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Introduction to Pragmatism and Theories of Emergence

Guido Baggio and Andrea Parravicini

1 Emergence is a pivotal concept for interpreting the reality of natural and social human life in all its processual complexity. The recently renewed debate about this concept and the different forms of emergentism is particularly varied, widely referring to biology, metaphysics, philosophy of mind (Kim 1999, 2005, 2006a,b; Cunningham 2001; Pihlström 2002; El-Hani 2002; El-Hani & Pihlström 2002; Chalmers 2006; Bedau & Humphreys 2008; Corradini & O'Connor 2010; Okasha 2012; Humphreys 2016; Sartenaer 2016; Lota 2017), neuroscience (Tononi & Koch 2015), as well as to social sciences (Hodgson 2000; Sawyer 2001; Lawson 2013). On such a perspective, some authors, like the proponents of the so-called Cambridge Social Ontology (Lawson 2013), support a form of emergentism which opposes to any kind of dualism that presupposes total independence between the domains of matter and mind, the physical and the social, thus avoiding, at the same time, any reductionist causal explanation of the latter through the former.

2 From a general perspective on emergence, some characteristics of the world, whether these are objects, properties or other things, manifest themselves as the result of the interconnection of other existing entities, usually more elementary, to which, however, they cannot be completely reduced (see Humphreys 2005). According to an evolutionary perspective, emergence is the occurrence of a new system that, before its appearance, cannot be predicted or explained through its antecedent conditions. In social sciences, Geoffrey Hodgson pointed out that emergence is a broader notion which "provides a necessary means to focus on higher-level units and relations and to avoid the potentially intractable problem of analytical reduction to lower-level units" (Hodgson 2000: 74-5).

3 Although the concept of emergence is taken as a point of reference in different disciplinary fields, it is nonetheless acknowledged to be very complex when investigated through a rigorous examination (for a recognition see Clayton & Davies 2006). Newsome (2009: 61-2) argued that "emergence" is "a pivotal concept for

interpreting the reality of human life in all its complexity, from scientific endeavor to personal morality to religious understanding. Although emergence is a notoriously difficult phenomenon to study rigorously, few areas of study are likely to prove as intellectually and practically consequential in the long run."

4 The main difficulties actually concern the definition of what precisely is emergence (Kim 2006a), which is the nature of the related causal powers (Anjum & Mumford 2017) and what is its causation role (Bedau 2008; Lota 2017; Baysan 2018).

5 According to Stephan (1999a), the term "emergence" has different roles to play in different disciplines. As he noted, "there are three theories among the different varieties of emergentism deserving particular interest: *synchronic* emergentism, *diachronic* emergentism, and a *weak* version of emergentism" (Stephan 1999a: 49).[1] More recently, Richardson and Stephan (2007) indicated nine principal features of classical emergentism: 1) emergentism is naturalistic; 2) emergent properties are novel, though novelty "need not be a temporal claim" (Richardson & Stephen 2007: 92); 3) emergentism involves systemic properties which are irreducible and novel; 4) the systems are hierarchically organized; 5) emergence involves synchronic determination; 6) emergent properties are irreducible and therefore; 7) not deducible; 8) emergent properties are not predictable from first principles; and 9) emergent properties exhibit downward causation. According to Richardson and Stephan (2007: 94), the 8) and 9) are the most demanding conditions for emergence. In particular, the condition of unpredictability has to face with the question whether the organizational properties are themselves straightforward consequences of constituent properties; whereas the downward causation is the most controversial of the conditions, because if the higher levels of organisation are relevant to the behaviour of constituents, then the causal links provided at the lower levels would be incomplete or would violate what are thought of as "principles of physical closure" (see Campbell 1974; Kim 1992, 1993a, 1993b). It has to be noted that the difficulties with the physical closure mainly relate to a theoretical frame that only supports a physicalist version of naturalism, even though non-reductionist or "minimal" (Kim 2005: 13). However, different forms of scientific naturalism are possible which can help to face with the demanding conditions of emergence.[2] On this point, Sami Pihlström proposed an alternative path to Stephan's perspective according to which all emergentisms are based on a physicalist monism. In Pihlström's view, it is necessary to carry out a conceptual clarification about the notion of emergence, particularly regarding the theme of downward causation, which would bring that notion very close to the theoretical framework of pragmatist naturalism. According to him, the concept of "nature" that belongs to the naturalism of Peirce, James, Dewey, and Mead, offers a richer vocabulary and a wider horizon than those of physicalism, which dominates in contemporary metaphysical theories (Pihlström 2002: 165).

