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Lawrence Cahoon

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Mead and the Emergence of the Joint Intentional Self

Lawrence Cahoon

- 1 What is the core distinctiveness of *Homo sapiens*? Some of the most famous hypotheses include tool use and tool making, language, free will and moral agency, self-consciousness, mind itself, and reason or rational problem-solving. All these answers are partly true. Recent cognitive science and study of primate evolution have generated new proposals on this question. Philosophically, however, the account of human being in terms of cognitive science and primate evolution threaten, to some, a reductive naturalism. The American philosophical tradition, along with process philosophy, characteristically presented versions of non-reductive naturalism. It so happens that one, and only one, of the classical American pragmatists formulated both an account of “emergence,” as a counter to reductionism, and a notion of the human difference on which recent science has been converging. That is the Chicago philosopher of social psychology George Herbert Mead. In what follows we will explore and extend Mead’s contribution to two notions, emergence and what is now called “joint intentionality,” employing the work of William C. Wimsatt, Michael Tomasello and Antonio Damasio. We will see that Mead’s approach currently lies at the core of our evolving notion of what is most distinctively human.

I. Mead and Emergence

- 2 While, as noted, non-reductive naturalism was common among the classic American thinkers, Mead was the only one explicitly to invoke the notion of emergence. Dewey, Mead’s close friend with a similar naturalistic philosophy, might appear to be congenial, but explicitly rejected the concept in his correspondence.¹ While some have found the idea of emergence as far back as Kant’s *Critique of Judgment* (Juarrero & Rubino 2008), it is usually traced to John Stuart Mill’s *System of Logic* (1843) and his distinction of “homeopathic” (physical) from “heteropathic” (chemical) laws, which G. H. Lewes termed these “resultant” and “emergent” respectively (Lewes 1875). The

term was not made famous until the 1920s by the British Emergentists, who published a series of books during that decade – Samuel Alexander (1920), C. D. Broad (1925), and Conwy Lloyd Morgan (1926) – along with their North American fellow travelers Roy Wood Sellars (1922) and William Morton Wheeler (1928).

- 3 While less well-known among philosophers than Alexander and Broad, the ethologist Lloyd Morgan was arguably the key figure (Blitz 1992). He adopted Lewes' term in a published lecture in 1913, *Spencer's Philosophy of Science*, before Samuel Alexander's Gifford lectures of 1916-18; Alexander later cited him as the source for his use of the term (Blitz 1992: 114). Morgan argued that there are three different "modes" of relation among natural phenomena, the physico-chemical (A), the organic (B), and the cognitive (C). In each case the latter is asymmetrically dependent on the former but has "new and distinctive properties which are not merely the algebraic sum of the component things prior to synthesis. We may speak of them as constituents of the products at a higher stage of relatedness [...] the related things are progressively more complex [...] I do not say more real; but I say emphatically as real." (Morgan 1913: 28-9). The emergence of novelty is a kind of local "saltation" or nonlinear change ("jumpyness"). It is not clear from what source Mead acquired the term, but given that he had reviewed an earlier book of Lloyd Morgan's, he was most likely familiar with the latter's formulation (Mead 1894).
- 4 The background for Mead's use of emergence is his discussion of Whitehead and Bergson. Bergson had argued for the reality of process or development, calling it *durée*, implying there are existents in nature that cannot be analyzed as Δt approaches 0 arbitrarily. Whitehead accepted the same point exemplified by a simple transverse wave – the wave cannot "exist" until one cycle is complete. Mead called this "passage." But the larger point was the relativity of physical measurement to "reference frames," for Whitehead the "percipient event" or prehension of a system which dictates, or selects, a "consentient set" of reals in the environment. For Mead the percipient event becomes an organismic act.
- 5 In *Mind, Self, and Society*, emergence appears twice, in Mead's discussing the relation of the *I* and the *me* (sections 25-28), and then prominently in his "Summary and Conclusion" (section 42). Mead understands emergence, like the British Emergentists, as an alternative to mechanism (or reductionism) and vitalism, the later associated with Bergson. Mead explicitly claims that two related but distinct principles constitute the basis of his approach to nature: relativity and emergence. What is emergent is "Anything that as a whole is more than the mere form of its parts has a nature that belongs to it that is not to be found in the elements out of which it is made" (Mead 1934: 329). He uses the famous chemical example of the properties of water being something "over and above" the oxygen and hydrogen atoms which make it up: "Emergence involves a reorganization, but the reorganization brings in something what was not there before. The first time oxygen and hydrogen come together, water appears [...]. emergence is a concept which recent philosophy has made much of..." (*ibid.*: 198). In *Mind, Self, and Society* he develops emergence primarily in relation to the human self: the self is "emergent" (*ibid.*: 214).
- 6 One of Mead's clearest statements is from *Philosophy of the Present*: "The thread of the physical scientist is reduction and that of the biologist is production. The biologist cannot investigate until he has got a life process [...] He must, however, have physical means for this process and must therefore be a physicist as well [...] If he reduces the

reality of the life process to the means [...] he becomes a mechanist. If the life process appears to him a reality that has emerged out of the physical world [...] he is a teleologist. These two attitudes [...] conflict [...] only if on the one hand he [...] refuses to recognize that the process that he is investigating is a reality that has arisen, or if, on the other hand, he states the physical and chemical things that enter into the process solely in terms of the process [...].” (Mead 1932: 63-4). For Mead there is only a “conflict” between accounts of the telic, complex, self-organizing behavior of living organisms and the mechanical processes of physics (and perhaps chemistry), if one side refuses to recognize the reality and necessity of the relations and processes employed by the other. That is, if the reductionist claims the “emergent” properties are not “realities,” or if the “teleologist” claims the physico-chemical phenomena are mere “means” dictated by a higher end.

