THE TROUBLE WITH EMERGENCE

WIBKE SCHNIEDERMANN

Wibke.Schniedermann@gcsc.uni-giessen.de

Wibke Schniedermann is Teaching Centre Coordinator at the *International Graduate Centre for the Study of Culture*, Giessen. She received her PhD from Goethe University Frankfurt in 2015 and has been working in a research project on poverty in contemporary American culture at Freiburg University between 2012 and 2015. She has organized conferences on narratives of inequality in 2013 and social class in film and television in 2014. Her collection on class divisions in serial television (co-edited with Sieglinde Lemke) is forthcoming in 2016. She has published on the American Western, Henry James, and relational sociology in literary criticism."

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I have grown suspicious of the word *emergence* and the concepts it designates. More often than not, the term seems to serve as a *deus ex machina* whenever other models or theories cannot account for a certain new aspect or object. Emergence is then used as though it were based on a concept or a theory, when all the term does is label something as complex, unpredictable, and only comprehensible after the fact. It is my contention that, particularly in the study of culture, we need to carefully scrutinize the ways in which we use emergence and recheck them for their actual analytical and/or heuristic benefit.

In this essay, I would like to discuss the foregone conclusions upon which, I believe, some applications of concepts of emergence in the humanities rest, and propose the materialist, anti-essentialist principles of relational thinking as a much more fruitful alternative. For this purpose, I briefly summarize, firstly, some examples of how the natural sciences operate with emergence models and, secondly, outline the ways in which these models have been adapted to the study of culture while pointing out where their applications are open for and at times even invite criticism. The interesting fact that sociological and "new materialist" notions of emergence in particular face criticism very similar to that brought against what I formulate as their materialist counterparts leads me in the final part of these contemplations to introduce the advantages I see in relational approaches.

While the term emergence etymologically refers to the coming out of the water (or some other liquid) of something that was hidden underneath the surface and merely invisible until it emerged, emergence is often used in the study of culture in a way that denies this present-yet-unseen aspect, instead falling back on notions of sudden rupture, unexpectedness, and incomprehensibility. When an unforeseen — and to all appearances unforeseeable — novelty leaps into existence, one that even the wisest, the best informed, the most intelligent minds (i. e. the self-proclaimed members of this illustrious group) could not have predicted despite their thorough knowledge and deep understanding of life, the universe, and everything — when this happens, scientists as well as scholars in the humanities like to call it emergence.

To put it in slightly more academic terms, the smallest common denominator for what scientists refer to when they speak of emergence may be summarized as follows: Complex systems produce unexpected new qualities, events, phenomena, or objects. Complex systems are, generally speaking, nonlinear, and the component movements that occur within them are interrelated to such a degree that it is impossible or useless to try to describe either the movements or their individual elements independently. Weather, the human mind, a colony of ants, or a school of fish are often considered examples for complex systems. Even with the best knowledge of every single fish and its previous experiences, its physical condition, and its usual behavior, it is impossible to predict in what direction the entire group will swim at any given moment or what formation will shape its contours. Some shapes are more likely than others and some so unlikely they are virtually impossible. A school of fish will in all probability never look like a perfect cube, but it may resemble one from time to time. The cube-shape, then, would be an emergent feature.

A similar case can be made for weather phenomena. Meteorologists know enough about the component movements within the system to calculate a rather low probability for a blizzard in July in, say, Cairo. As we all know, however, even established experts agree that it is practically impossible to accurately predict the weather in any given place. Too many factors are at play, and even if we knew all of them and all their interrelations, the human mind would not be able to grasp them all at once. The fact that scientists can let people walk on the moon but cannot tell anybody reliably when to bring an umbrella has to do with the complexity of these two operations. Weather, in short, is not rocket science — it is, in some regards, much more complicated than that.