6 Now, although references to classical pragmatists and their more direct predecessors have been and continue to be rare in literature, it is undoubtable that the contributions that those thinkers provided to the first reflections on the notion of emergence are highly significant and deserve to be further investigated.

7 The earliest formulations on the notion of emergence date back at least to John Stuart Mill.[3] In his *System of Logic* Mill distinguished between, on the one hand, heteropathic effect and (chemical) laws and, on the other hand, homeopathic effects and (mechanical) laws, arguing that "[t]o whatever degree we might imagine our

knowledge of the properties of the several ingredients of a living body to be extended and perfected, it is certain that no mere summing up of the separate actions of those elements will ever amount to the action of the living body itself" (Mill 1843, Bk.III, Ch.6, §1). A few years later, Chauncey Wright, the "coryphaeus" of the Metaphysical Club in Cambridge (Mass.) and the philosophical mentor of William James and Charles S. Peirce, coped with the Darwinian difficulties about the continuity and the differences between animal and human forms and he put at the center of his reflections the notion of "novelty," whose meaning was quite the same to that of "emergence." In his long essay "The Evolution of Self-Consciousness" (Wright 1873), the American philosopher draw an evolutionary continuity between animal instincts and human intelligence by showing that the latter *emerged* as a new function of some older traits and powers already present, to a lesser degree, in our proto-human ancestors (see Parravicini 2012).

8 In 1896, the British biologist C. Lloyd Morgan, who would have led early in the Twentieth century the emergentist movement, gave a lecture on "Habit and Instinct" at the University of Chicago (Morgan 1896), the very same year in which the functionalists James R. Angell and Addison W. Moore undertook a psychological experiment on attention and habit under the guidance of John Dewey and George H. Mead (Angell & Moore 1896). Morgan's thesis was that human evolution occurred mainly at a social-economic emergent level, which is not explicable in merely biological terms. He further developed his ideas in the following years and in 1923, three years after the publication of Alexander's *Space, Time, and Deity* (1979 [1920]) he integrated his emergentist view of evolution with Einstein's special and general theories of Relativity. According to Morgan, when basic physical processes achieve a certain level of complexity of an appropriate kind, genuinely novel characteristics emerge that could not be predicted neither from a full and complete knowledge of their lower level parts and relations. This theory was taken up a few years later by Mead (2002 [1932]), who tried to integrate his social psychology with the processual philosophy and the activity which structures the reality that organisms inhabit. In Mead's attempt to link together his social-behavioural psychology with the theory of relativity in order to avoid any psycho-physical dualism or reductionist naturalism, the notion of "emergence" refers to an evolutionary relational process which happens in a "specious" present and that can be explained only *a posteriori*. In the wake of Mead, Dewey developed a distinct variant of emergentism based on the concept of experience as "the result, the sign, and the reward of that interaction of organism and environment" (Dewey 1985 [1934]: 22. See also Alexander 1992). Before them, William James's evolutionary epistemology (James 1981 [1890]; 1977 [1909]). See Richards 1987; McGranahan 2017) can be seen as a way to explain the emergence of novelties in nature. New ideas and behaviours emerge in our social and natural environmental interactions as possible adaptive responses. Furthermore, many interpreters of Charles S. Peirce noted that his metaphysics entails a form of emergentism (Hacking 1983; Prigogine & Stengers 1984; Tiercelin 1998).

9 Summing up, for the classical pragmatists, emergentism can be considered as a compromise between physicalist reductionism and all-out dualisms.[4] All pragmatists assumed a diachronic form of emergentism. Temporality plays a key role in their position and for their dynamic attitude to metaphysics in general, they were not much interested in synchronic dependence relations, which contemporary emergence theoreticians usually talk about.[5]

10 The focus of the *European Journal of Pragmatism and American Philosophy* on "Pragmatism and Theories of Emergence" addresses the lack of attention, in the current literature, on pragmatist authors in relation to the debate on emergence and emergentism. It is in fact undoubtable that the contributions those thinkers provided to the first elaborations of emergentism and to the related notion of emergence are deeply significant and deserve to be further investigated. The issue, therefore, collects contributions that offer some original ideas and interesting insights on Pragmatist tradition, and provides some new historical-theoretical perspectives to the issues of emergentisms from which to look at the current debate on emergence.