- 7 Mead makes clear that emergence is intimately connected to his concept of “relativity.” He writes, “When a form develops a capacity [...] to deal with parts of the environment [...] it has to this degree created a new environment for itself. The ox that has a digestive organ capable of treating grass as a food adds a new food, and in adding this it adds a new object [...] The organism in a real sense is determinative of its environment [...]” (Mead 1934: 215). The acorn is food, objectively, but in relation to the deer or turkey, not the wolf. Consciousness itself arises from the interaction of a biological form and an environment. In his 1927 lecture, “The Objective Reality of Perspectives,” the notion of relativity is connected to “perspectivism” (Oliver 1938). Mead admires Whitehead for the notion of nature as “an organization of perspectives” (Mead 1932: 173). Each perspective in act “stratifies” nature, “These stratifications are not only there in nature but there are the only forms of nature that are there [...]. But they are there only in their relationship to percipient events or organisms.” (*Ibid.*: 179). This is part of an even broader point. Mead’s student and editor Morris took Mead, as early as 1932, to be adopting an “*objective relativism* which inherently included the notion of emergence”(Morris 1932: 252-3; my italics). Objective relativism had been named by Arthur Murphy, himself temporarily a colleague of Mead’s at Chicago, for a doctrine found in Dewey and Whitehead (Murphy 1927). Mead himself ascribed objective relativism to Whitehead (Mead 1938: 524). Morris later argued that objective relativism is the proper cosmology for pragmatism (Morris 1970: 135-6).
- 8 Mead sometimes used “sociality” for relativity, even applying it to inorganic systems and their relations (Thomas 2016). “Sociality is the capacity of being several things at once,” he wrote (Mead 1932: 75). Whenever something functions in, and hence has different properties in, more than one system or context, it is social. This even applies to the increase of the mass of a moving object under special relativity (*ibid.*: 77). Morris later wrote, “The new or novel properties which accrue to something when it enters a new perspective (or system) Mead calls ‘emergent’ properties” (Morris 1970: 129).
- 9 Emergence is thus the temporal, developmental cognate of relativity or sociality, for “the emergence of novelty requires that objects be at once both in the old system and that which arises in the new” (Mead 1932: 186). For Mead objective relativity holds in general, but some temporal processes yield three different levels of analysis: reduction to components, which were present in the past; explanation in terms of purposes, hence the future; and between the two, the present in which emergence is taking place. Mead connected reductionism with the past – a summary of past conditions on the present – and vitalism or “teleology” with the future, but “emergence” with the

present, being a combination of the two. The water molecule functions as such among other water molecules, with distinctive properties, while it is simultaneously a collection of hydrogen and oxygen atoms, and functions as such at that level. Hence, “What for Aristotle is formal and final cause is coming back as an emergent” (Mead 1938: 641).

- 10 After the 1920s emergence largely disappeared from philosophical and scientific conversation. Following an interregnum of several decades, it returned, in part due to scientific work on complexity, nonlinear dynamics, and critical point phenomena. The current literature on reduction and emergence can hardly be explored at less than book length (see Bedau & Humphrey 2008). The most interesting and useful analysis of emergence comes from the American philosopher of biology, William Wimsatt, whose work was influenced by hierarchy theorists like Herbert Simon (1962, 1969) and Stanley Salthe (1985), the evolutionary epistemologist Donald Campbell (1974, 1988), and the neuroscientist Roger Sperry (1976). Wimsatt argues that emergence and reduction are not in conflict. A natural system may have some properties which are capable of a full reductive explanation, and others that are not. Reducibility and emergence are matters of degree.
- 11 This is rooted in his analysis of reduction. For Wimsatt, “A reductive explanation of a behavior or property of a system is one that shows it to be mechanistically explicable in terms of the properties of and interactions among the parts of the system” (Wimsatt 2007: 275). The point of reduction is after all to simplify, to derive a system’s properties from less complex systems and their interaction rules. But reduction is a complex strategy. In actual scientific practice, reduction explains: a) only some properties or performances of a whole system; b) on the basis of a perspectival, hence selective, decomposition of the system, i.e. a particular way of cutting it into parts; c) by using an idealized model of the parts and/or their interactions, resting on or employing significant approximations. We may succeed in explaining one property of a system out of a several properties we would like to explain, once we decompose the system in a particular way and presuppose a model of the interactions among parts (e.g. thinking of them as point-masses or spheres or oscillators or pumps). Inevitably, when we move from nonliving systems to organisms, there are multiple possible decompositions of each system; for example, decomposition into organ systems, cell types, electrical pathways, circulatory systems, chemical concentrations, etc. (Wimsatt 1974).
- 12 According to Wimsatt, the endpoint of a complete reduction, which would justify the claim that a system property or performance is “nothing but” its part properties, is achieved to the extent that the system properties or performances are “aggregations” of part properties or performances. He specifies four conditions of aggregativity: *intersubstitutability* or invariance of the system property under rearrangements of the parts, so serial or aperiodic ordering does not play a role; *qualitative similarity* under scaling, where addition or subtraction of parts leaves the property only quantitatively changed, bigger or smaller but with the same properties; *re-aggregativity*, or invariance of the system property under decomposition and re-composition, so it will be the same if we take it apart and rebuild it; and *linearity*, where change in output is proportional to change in input, with no feedback, either cooperative amplification or inhibitory damping (Wimsatt 2000). Only when *all* these hold can we say the system property is “nothing but” the aggregation of decomposed parts and their interaction rules, in

effect, a linear sum or product of part-properties that have minimal interaction and can be treated as isolable.