As the examples above show, most applications of emergence come from the natural sciences and have been adopted — more or less successfully, as I will discuss below — into the study of culture. Indeed, it makes sense that physicists and mathematicians need concepts that help them grasp unpredictability and include it in their research. In stark contrast to social, political, and cultural studies, their entire fields are built upon precise calculations and predictions in order to comprehend and analyze their objects of study. When phenomena suddenly occur that are, to all appearances, neither logical outcomes of their systems nor predictable based on exact knowledge of those systems' separate elements, it can shake those fields to their very foundations.

This fundamental contradiction between the field's basic principles and the apparent random results of interactions within the observed system requires a scientific model that incorporates the unforeseeable aspects of emergent features and events. To establish such a model is necessary in order to reconcile these seemingly non-sequitur outcomes of interactions between elements with the scientific imperative to reveal the logic that governs the system as a whole.

My question then is: What are the implications for us in the study of culture when thunderstorms, the behavior of a flock of birds, or the production of consciousness by brain cells are categorized as "emergent"? Does it really help us *understand* anything about these phenomena and behaviors? In other words, what epistemic value do models of emergence have for the study of culture? Linguists, for instance, were quick to incorporate the idea of emergence into their analyses of metaphors and what makes them work as semantic units that generate meaning.[1] As a stylistic device, metaphors create a form of meaning that resists complete explanation and cannot be predicted from knowledge of the parts that compose it. Helge Skirl uses the example of calling a hockey player a "bulldozer."[2] This might create an innovative meaning by assigning to that player qualities such as "bold" or "strong-willed." Both are human characteristics and therefore neither part of the meaning of the word *bulldozer* nor an ontologically possible part of the concept *bulldozer*. As neither "bold" nor "strong-willed" can be selected or deduced from the features of the original concept, they are emergent features of the metaphor.

Helpful as that may be for a concise description of how metaphors work, or for phrasing statements about weather forecasts and swarming behavior, it does not seem to me to really *explain* anything. This may partly be due to the inflationary use of the words "emergent" and "emerging," especially in English. Emergence is not only ubiquitous, it has become a platitude. Especially in complexity studies, the field that overuses the term emergence more than any other, deliberations about emergent phenomena are usually prefaced by generalizing statements about the human condition at the beginning of the 21st century. Authors outdo one another with assertions about how complex our lives have become, how we have been de-humanized because our minds can only boggle at the world around us, how nothing is simple anymore since everything

connects to everything else, and how nothing is stable, let alone predictable. Emergence, in these cases, merely describes a tendency in how humans relate to the realities they are faced with.

John H. Holland, in his 1998 book *Emergence: From Chaos to Order*, admits on the third page that the concept defies definition and that he has "no such definition to offer" for the term that makes up the main title of his book.[3] An appropriate reaction to such a statement would be incredulity: Really? You're going to write a whole book about emergence, title it *Emergence*, and then you're going to tell us you don't even know what you're writing about? Huh. What emergence comes down to, in Holland's words, is "much coming from little," like a tree growing from an acorn or, to add my own example based on his description, a giant mess emanating from a toddler left alone in the kitchen for a split second. Yet, labeling the tree or the sticky, cereal-adorned surfaces as "emergent" adds nothing to our ability to comprehend what exactly happened.

Various disciplines offer, as mentioned, quite detailed definitions of what emergence is. What we do not seem to have is a common theory or concept, and due to the established use of the term in everyday language, everything that comes into being may be called "emergent" or "emerging." As a rule of thumb, it seems that the likelihood of a writer or speaker referring to an academic model or theory of emergence increases when he or she uses "emergent" instead of "emerging." Or, as Anita Traninger writes with regard to the German term *Emergenz*, in contrast to more common synonyms like *Entstehung* or *Entwicklung*, using the former implies an academic or theoretical background, thanks to all the cultural capital the term has accumulated in academic fields.[4] This means, however, that "emergence" can easily be used in an attempt to feign a coherent argument and give one's claims an air of cutting-edge research, when in fact it simply refers to a recent and perhaps unexpected event.[5]