11 The issue, whose order of contributions follows, at least in principle, the historical-genealogical development of the pragmatist reflections on emergence, begins with a study on the thought of Chauncey Wright, the coryphaeus of classical pragmatist philosophers at Metaphysical Club in Cambridge (Mass). Andrea Parravicini's "Pragmatism and Emergentism in Chauncey Wright's Evolutionary Philosophy" focuses on Wright's "forward-looking" thought and its close relationship with the rising pragmatist philosophy. In the framework of Wright's original interpretation of Darwin's evolutionary theory, the article explores the key notions of "novelty" and "new uses," through which Wright developed an "emergentist" thought well ahead of its time. Furthermore, Parravicini analyzes Wright's theoretical reflections about the origin of human self-consciousness as a paradigmatic case of authentic evolutionary novelty and, at the end of the paper, he focuses on Wright's sketched pragmatic realism.

12 In "The Throne of Mnemosyne. Pragmatism and Emergence as Aspects of Organic Memory," Kermit Snelson brings Peirce's thought very close to that "organic memory" theories which flourished, but were strongly opposed, at Peirce's times, and are remembered today in connection with discredited theories like Lamarckian inheritance. The author argues, however, that those theories can be viewed as the earliest attempt to build a "still-unrealized, post-nominalist re-foundation of science," if we read them in the context of their own time. It is in the light of these considerations about the affinities between Peirce's philosophy and those "organic memory" theories that Snelson provides brilliant insights into the systematic unity of the various aspects of Peirce's thought, especially regarding the close relationship between pragmatism and what is now called "emergence."

13 Both Jimmy Aames's "Patternhood and Generality: A Peircean Approach to Emergence" and Maria Regina Brioschi, "Does Continuity Allow for Emergence? An Emergentist Reading of Peirce's Evolutionary Thought" provide an emergentist reading of Peirce's thought, although they draw their analyses from two different theoretical perspectives. Aames argues that the radical version of emergentism, which supports the idea of the existence of ontological emergence, and the ontological reductionism, which claims that all instances of emergence are epistemological, are both problematic. Inspired by the philosophical ideas of Charles S. Peirce and Daniel Dennett, the aim of the paper is to outline an alternative form of emergence that Aames calls "real pattern emergence." Peirce's pragmaticism and Scholastic realism help the author, in particular, to identify such a real pattern with what Peirce calls a real general (or real Third). It is autonomous from the elements or processes instantiating it and supports predictions not only about what will happen in a given situation, but also about what would happen in a number of not-yet actualized situations. According to Aames, the autonomy

attributed to the real patterns is the crucial element which distinguishes them both from mere epistemological emergence and from ontological emergence.

14 In the wake of the path opened up by some recent emergentist readings of Peirce's thought, Brioschi aims to clarify the theoretical problem of emergence from a pragmatist perspective and to illustrate Peirce's standpoint through special reference to his evolutionary doctrine. After a brief introduction to the contemporary debates on emergence and a historical overview of Classical Pragmatism and British Emergentists, Brioschi focuses on an emergentist reading of Peirce's theory of evolution and shows how Peirce's strong emphasis on chance and the "growth" of the universe goes together with synechism, through what he calls agapasm.

15 In "Emergent Sign-Action: Classical Ballet as a Self-Organized and Temporally Distributed Semiotic Process," Pedro Atã and João Queiroz explore Peirce's pragmatic conception of sign action in the light of a distributed and emergent view of cognition. The authors consider semiosis as a temporally distributed process in which a regular tendency towards certain future outcomes emerges out of a history of sign actions. Within such a process, emergence is an ubiquitous condition, and the translation of signs into signs has to take into account a complex multi-level interplay of potentialities and tendencies, or upward constitutive determinative relations and downward selective determinative relations. According to this view, emergence is identified as a central defining condition of the meaning processes, as the authors illustrate well through the example of emergence of classical ballet, viewed as sign action and self-regulatory process.

16 Michela Bella's "Novelty and Causality in William James's Pluralistic Universe. From Psychology to Metaphysics" addresses William James's understanding of causal connections aiming to highlight the problematic relationship between *novelty and continuity*, that is to say, the issue of the emergence of genuinely new events in a paradigm of natural continuity. In particular, Bella focuses on the concept of *causality* that James already challenged in *Principles of Psychology* and, then, in a more systematic way, in *Some Problems of Philosophy* (1911) and *A Pluralistic Universe* (1909), attempting to clarify what his naturalism consists of in the light of emergentist conceptions.