- 13 But this is rare. Mass is one of the few properties of physical systems which is just the aggregation of the same property of the components (e.g. my mass equals the sum of the mass of all my chemical substances which equals the sum of the mass of all my atoms, etc). Volume is not, for in some chemical reactions volume changes. Wimsatt makes the suggestion that aggregativity tracks the conservation laws of physics, that the properties subject to conservation laws – mass, energy, charge, spin – are those whose values are indeed invariant in all interactions. This shows how fundamental, and yet how narrow, the band of aggregative properties is. That is: *reduction explains something about almost everything, but everything about almost nothing*. When and where reduction works, it is tremendously simplifying, and generates the most context-independent entification. So we understandably keep trying to decompose systems and idealize their components' interactions so as to yield workable reductions, "decomposing, cutting, pasting, and adjusting [...]" (Wimsatt 2007: 286-7). There is nothing wrong with this, as long as we recognize its merely partial success most of the time.
- 14 Emergence can then simply be defined as *non-aggregativity*. It occurs when a reductive explanation, which explains a process, structure, or system at level N as a reconstruction of a causal sequence of entities, processes, and/or forces of level N-1, without employing reference to processes, structures, and entities at the N or N+1 levels, is *inadequate*. Then we require recourse to "systemic" explanations, where the explanans is at the same level as the explanandum (system N) – i.e. explaining the dent in the fender by the impact of the other car – or "functional" explanations of N's properties by reference to encompassing or higher level N+1 systems or processes. The desideratum is to what extent the structure/processes of system N are caused by more or less isolable, environmentally-uninfluenced properties of N's parts and their two-body interactions. If so, we have a more complete reduction. If not, if the contribution of the part-properties and their simple interactions to the whole is itself influenced by the whole, the whole is to that degree non-aggregative.
- 15 Wimsatt does not hesitate to draw ontological conclusions. Nature exhibits *levels*. A level is a "hierarchical division of stuff (paradigmatically but not necessarily material stuff) organized by part-whole relations, in which wholes at one level function as parts at the next (and all higher) levels" (Wimsatt 2007: 201). It is a "local maxima of regularity and predictability in the phase space of different modes or organization of matter" (*ibid.*: 249). The range of entities with which a system interacts is a non-arbitrary and informative fact about that entity. Scale or size is "a robust indicator for many [...] kinds of causal interactions." Entities are generally at levels; levels are "where the entities are."
- 16 Multiple-realizability of higher-level properties, hence the dynamic autonomy of those higher levels, is "a general fact of nature" (*ibid.*: 217). While the macro-properties of a system must be sensitive to certain kinds of micro-changes, "it is crucial that most differences [at the micro-level] do not have significant [macro-level] effects most of the time" (*ibid.*: 218). What happens to a system does not necessarily happen to its parts, nor vice versa. My cells will die shortly after I do, but not my molecules, because molecules are not alive – nothing less than a cell lives. The atoms of the water in the pond do not freeze when the pond water freezes, since freezing is a phase change of the

relations among molecules. This has a simple but powerful consequence: there *cannot* be purely micro-level explanations for most stable macro-level properties. Wimsatt summarizes,

levels of organization are a deep, non-arbitrary, and extremely important feature of the ontological architecture of our natural world, and almost certainly of any world that could produce, and be inhabited or understood by, intelligent beings [...] (Ibid.: 203-4; his emphasis)

- 17 Mead's conception of emergence was far less complex than this analysis. Nevertheless, not only was he unique among the Americans in adopting emergence, his conception was prophetic in some ways. One can see in Mead a recognition that is continuous with Wimsatt's work: "emergent evolution" must *combine* the mechanical or reductive, the "lower" stratum on which the system in question asymmetrically depends, and the functional, for Mead "teleological," stratum. Emergence does not mean an abandonment of the mechanical. A complex system that is "more than the sum of its parts," hence only partly but not fully explained by reduction – i.e. aggregation – is one that functions at multiple levels of scale where there are distinct properties at these levels.

II. Mead and the Joint Intentional Self

- 18 Certainly Mead's most famous innovation was the concept of "significant gesture" from *Mind, Self, and Society*. Gestures are the communicative behaviors that many animals produce to enhance the process of "mutual adjustment." One organism responds to another's gestural act by a movement that changes the situation communicatively: Fido, rather than biting Rover, barks or growls; rather than being attacked, Rover shows a submissive posture. The gesture is the initial phase of an act (i.e. growling before biting) which functions to call out a response on the part of another organism (Mead 1934: 44). But, Mead argued, humans alone engage in *significant* gesture, gestures that function as signs. For Mead a significant gesture *means* or *stands for* the later phase of the act. This grants the gesture objective status for others and the gesturer. Mead insists that only humans can treat natural events as signs. Imagine I walk my dog through the woods, and we come upon a bear's paw print. The dog smells it, feels fear, and buries its nose in the print. In effect he is afraid of the footprint. I, seeing the print, feel fear too. But I respond by ignoring the print and scanning the horizon, because for me the print functions as a sign of something other than itself.
- 19 Mead argues that what allows humans to treat a gesture as sign is that the gesturer responds to its own gesture from the perspective of the recipient. She or he does so "implicitly" – we might say, "out of gear" – rather than explicitly. I can only send you a sign if I implicitly respond to the sign just as I expect you to respond explicitly, which I can only do that if I know what it is to experience the sign from your point of view. In taking the other's perspective the gesturer must regard herself as *an object* from the viewpoint, or attitude, of the other. Mead writes, "Gestures become significant symbols when they implicitly arouse in an individual making them the same response which they explicitly arouse, or are supposed to arouse, in other individuals, the individuals to whom they are addressed; and in all conversations of gestures within the social process [...] the individual's consciousness of the content and flow of meaning involved depends upon his thus taking the attitude of the other toward his own gestures" (*ibid.*:

- 47). Taking the perspective of others then allows humans to play, and engage in games, in which each player must be capable of seeing events from the viewpoint of other players and their roles. You cannot be a shortstop unless you can regard a base hit from the perspectives of nine other players at more or less the same instant. In fact, for Mead thinking itself is as an inner conversation among the perspectives internalized from social interaction. Human mind just is the activities of significant gesture.
- 20 The result is the “self,” which for Mead emerges from a process of interaction between the *me*, the sum of the individual’s social roles, and the *I*, the organism’s unique spontaneous reaction to the *me*. For Mead, “The others and the self arise in the social act together” (Mead 1932: 178). Mead eventually derives the notions of rationality and morality from this intrinsic sociality of the human individual, by which what is “objectively” valid in a rational discussion, and what moral judgments or rules stand as “objectively” valid, are judgments from the perspective of the generalized other.
- 21 The major limitation on Mead’s analysis by the standards of today’s comparative psychology is that he held a restrictive notion of “mind.” Mead was a naturalist and familiar with the ethology of the time; he discussed nonhuman animals, particularly the eusocial insects, to distinguish their physiologically fixed social roles from the human case (Nungesser 2016). However, like many other philosophers of his era he restricted mind to humanity. For Mead the following concepts are linked: significant gesture, signs, mind, intelligence, self, self-consciousness, meanings, language. No creature has one of these without the others. Hence for Mead there is no nonhuman mind.
- 22 But in other respects, Mead’s analysis is very contemporary. An important theme in recent comparative psychology, cognitive science, and primatology is that humans are uniquely social or “prosocial,” far more so than even our great ape relatives. (Franz De Waal 1996; Peter Hobson 2004; Thomas Suddendorf 2013; Michael Tomasello 2014, 2016; Raimo Tuomela 2010; Edward O. Wilson 2013). The eusocial insects are highly social, in a sense more so than ourselves, but they are almost clones, born of a common queen. Human beings are the only animal on Earth that exists in complex societies but are not kin.
- 23 “Mind-reading” is the name given to the ability of one animal to recognize the mental intentions of another (Suddendorf 2013). The comparative psychologist Michael Tomasello has argued that the human capacity for mind-reading is far greater than that of other primates. So great, in fact, that he roots it in the phenomenon of *joint intentionality*, when multiple agents actually share a mental state (Tomasello 2014). Say a human caregiver introduces an initially distressing object –a wind-up monkey toy – to a year-old infant. Initially the child looks at the toy in fear, then looks at the caretaker. She smiles, amusedly handling the toy, exhibiting her attitude of enjoyment rather than fear. The child then smiles and handles the toy itself. Tomasello suggests it is not merely that the child is imitating the behavior of the mother; the object has become acceptable by virtue of the child’s taking up the caregiver’s attitude toward the object, which of course requires first that the child “read” the attitude of the caretaker. Peter Hobson calls this early identification and transference of attitudes the “Copernican Revolution” of human mind (Hobson 2004: 73).
- 24 The human child is hard-wired to be motivated to engage in such mind-reading and in joint collaborative activities. While nonhuman primates are capable of a limited form of attributing perception or knowledge and goals to another, the full mind-reading of

shared intentionality is uniquely human. Incorporating and retaining the perspectives of others complexifies the self and the perspectives it can take. Adopting others' attitudes sets up different optional perspectives for the individual mind. As Mary Warnock suggested that "the possibility of taking up different perspectives is essential [...] to having a thought about something" (Warnock 1978: 171). Thought is a conversation among socially acquired and imaginatively recombined perspectives. This was exactly Mead's claim. There seems to be a kind of social relating, with both cognitive and affective features, that forms a key difference between ourselves and our closest living relatives. It appears the human mind does not merely involve or require communication in the coordination of activity, but is *itself communicative*. My mind represents what others say and think, I incorporate and think from their perspectives, take on their roles, converse with them internally, exchange signs with them that arouse the same response in myself, a self which emerges from out of my relations to them. The others are *in my head*, like it or not.

- 25 This convergence of Mead and Tomasello has already been noted by Frithjoff Nungesser (Nungesser 2016). In what follows we will try to extend the notion of joint intentionality and relate it to other features of human evolution. Tomasello hypothesized two epochal achievements after the early evolution of the genus *Homo* that eventually led to us (Tomasello 2014, 2016). First there is joint intentionality, which generates a "second-person intentionality" between infant and caregiver and between partners in "obligate collaborative foraging." He naturally presumes language arises on the basis of joint intentionality. Then later "collective intentionality," the ability to take the perspective of the tribe as a whole, arises with its "objective" depiction of reality and social goals through cultural practices and artifacts. We will suggest some amendments to his analysis.