Without a critical foundation, the term refers not so much to an actual model or concept, but merely serves to circumvent ethical questions around supposedly "emergent" phenomena, such as the latest economic crisis, which, as has been pointed out repeatedly in the media, did not seem all that unpredictable to a number of economists. That the financial meltdown was expected by some and had all the appearances of an emergent phenomenon to others — in that it caught them by surprise and could only be explained after the fact — points to a problem with many (ab)uses of the term that

could, however, be turned into a strength: In some cases, instead of offering an explanation, the term might help us detect flaws within a system. If a railroad company, to pick a true-to-life example, proves incapable of predicting the numerous delays of its trains and therefore cannot adjust its timetables, it may be tempted to categorize train delays as "emergent" events of its system and leave it at that. Many of the delays, however, may be blamed first and foremost on the company's deficient knowledge and understanding of the many parts that make up and influence its own system. Or, maybe even more relevant, the delays may be due to the company's questionable personnel policies and the fact that there was simply no signalman to change the switch, or to their outdated trains whose doors malfunction every few hundred kilometers. Emergence (or, rather, the misapplication of the term) in such a case indicates a lack of knowledge and of a system in need of correction. If, however, the delays were labeled "emergent" to begin with, it seems much less likely that there will be any move towards identifying and correcting the systemic problems. In short, it is easy to find examples where an application of the term itself hinders analysis and correction.

The vague concepts of emergence that circulate in various academic fields thus lend themselves to misuse as knockout arguments to end all discussion, or to silence it before it can even begin. As one more rather questionable consequence, this tendency facilitates a discourse that strays into the quasi-spiritual, privileging mystification over materialism. With explicit and implicit references to spirituality, faith, and religion, the emergent object is mystified before any analysis has even begun. For instance, in *The Moment of Complexity: Emerging Network Culture*, Mark C. Taylor implies that "history" may have not only a direction, but "a purpose," and he postulates that humanity, utterly confused and thrown into some kind of vertigo by the increased complexity of (post)modern life and longing for vague conditions like "equilibrium," has the "task" to "live with [complexity] creatively."[6] Taylor's introduction assumes both the "purpose" of history and humanity's "task" as facts, without giving any indication as to who gave history a purpose or set a task for humanity. Maybe both just arose from complexity itself — and are therefore emergent — but, rife with quasi-spiritual, self-help book rhetoric as his phrasing is, Taylor draws heavily on the general air of mystery that surrounds emergence in many authors' writings. "Many people," he claims, "have lost a sense of direction and purpose and long for security and stability,"[7] as though that were a recent phenomenon and not as true for, say, the beginning of the twentieth

century as it is now. He thus implies that an understanding of complexity and emergence would restore an assumedly secure and stable previous situation.

Holland likewise describes emergent phenomena as "mysterious, almost paradoxical," "enigmatic, recondite," and "more wondered at than analysed."[8] The subtitle of his book, *From Chaos to Order,* suggests that he means to offer an explanatory or analytical method to help us bring order to chaos, or maybe to find order in what at first looks like chaos. He soon makes it clear, however, that what he is really interested in is an increased *understanding* of emergence without, as pointed out above, having an actual definition of what emergence is. Given his theoretical confusion, emergence helps neither him nor his readers to understand anything, which is something I would usually expect of an analytical concept. Instead, emergence turns out to be the thing that asks to be analyzed, while the author setting out to do so establishes beforehand the natural, inherent mystery of all emergent phenomena.

I understand the wish to preserve or revive some of the — presumably eternal — mystery of life, especially when one spends one's working hours questioning, analyzing, and dissecting everything. Maybe we secretly long for the day that our trains of thought come to a screeching halt in the face of the ultimately inexplicable. Yet, when that day comes — and even before, when the things we examine and analyze resist complete explanation — we are well advised to review our paradigms, check them for pre-conscious assumptions, and verify or debunk those assumptions before we throw relational thinking overboard and conclude that the whole unpredictably, even miraculously, gave birth to something not inherent in the sum of its parts and their interactions. More often than not, I'd wager, could we find ourselves and our necessarily-slanted perception unnoticedly affecting the ways in which we structure and employ our paradigms.

