Philosophical reflection has no other object than to get rid of what is accidental” (Hegel quoted in Marquard, 1991: 109).

Of course, much has changed in science over the last one hundred years to revolutionize our ideas of causality, particular with regard to the role of indeterminism in quantum mechanics as well as an analogous role of randomness in the study of complex systems. In the study of complex systems, indeterminism enters the picture in at least two places: one is the inclusion of randomization in explanations such as how in simple, self-organizing physical systems, certain features of the ensuing emergent order arises from an amplification of fluctuations; the other is the inclusion of randomization operations which generate complex phenomena. Thus, in the latter, various randomization procedures are explicitly introduced during the generation process in order to bring about novelty, along with other novelty generators such as recombination strategies. Moreover, such phenomena as property of the sensitive dependence on initial conditions of chaotic systems, has taught us that intractable nonlinearities can look surprisingly like indeterminism even when they’re not. For these reasons and more, complexity sciences are bringing about a radical reframing of the relation between determinism and indeterminism in our explanations of complex systems.

If emergence only amounted to what Stace (and Baylis and Pepper before him) thought it did, it would not have generated the interest it did then and continues to generate now. I think it is fair to say that, in an important sense, Stace was addressing an idea of emergence whose time had not yet come. At that time it couldn’t yet rise up above its armchair status. But today we have experimental methods, methodological procedures, mathematical models, and scientific constructs that much more aptly call for philosophical reflection.

Notes

Originally published as Stace, W. T. (1939). “Novelty, Indeterminism, and Emergence,” *The Philosophical Review*, ISSN 0031-8108, 48(3): 296-310. The *E:CO* editorial team would like to thank Duke University Press, especially Thomas Robinson, for their kind permission to reprint this article. The original article can be downloaded from [here](#).

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