II.1. Joint Intentionality

- 26 Imagine a baseball diamond with X at home plate, I at first base, W (for We) at second base, and Y (for You) at third base. X is some object, for I, Y (you), and perhaps W(e) (Figure One). But we may add a step. Halfway from X to I, there is A; halfway from X to Y is B. A and B are two statuses or functions of X, from the viewpoint of I and Y, respectively. X serves as A for I and B for You, while remaining X. For the ability to recognize an object from another's perspective is tantamount to recognizing that a single object can have two or more functions or statuses, while remaining the same object – in Mead's terms, the ability "to be several things at once." The toy was fearful and is now enjoyable; the stick serves as a bird in the hand of one child at play, a spear in the hand of another. The same stone can serve as a hammer for you or a cutting tool for me. In joint intentionality we acquire the ability to cognize the fact that a thing can have multiple functions in different relations while remaining itself. X can function as A and/or B, serially or simultaneously, in different relations, and still be X.

Figure 1

- 27 This is equivalent to saying that *X stands for or means A to I and B to you*. That is the sign relation. A sign is a human production which objectively (publicly) stands for something to some set of organisms capable of taking the perspective of a conspecific. If I and you can recognize that X can function differently for different conspecifics, can change what it stands for or functions to do – when I adopt your perspective or you mine – then I and you have acquired the concept of *meaning*. X can have two different meanings, or functions, while remaining X. For Mead, I's ability to alternate between its own relation to X and You's relation to X is what allows X to be a significant gesture or sign, with potential meanings A and B.
- 28 Tomasello points out that the sophisticated problem-solving of many nonhuman animals, particularly primates, shows they do understand cause-effect relations. But what they do not understand is *causal intermediaries*, causal processes with multiple steps, some of which can be replaced by others (Tomasello 2014). The great apes, who are capable of remarkable feats of problem solving, do not understand that the relation of antecedent and consequent, or stimulus and response, may entail an intermediate causative force or agent intention, hence the same result might be preceded by a variety of antecedents.
- 29 Imagine for the moment that in Figure One, on the path from X to I, that I is not a person, but an *event*, in this case, a goal we want to achieve, and likewise Y. Think of X as fulfilling or functioning in role A, hence leading to I, and as B leading to Y. Recognizing that A, a function of X, is distinct from X makes it possible to substitute other acts or steps or things for X. The hole needs to be dug. Yesterday we used a flat rock, but if the rock is not here today, we might use a spear. Production processes, like making a hand axe, require a necessary ordering of steps resulting in an end. Different but functionally equivalent causal intermediaries can be substituted for X on the way to I *if they do A*. Also, while X can get to I by way of A, a functional equivalent of A (D, E, etc.) will do as well. The same is true of social members who switch roles in collaborative endeavors – the last time you drove the prey, I speared it; this time I will drive the prey, you kill it. *Causal, temporal processes can now be understood as structure of relations which have a logic into which the entities fit*. This also can be applied to the

construction of a whole from parts. The patch of fox fur can contribute to a dwelling or to a piece of clothing or perhaps a bag for carrying.

- 30 Suddendorf points out the importance of cognitive “nesting” as a uniquely human ability (Suddendorf 2013). I can believe “A lied to B.” But also, I can recognize “C believes A lied to B,” or even, “D knows that C believes A lied to B.” That is nesting or embedding. But this can be applied to all manner of scenarios. Imagine a scenario for future action in which X, now a deer, plays a role as the object of a possible action, “Today I will hunt X.” Then imagine a modification of the situation: “You could help (I hunt X).” Then new information comes along, “D says a hog would be better than [You helping (I hunt X)].” Hence on the basis of the newest (leftmost) “nesting,” I decide to switch the ultimate goal: replace X with H, a wild hog.
- 31 Causal intermediaries, whole-part substitution, and cognitive nesting are an implicit use of *logic*. I do not mean the literate study of logic in Greek, Indian, and Chinese civilization in the first millennium BCE, but the recognition of relations, processes, and possibilities which cohere and those which contradict. Collaboration in hunting or gathering, and in the manufacture of tools, or making, would have to exhibit such logic. That X must precede Y, and Y precede Z, hence X does in fact precede Z; that X must be the first step in a process, followed by Y, and then Z, so X is the basis of Z; that one layer of clothing or fur or one type of cut into a stone for the process of making a hand axe, is the basis for step Y, and then Z; that a whole event or entity can have substitute parts while remaining the same kind of thing, or retaining the same social function. That is to say: the switching of perspectives, which Mead diagnosed and current joint intentionality presupposes, allows the distinction between what X is for you and what it is for me, which X remains identifiable and re-identifiable as X. That is in effect to distinguish X from X’s various possible meanings or functions. This allows the handling of possibilities, which are essential to human mind. For Mead “The [human] mind holds on to [...] different possibilities of response [...] and it is [this] ability to hold them there that constitutes his mind” (Mead 1934: 135).
- 32 This is connected to another important human difference, *time travelling*, or mentally moving out of the present (Suddendorf 2013). There are many creatures who time travel to some extent. Nonhumans clearly have memory, and learn. The most obvious form of memory is procedural, which is the remembering how to do something. There is also what called “semantic” memory, which means remembering a fact or state of affairs. That an animal can find an acorn, or some other treat, that it once hid or saw hidden, and find it again, is semantic memory. All this can be produced by association. Another animal or place that produced danger or fear at an earlier time, and now produces fear again, is an association of fear with the animal or place. But to be able to recall a series of events constituting an episode, a narrative, is a different matter. Humans have far more episodic memory than our closest nonhuman relatives.
- 33 Time travel is clearly related to some of the abilities described above. It would be difficult to imagine episodic memory without a complex analysis of causal relations. Collaborating humans must be able to plan, hence project possible cooperative acts, but they cannot improve on their performance unless they can discuss long sequences of past actions, particularly after a collaborative project has failed. The human ability both to remember a detailed set of episodes from the past, and to anticipate possibilities in the future, hence to plan, seems unique. And both seem crucial to the possession of a *self*.