When complexity itself is characterized as an "emerging" feature, as it is by Taylor in *The Moment of Complexity*[9], the term forfeits its significance altogether. How can complexity be an emerging feature if complexity is at the same time a prerequisite for emergence? Maybe this merely refers to the *increase* in complexity, the fact that already-complex systems grow *more* complex over time. But certainly the increasing complexity of systems is not only predictable, but is moreover to be expected. Isn't that what the second law of thermodynamics — the increase of entropy — is there to explain? All systems strive towards chaos or, in the words of Woody Allen's characters

in *Whatever Works*[10]*,* "It's why you can't get the toothpaste back in the tube." When jokes about entropy casually occur in Allen's films or episodes of *Buffy the Vampire Slayer* ("Band Candy")[11], it seems safe to say that every system's striving towards chaos — hence, towards greater complexity — is pretty much common knowledge and thus very predictable indeed.

Interestingly, some emergence concepts face the same charges as those models that, in my view, are much better equipped to help cultural scholars understand complex systems, namely relational theories. As Anita Traninger reminds us, the sociological concepts of emergence — usually based on Niklas Luhmann's notions of *Emergenz* — are particularly accused of eclipsing the individual and robbing social actors of their agency.[12] The same criticism is frequently leveled against theories in relational sociology, mainly those of Norbert Elias and Pierre Bourdieu. To pose an obvious question at this point: Are not most notions of emergence grounded in a wish to investigate the relation between the whole and its parts, to explore the interdependence of the plural and the singular? And are they not, therefore, relational? Well, to risk sounding slightly imprecise, not really. I propose relational approaches as a counter model precisely because the concepts of emergence I have criticized above feign to apply relational thinking, but tend to stop short at the decisive moment when (socio-cultural) phenomena resist intuitive explanation. And that is probably the marrow of the bone I have to pick with emergence as it is applied in the study of culture.

As Norbert Elias points out in *The Society of Individuals*, the current tendency of referring "to the single human being as if he or she were an entity existing in complete isolation" means also to view society — the complex system — "as a mere accumulation, an additive and unstructured collection of many individual people" and even "as an object existing beyond individuals."[13] This, Elias strongly suggests, is a faulty view that ignores the relationality of social systems. "I" does not exist without "we" any more than "we" could exist without several "I"s; the individual is not something opposed to or separated from society, it is one of its manifestations. So far, so good with regard to the notions of emergence I have outlined above. Emergence theorists emphasize the validity of the conceptual platitude that the whole is more than the sum of its parts. Or, as Hollander puts it, that much comes from little, and that scholars analyzing complex systems should keep in mind how a whole lot of miraculous stuff can come

from this said little bit. However, this view still suggests that the whole — the system — is an ontological entity *beyond* that of its constituent components. It can even go so far as to award agency to the system itself, which either reduces the concept of agency to absurdity or, again, implies an external, non-human entity that has the power to grant that agency (since agency is surely not an "emergent phenomenon" that just pops into being). Consequently, rhetorically implying or explicitly stating a system's agency either taps into the quasi-religious potential of emergence discourses or upholds the very binary opposition that concepts of emergence claim to want to overcome, namely the opposition of the whole and its parts. Yet, the whole — the system that generates things and events not inherent in its components — remains separable and effectively separated from its parts when its capacity to produce emergent phenomena is ascribed to a vaguely mythical quality that is characteristic of the system but not of its components' movements and interactions. Sometimes, as Ernst Cassirer notes with regard to myth and the mythical worldview, "the whole is not so much the sum of its parts as a construct of their mutual relation."[14]

When we analyze phenomena and events within the complex system of human society — and in the study of culture we can, for reasons I hope are obvious, never completely ignore the social dimension of our research and its objects — we would do well to employ a relational perspective that truly considers the interdependencies within that system and helps analyze them as the result of human activity, not as the miraculous result of the system's self-governing, self-regulating capacities. As sociologist Pierre Bourdieu never tires of pointing out, the misconception of social processes (including the cultural-political sphere) as being orchestrated by some higher power is symptomatic of a view that denies the double nature of social structures as "structured structures."[15] Social and cultural realities are made by human interaction and, at the same time, have a structuring effect in that they constantly give shape and direction to the human activity and interaction that perpetually reproduces them. Yet, to ascribe agency to the structures themselves by insisting on their self-regulation and seeming auto-reproduction (as in the great myth of the self-regulating market) ignores how both rely entirely on human activity and interaction. As social actors, we do not need to be aware of the global effects of our (inter)actions in order to fulfill the intention that previous human activity has inscribed into the social structure within which we act.