17 Stephen Pratten's contribution on "Dewey on Organisation" compares Dewey's remarks on organisation with Tony Lawson's perspective on social ontology, and Mark Bickhard and Richard Campbell's interactivist framework. In particular, the article focuses on the different treatments of the organization, showing how in Dewey's later writings there are many remarks on organisation which anticipated some of the insights that have been systematically set out in the naturalistic perspectives of Lawson, Bickhard and Campbell, in which the thorough theorization of organization is considered to be crucial in accounting for emerging phenomena, resisting ontological and causal reductionism and resolving the ambiguities associated with certain formulations of downward causality.

18 The last three articles are mainly dedicated to G. H. Mead's thought on emergence. In " Evolution and Emergence. Comparing C. Lloyd Morgan's Emergentism and G. H. Mead's Processual Ontology," Guido Baggio detects the most significant turning points on the parallel intellectual paths that led Morgan and Mead to develop independently their theories of emergence. Taking as a starting point the Lowell Lectures Morgan gave in the winter of 1895-1896, as well as Mead's 1890s writings on psychophysics and comparative psychology, Baggio points out a similarity between Mead and Morgan's

ideas on organic and mental evolution at that time. He argues that Morgan's theory of emergence and Mead's processual ontology were conditioned by the reflections that the two thinkers had developed over the years and traces back their roots to the early 1890s. Furthermore, Baggio examines Lloyd Morgan's emergentism and Mead's processual ontology, pointing out more interesting similarities and dissimilarities.

19 Lawrence Cahoone's "Mead and the Emergence of the Joint Intentional Self" explores Mead's both non-reductive naturalistic account of "emergence" and the notion of "joint intentionality," employing mainly the work of William C. Wimsatt, Michael Tomasello and Thomas Suddendorf. In particular, Cahoone compares, on one hand, Mead's idea of "teleological" character of the emergent evolution with Wimsatt's notion of emergent *levels* as hierarchical divisions of stuff organized by part-whole relations. On the other hand, he puts in relation Mead's thesis that human mind is communicative, i.e., that thought is a conversation among cognitive and affective socially acquired and imaginatively recombined perspectives, with Tomasello's notion of "joint intentionality." Cahoone then tries to extend the notion of joint intentionality and to relate it to other features of human evolution, such as mental time travelling, language, and culture.

20 Scott Taylor's "G. H. Mead's Philosophical Hermeneutics of the Present" concludes the issue by putting George H. Mead in dialogue with Hans-Georg Gadamer. The paper aims to demonstrate how Mead's notion of emergence in the present of both past and future neatly aligns with Gadamer's philosophical hermeneutics and that Mead's philosophy of the present also amounts to a theory of interpretation. Taylor traces back the foundation of this claim to the pivotal influence of Wilhelm Dilthey on both Gadamer and the young Mead. The author, while putting Mead's texts into dialogue with some of Gadamer's most fundamental concepts, criticizes Hans Joas's several missed opportunities at providing a philosophical hermeneutic account of Mead's work.

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NOTES

1. According to synchronic emergentism, a property of a system is emergent if it is irreducible to the arrangement and the properties of the system's part, whereas diachronic emergentism argues that emergent properties could not have been predicted in principle before their first instantiation. These strong versions of emergentism are not independent of each other, "since irreducible properties are eo ipso unpredictable in principle before their first appearance" (Stephan 1999a: 49). Stephan also argues that at the basis of these strong versions there is a common 'weak' theory which presents three basic features, namely: the thesis of physical monism, the thesis of systemic (or collective) properties, and the thesis of synchronic determinism. See also Stephan 1999b.
2. On different versions of naturalism see L. Rudder Baker 2017. As Laughlin (2005: 208) argues: "science has now moved from an Age of Reductionism to an Age of Emergence."
3. On the history of British Emergentism see McLaughlin 1992.
4. For a similar version see O'Connor & Wong 2005; McLaughlin 1992.
5. On a recent version of diachronic ontological emergence see Humphreys 2016. On a confrontation between diachronic and synchronic emergence see Humphreys 2008.

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