- 34 There is much disagreement about whether nonhumans – particularly the most cognitively gifted nonhumans, like great apes, cetaceans, elephants, canines, and corvids – have “selves.” Animals are clearly biological agents. By any reasonable definition of mind and consciousness, many have both, as well as characteristic behaviors and dispositions which one could term “personality.” But self is another matter.”² It is quite true that some nonhumans have passed the famous “mark” or mirror self-recognition test. In these tests, experimenters place a mark, sometimes of a tasty material, on the forehead of an animal, then allow it to see its image in a mirror, to see if it will touch its *own* forehead and maybe eat the treat. Elephants, dolphins, and magpies have occasionally passed the test, but only the great apes consistently pass. However even then more than half of them fail (Suddendorf 2013 : 54). I suggest that even success on the mark test does not by itself indicate possession of a self. Certainly it indicates a recognition of one’s own body, an important cognitive achievement, but one more akin to causal reasoning, as in recognizing that the movements of the mirror image are causally related to one’s own proprioceptions.
- 35 Here we can turn to the distinction made by neuroscientist Antonio Damasio between “extended” or “autobiographical self-consciousness” and “core consciousness” (Damasio 2000). Core consciousness is the basic form of real-time, waking present awareness common to humans and many other animals. It functions to track somatic state in relation to environmental changes, enabling learning and complex behavior control. But extended or autobiographical consciousness, found in healthy humans, reads the results of core consciousness *as owned by an historical agent or self*, a narration of personal identity. This requires episodic memory – the memory of sequences of past events, stories, if you will – and imagination of future possibilities. It is this which humans usually call consciousness, in Damasio’s terms, the “self-in-the-act-of-knowing.” It can be turned off by illness, for example in some kinds of epileptic seizures, while core consciousness is retained. Mead would add that this comes from some sophisticated application of what is gained from joint intentionality, combined with episodic memory, for it is bound up with *viewing the self as an other while remaining the self*. The self of human self-consciousness is socially acquired. My point is that Damasio’s notion can be combined with Mead’s. Self-consciousness requires both the ability to take the perspective of the other (and the we) on the self, and the time travelling ability to narrate a personal history. Damasio’s analysis presses Mead’s case further.
- 36 Now we can pass to two other great achievements that are unique to humans, but very likely rooted in joint intentionality.

II.2. Language

- 37 The most important kinds of signs in human evolution must be *language*, both manual and verbal. Human language is unique. No other living species has anything comparable. It is true that in recent decades humans have taught a remarkable amount of American sign language or an equivalent to certain great apes (Suddendorf 2013: 85). This has to mean that Mead was wrong to imagine that no nonhumans can acquire significant gesture of any kind. However, we must note that none of this happens in the wild, only through intensive human training. That is, such linguistic events only happen in human society.

- 38 The question of whether language is uniquely human is actually the question of which features of language are uniquely human. The current answer must still be “quite a few.” But what matters for us in the present context is, what mental abilities does the uniquely human version of language use signify? Philosophically speaking, human language provides a means by which *meanings can be treated and manipulated as objects*. Meanings may be recognized in joint intentionality, but language provides a device for handling them. Meaning manipulation allows us to do something remarkable, to objectify and communicate about what is non-actual, that is, are in the past or the future. Language allows us to communicate about the actual states and things *through*, or in the context of, the non-actual or non-present possibilities. To say “a baseball” is to refer to any one of a huge number of objects that have existed in present, past and future. All human words other than proper nouns and all linguistic statements have meaning which involves universals, generalities, hence cognized possibilities. Meanings can be of what is not actual, of what is past or what is possible in the future. Language allows us, as Mead pointed out, to “hold” such meanings in the mind, as well as exchange them. Cognitive nesting, for example, would seem impossible without the unique *recursivity* of human language, the ability to generate an indefinitely large number of utterances by adding and recombining phrases. Reasoning about these nested possibilities of collaboration requires sophisticated verbal language, a set of signs that can be used to hold and “handle” these contextualized possibilities. Mead explains that language provides a “fifth dimension” for action, a “field of indication and reference” (Mead 1938: 135-6). Meanings emerge in human linguistic interaction.
- 39 There also seems to be an affective side to language competence. To see it, we can turn from the distant to the recent past for a remarkable example: the famous passage from Helen Keller’s autobiography when the blind, deaf and speechless nearly-seven-year old suddenly acquires language. The passage is long, but incomparable.