In Bourdieu's approach, the relation between the plural and the singular comes down to the interdependency between objective and subjective structures, i. e. between collective (social, political, cultural) processes and personal experience. This relation, as "a product of history, produces … more history, in accordance with the schemes generated by history."[16] While what Bourdieu calls the "opacity of historical processes" misleads Taylor, as mentioned above, to assume a "purpose" in history — one that he suggests emergence may help us figure out — a relational perspective does not falter before the "fuzzy logic"[17] of the multi-layered interrelatedness of the whole (in this case, the social) and the history-producing as well as the history-dependent activities of its parts (humans). Instead, the opacity of history itself is revealed to be a result of "the fact that human actions are the non-random and yet never rationally mastered product of countless self-obscure encounters"[18] between individuals whose dispositions are shaped by history and the various socially, and therefore historically, co-determined realities in which they find themselves. Even though each of these encounters has its own historically-determined constraints, the possibilities for variation within those limitations are virtually unlimited.[19] In opening up to comprehension the "specifically historical logic"[20] of social realities and the activities that produce them — a logic "which cannot be deduced, but can be understood or even necessitated" in Bourdieu's words[21] — I see one of the great advantages of truly relational perspectives over applications of notions of emergence that make no effort to reconcile the only superficially-observed randomness of social (and therefore also cultural and political) phenomena with the academic demand for rational mastery.

Models of emergence run the risk of including the same mistake that Marx finds in religious explanations of reality: assuming as a given fact what they set out to explain in the first place. In Marx's example, religion "explains the origin of evil by the Fall of Man;"[22] in other words, it explains the existence of sin with sin itself. In the case of emergence, we explain the unpredictability of a new quality or event with that quality's or event's emergence. We were unable to predict that *x* would come into being and subsequently, we have trouble explaining it. Hence, we come up with a concept to explain its unpredictability and inexplicability. That concept, however, depends *entirely* on said features; it predetermines the unpredictability and the inexplicability of the object before it even looks at it. This is not a scientific method. It much rather resembles religious or mythical thinking. Cassirer characterizes the mythical worldview as one

that creates unquestionable, logically false causal relationships within a "material whole," which is not far removed from a complex system, as it refers to the entirety of "unanalyzed and (for the mythical mind) unanalyzable connections among things."[23] Within the perceived "material whole" — the complex system — causal relations arise immediately and spontaneously, almost as if by themselves. These causal relations are a result (an emergent one, if you will) of mythical thinking, not of the system that is (according to the mythical perception) supposed to have produced them.

In conclusion, I believe emergence to be of some use as a heuristic category or, maybe, as a perspective with which to approach the relation between the particular and the general. I am not convinced by the postulated explanatory value of emergence, and would hesitate to call it a "concept" or a "theory" at all. It rather functions as a category, an umbrella term under which we can gather objects that we would otherwise not have seen as related or as sharing a characteristic, since their relation only stems from the incapability of human perception to comprehend anything above a certain degree of complexity. "Emergent" is not an inherent characteristic of any of these objects, but it is often used as though it were. In fact, it instead describes the limits of our relation to an object of study, not necessarily the object itself.