The morning after my teacher came she led me into her room and gave me a doll. [...]. Miss Sullivan slowly spelled into my hand the word “d-o-l-l.” I was at once interested in this finger play and tried to imitate it [...] I did not know that I was spelling a word [...] I was simply making my fingers go in monkey-like imitation [...]. One day, while I was playing with my new doll, Miss Sullivan put my big rag doll into my lap also, spelled “d-o-l-l” and tried to make me understand that “d-o-l-l” applied to both. Earlier in the day we had had a tussle over the words “m-u-g” and “w-a-t-e-r.” Miss Sullivan had tried to impress it upon me that “m-u-g” is mug and that “w-a-t-e-r” is water [...]. I became impatient at her repeated attempts and, seizing the new doll, I dashed it upon the floor [...] Neither sorrow nor regret followed my passionate outburst [...] In the still, dark world in which I lived there was no strong sentiment or tenderness [...] We walked down the path to the well-house [...] Some one was drawing water and my teacher placed my hand under the spout. As the cool stream gushed over one hand she spelled into the other the word water, first slowly, then rapidly. I stood still, my whole attention fixed upon the motions of her fingers. Suddenly I felt a misty consciousness as of something forgotten [...] and somehow the mystery of language was revealed to me. I knew then that “w-a-t-e-r” meant the wonderful cool something that was flowing over my hand. That living word awakened my soul, gave it light, hope, joy, set it free! [...] Everything had a name, and each name gave birth to a new thought. As we returned to the house every object which I touched seemed to quiver with life. That was because I saw everything with the strange, new sight that had come to me. On entering the door I remembered the doll I had broken. I felt my way to the hearth and picked up the pieces. I tried vainly to put them together. Then my eyes filled

with tears; for I realized what I had done, and for the first time I felt repentance and sorrow. (Keller 1996, chapter four)

- 40 Her phrases are telling. *Everything had a name*, which means has a name for us, for you as well as me. It means you and I can think the same thing and recognize that fact. That is joint intentionality enhanced by the mechanism of language. *And each name gave birth to a new thought*, which means the something outside me, by having a sign to refer to it and distinguish it, is also at the same time a thought in my mind, something I internally “handle.” The object is mine in a new way. *Every object which I touched seemed to quiver with life*. Whatever that packed phrase can tell us, it must at least mean that the perceptual experience of the thing was now supplemented with a new emotional significance, perhaps because potentially shared by self and other. The word drapes the object with the emotional charge of joint intentionality. *For the first time I felt repentance and sorrow*. Only now is the doll a gift from another that mattered to you and I. But this brings sorrow too: eating of the fruit of the tree of language gives us meanings, but not only happy meanings. Feelings, good and bad, are now more intense. The acquisition of the linguistic ability to manipulate possibilities that are shared with another, to know one and the other are thinking the same thing, has altered everything. Whatever happens to the self is now a proto-social experience; language embeds a social tool in an already, or developing, joint intentional human self-consciousness. But there is final step in human evolution to which Mead can contribute.

II.3. Culture

- 41 It currently appears that *culture*, behavioral modernity, arrived for *Homo sapiens*, 80-50.000 years ago, during what some call the “Great Leap Forward” (Diamond 1999).³ This includes some kinds of art, decoration, burial rituals, and more complex tools. It was only after this that *Homo sapiens* outcompeted and outlasted all other hominins, perhaps involving a greater ability to adapt to novel climate change in virtually any environment. At any rate, the combination of both complex verbal language, enabling the handling of meanings, and their exemplification in cultural products, based on and refinements of joint intentionality, was fully in place at that time.
- 42 Some claim culture is not uniquely human. This is because some scientists define culture as learning passed across generations by a local population of a species, which is rare enough. Populations of an animal species are not especially different in their behavior; individual learning is not passed on genetically. There a few nonhuman populations that seem to have done this. One of the most famous cases is a troop of macaques, a kind of snow monkey, in Koshima, Japan who alone among their species wash their sweet potatoes in saltwater before eating them, and teach their offspring this behavior. Some scientists call this “culture.”
- 43 But we must distinguish culture from society. A society is a group of conspecifics who live together and are interdependent so that belonging to the society makes a difference to individual behavior. That is to say, the emergent social processes downwardly influence the traits of the individuals involved. In intelligent species society may entail rules of behavioral propriety and intelligibility. But culture is not society, it is something society *produces* and *possesses*. If society and culture were identical, no society could exhibit cultural change – it would no longer be the same society – and we would have to deny the existence of “multicultural” societies, societies

with more than one culture. When the macaques acquire potato washing their society has indeed changed, and they have passed on social learning across generations.

- 44 Culture, I suggest, is different. It is *making things that mean*, or more elaborately: a) constructing practices, artifacts, and narratives; b) that are valued intrinsically, as ends in themselves; c) which realize shared meanings; d) in terms of which individual life, society, and the world are valued and understood (Cahoone 2005). Culture emerges only in human societies. The beaver dam and termite mound are social products. So is the hominin hand-axe and bow. But the cave paintings of Lascaux, or the ornamentation of bodies and clothing, ritual dances, and narratives told around the campfire, are different additions to reality: they are valued in so far as they *mean* something that contributes to members' orientation in the world.
- 45 In terms of Figure One, culture is clearly a social product, a product of the We. But it presents a new interpretive environment for the understanding and valuation of the world (or X), the I and You, and the We itself. Humans came to root their social order in a dimension of intrinsically valued, made icons, myths, and rituals. This doubtless added to the already existing social bond. As Tomasello argues, the cultural era develops what sociologist Emile Durkheim called "group mind." For Tomasello culture provides a second step in human cognitive and social evolution, beyond the "second personal" collaboration and morality of earlier hominins. It provides an "objective morality" normative for the social group. He and others regard this as above all a reinforcement of human "groupishness" (Haidt 2013).
- 46 But while culture does intensify the social bond, that is a result of the different *kind* of bond it is. For the first time on Earth, things now mean something more than the direction of game, the likelihood of water-containing roots, the coming of storms. They now mean what the world *is* and how we fit into it. For the first time some "thing" – not a human – is intrinsically valuable because of its meaning, rather than being edible, desirable or pleasurable. Intrinsically valuable things have now been *created* in terms of them much of the world is understood as meaningful for human life. Now a totemic animal embodies the spirit of me and my ancestors. The stars depict human scenes. My life and death take place in a normative circle of the four winds. My fertility is now connected to the order of the world, the circulation of manna and power and value, by a ritual or totem explained in a narrative.
- 47 Mead devoted little time to the analysis of culture, but his semiotic understanding of the human mind lays the basis for the recognition that the dimension of cultural symbol provides the representation of the background context of reality and human goals. Only with culture do the uniquely social and linguistic animals we call human organize their lives according to a cognitive and affective understanding of the nonhuman world, and so the place of their society in it. As Ernest Gellner argued regarding hunter-gatherer societies, "We cooperate because we think alike and we think alike thanks to ritual," or more broadly, communal symbolic practices (Gellner 1988: 37).