These limits are in themselves an interesting object of study, and a threshold we will continue to try to cross for good reason and with the best of intentions. But when we try (and often enough fail) to explain these limits away merely by draping our incapability to explain in a fancy word, we might at times have fallen into the trap of wanting to tell the whole story, of aiming for the ultimate origin, and of feeling called upon to explain it all or remain silent. As in so many cases of academic predicament, it pays to listen to the advice of Henry James, who was undoubtedly an expert on the pleasures and frustrations of wanting to tell the entire story. "The whole of anything," he writes, "is never told; you can only take what groups together."[24] Emergence helps us do just that — group together what might not have been connected before. It is one of cultural studies' fashionable scrunchies, if you will allow me one last slightly polemic analogy: Just because emergence adds some pizzazz to a book cover does not mean it has much of a function beyond binding together strands of thought into a neat bundle. Then again, organizing one's thoughts is in itself a complex enough operation that sometimes a little help goes a long way.

_Endnotes

1   Cf. Helge Skirl, *Emergenz als Phänomen der Semantik am Beispiel des Metaphernverstehens* (Tübingen: Narr, 2009).

2   Ibid. (cf. note 1), 9–10.

3   John H. Holland, *Emergence: From Chaos to Order* (Oxford: Oxford University Press, 2000), 3.

4   Anita Traninger, "Emergence as a Model for the Study of Culture," in *Travelling Concepts for the Study of Culture*, eds. Birgit Neumann and Ansgar Nünning (Berlin: de Gruyter, 2012), 67–82, here: 67.

5   In this regard, the use of "emergence" in the study of culture resembles the fashion in which we began to talk about "affect" even when we meant "emotion" during the early 2000s.

6   Mark C. Taylor, *The Moment of Complexity: Emerging Network Culture* (Chicago: Chicago University Press, 2003), 3–4.

7   Ibid. (cf. note 6), 3.

8   Holland, *Emergence* (cf. note 3), 2–3.

9   Taylor, *Moment of Complexity* (cf. note 6), 4; 23; 137.

10   *Whatever Works*. Dir. Woody Allen (Sony Pictures Classics, 2009).

11   "Band Candy," *Buffy the Vampire Slayer*. Dir. Michael Lange (Mutant Enemy and 20th Century Fox, 1998).

12   Turning agents into actors, as Bruno Latour does in his actor network theory, in this regard appears as an act of preemptive obedience in the face of the increasing neoliberalization of all academic fields. Awarding power and responsibility back to the individual on the grounds of the misunderstanding that it had been deprived of both by relational models, Latour not only depoliticizes his sociological approach by removing the structuring effects of habitus, he also de-historicizes the social since an actor's status as actor is temporary and only lasts for the length of a specific activity.

13   Norbert Elias, *The Society of Individuals*, ed. by Michael Schröter (New York: Continuum, 1991), vii.

14   Ernst Cassirer, *The Philosophy of Symbolic Forms: Mythical Thought*. Vol. 2 (New Haven: Yale University Press, 1955), 51.

15   Pierre Bourdieu, *The Logic of Practice* (Stanford: Stanford University Press, 1990), 53.

16   Ibid. (cf. note 15), 54.

17   Pierre Bourdieu, *Outline of a Theory of Practice* (Cambridge: Cambridge University Press, 1977), 221.

18   Pierre Bourdieu, *Pascalian Meditations* (Stanford: Stanford University Press, 2000), 116.

19   Bourdieu helpfully employs the analogy with artistic work to explain this seemingly paradox relation between constrains and possibility: A pianist's potential for innovation and invention seems at once unlimited (in composition and performance) and constrained (by the range of the keyboard as well as her own physical dispositions). While those limits are thus defined as partly beyond the control of the pianist, they are nonetheless comprehensible and explicable as results of human activity (cf. Bourdieu, *Meditations* (cf. note 18), 116).

20   Ibid. (cf. note 18).

21   Ibid. (cf. note 18), 117.

[22] Karl Marx, "Estranged Labour," *Marxist Internet Archive*, accessed March 15, 2016, <https://www.marxists.org/archive/marx/works/1844/manuscripts/labour.htm>.

[23] William Schultz, *Cassirer and Langer on Myth: An Introduction* (New York: Routledge, 2000), 125.

[24] Henry James, *The Complete Notebooks of Henry James*, ed. by Leon Edel and Lyall H. Powers (New York: Oxford University Press, 1987), 15.