Conclusion

- 48 What then did Mead contribute to the current understanding of the emergence of the joint intentional self?

- 49 First, the notion that language, and other widely recognized human activities, like morality, tool-making, and reason, are themselves dependent on the more fundamental *social nature of the human mind and self*, the ability to take the perspective of the other and thereby switch perspectives. Thought is internal dialogue and the self is constituted by such dialogue. Language and culture are rooted in this capacity. The recent notion of shared or joint intentionality is an extension of this concept. The human individual's experience is social and cultural.
- 50 Second, the emergence of these uniquely human processes, like all emergence, is rooted in the ability of something to be "several things at once," meaning, to function in alternate contexts or processes. This is a feature of many systems in nature, which can function in different orders or scales. The emergence of novel modes of functioning in nature are normally due to environmental changes. But once the human self has arisen, something exists which is uniquely capable of switching perspectives *itself*, of taking on other roles, and communicating among them. At the same time, Mead recognized that emergence, and with it the reality of formal and final causation, does not mean an opposition to mechanism or reduction. The complex functioning system, which has "emerged," remains simultaneously a collection of less complex components obeying mechanical processes, and a complex component of higher level, often telic, processes. The mistake is to believe one strategy of explanation excludes the others.
- 51 Mead's thought is alive and well, and at the center of contemporary attempts to bring together the natural and social sciences in understanding the human difference.

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NOTES

1. While in *Experience and Nature* (1958, Ch. 7) Dewey distinguished evolutionary "levels" – inanimate, animate, psycho-physical (animal), and mental (human), he specifically denied emergence in his letters to Bentley in 1945 (Dewey & Bentley 1964). He disliked the term's "irrelevant doctrinal associations," writing that "'Emergent Evolution' [...] seems to be a doctrine and a rather absurd one" (*ibid.*: 403). He criticized the notion of "levels of organization," saying, "I came near falling for it [...]." He includes some ridicule: emergence as a "miracle" to jump up such levels, like a "series of elevators." "John and Susan [?] rise from the ocean [...] They had [...] to submerge, before they could emerge." His explanation of his own resistance: "A prejudice I couldn't overcome, I guess, against any feudalism with its fixed hierarchy of lowers and higher." (*ibid.*: 426-7).

2. Unfortunately this issue, whether nonhumans possess "selves," has become moralized and even politicized. Unless we are to hold nonhumans responsible to human norms, we cannot say they possess all traits and capabilities we do. Every species is different and anthropomorphization does none any favor. Nor is similarity to ourselves the only reason to value or respect a creature. The absence of a "self" is not tantamount to absence of value. We may value nonhumans precisely in their difference from us.

3. Tomasello suggests that joint intentionality was first evident in *Homo Heidelbergensis* 400.000 years ago, and was then shared by Neanderthals and *Homo sapiens*, while culture arose later among our species alone (Tomasello 2014, 2016). This area of research is in flux. But I would suggest the following. *Homo erectus*, from which *Heidelbergensis* probably arose, with double the brain size of earlier hominins, seems to have spread across the entirety of the old world from Africa and to have controlled fire. Those are remarkable advances; whether they were based in joint intentionality is unclear. It may be that language, initially manual but later verbal, evolved for a very long time, and was characteristic of all these advanced hominins in some form, as well as *Homo neanderthalis*, with as large a brain as ourselves. As for artifactual culture, there is some evidence for it among Neanderthals, but as yet not the volume or kind of creations as *Homo sapiens* in the past 100.000 years or so.

ABSTRACTS

What is the core of the distinctiveness of *Homo sapiens*? Some of the most famous hypotheses include tool use and tool making, language, free will and moral agency, self-consciousness, mind itself, and reason or rational problem-solving. All these answers are partly true. But recent work in comparative psychology, primatology, and cognitive science have converged on a conception of human distinctiveness that underlies these. Remarkably, it was explored a century ago by George Herbert Mead. The American pragmatists played a special role in the development of non-reductive naturalism. But among them, Mead uniquely endorsed the notion of “emergence” developed by the British Emergentists. This led him to an analysis of the emergence of the human self and mind out of social processes, most famously employing his concept of “significant gesture.” In recent decades both notions have been buttressed by philosophical and scientific work. Emergence has returned in the sciences of nonlinear dynamics and complexity, and has been re-conceptualized by philosophers like William Wimsatt. Mead’s social conception of the human mind and self have been repurposed by a host of scientists, as in Michael Tomasello’s conception of “joint intentionality” and Antonio Damasio’s analysis of self-consciousness. These developments show that Mead was remarkably prescient in his core insights.

AUTHOR

LAWRENCE CAHOONE

College of the Holy Cross, Worcester, MA, USA
lcahoone[at]holycross.edu