

A traditional Chinese landscape painting. The scene is dominated by towering, craggy mountains in shades of grey and brown, some with patches of green. A wide, calm river flows through the center, reflecting the sky. In the foreground, a winding stone staircase leads up a rocky slope towards a small pavilion. To the right, a cluster of traditional Chinese houses with tiled roofs sits on a riverbank. Several small boats are scattered across the water. The overall style is characteristic of classical Chinese ink and wash painting, with a focus on naturalistic detail and atmospheric perspective.

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This article argues that Dewey expresses what seems to be a core enactive commitment to constructivism: that creatures do not encounter pre-existing realities but bring them out by altering their surroundings. He adds that constructivism does not obviate realism because changes, once introduced, really are there in relation to a creature's capacities. This poses a dilemma. If enaction primarily entails altering the external milieu, then the movement repeats pragmatism, also collapsing a basis upon which many of its authors differentiate their outlooks from ecological psychology's realism. Yet if constructive activity is largely interior, as enactivists' language sometimes suggests, then critics may be right in saying that the movement backslides into early Modern solipsism. A broader argument is that enactivists sometimes perpetuate what James characterizes as monistic halfway empiricism. Here, the risk is that researchers hold positions not because of evidence but regardless of it, or stipulate terminological definitions that exclude opposing views ahead of time. Even physics remains ununified, and there may be room for combining antagonistic accounts of mind. Or maybe normally hostile positions like enactivism and functionalism are, with some terminological reframing, reconcilable. The article also touches on historical points, such as the fact that American philosophy and enactivism have Asian and evolutionary influences, or that they react against common schools. The purpose is to clarify the movements in question and identify where enactivists engage in something like halfway empiricism by orienting themselves against enemies based more in fiction than fact.

Keywords: Affordances, Asian Philosophy, Constructivism, Dewey, Ecological Psychology, Enactivism, Philosophy of Cognitive Science, Pragmatism, Realism.

This article's title does not downplay enactivism's significance. It instead borrows from James's book, *Pragmatism: A New Name for Some Old Ways of Thinking*. There, James (1907, p. 60) says fresh ideas come from stretching old ones. Dewey (e.g., 1925), who is my main focus with some attention on James, echoes the observation. A point I particularly attend to is that Dewey advances a variety of constructivism that aligns with enactivism. Specifically, he asserts and instantiates the claim that creatures do not encounter preexisting realities but instead bring forth their worlds by concretely changing surroundings or conditions under which things are encountered. He adds that in embodied contexts, constructivism does not obviate realism, which generates a possible dilemma for enactivists. On the one hand, if this last assertion is right, and enaction primarily entails altering the external milieu, then the movement, in addition to repeating pragmatism, may lose a basis that its authors cite as differentiating their ideas from ecological psychology, which Gibson (1966, 1979) describes as realist. If, on the other hand, constructive activity is largely an interior process, as enactivists' choice of words sometimes suggest, then critics may rightly charge that the movement backslides into early Modern solipsism (e.g., Cowley & Gahrn-Andersen, 2015; Fultot, Nie & Carello, 2016; Wright, 2001).

Though elaborations on constructivism and realism will come later, a few hints as to what these views entail are offered here. A standard illustration of enactive constructivism is fingers palpating objects to bring forth qualities that are not in the unhandled entity (Di Paolo et al., 2017, Ch. 3; Myin & Degenaar, 2014, p. 91; Noë, 2004, p. 73; O'Regan and Noë, 2001, p. 945). Such examples do not challenge realism and are offered by ecological psychologists and pragmatist (Dewey, 1920a, pp. 114-115; E. Gibson et al., 1987; Mead, 1938, pp. 4, 22; Peirce, 1878). Other times, enactivists seem to be more internally oriented, as when Varela, Thompson and Rosch (1991; Thomson 2007) speak of cognition as a reentrant process in the nervous system, or claim colors lack non-experiential counterparts in physical settings. To see how constructivism can be realist, consider *Physarum polycephalum*, a slime mold. Working collectively, these unicellular creatures leave slime trails that form chemical barriers that they avoid retracing during foraging explorations. Here, environmental building and sensorimotor engagement are part of the same process with the slime mold coordinating around self-created, affordance-bearing geographies, which nonetheless exist independently in ways described by ecological realists (Crippen, 2020).¹

The description a slime mold's activity as both constructivist and realist fits pragmatists' avoidance of either-or thinking. Dewey (1930, p. 21) refused to be "a devotee of any system," and James (e.g., 1897, p. 447) rejected what he termed "half-way empiricism," wherein initial assumptions restrict what is considered valid evidence. These positions do not reflect wishy-washiness but rather sidestep constraints that can hinder scientific inquiries. For example, some mind researchers have asserted that psychic life necessitates internal representations, thereby

¹ While much of Gibson's ecological psychology focuses on vision and optical laws, I later elaborate why it is ill-advised to reduce his realism to the perceptual fact that ambient light hits the eyes in spatial and temporal patterns that directly correspond to environmental layouts.

overlooking the cognitively rich capacities of organisms like slime mold, which solve problems that would challenge humans. The final section of this article considers whether enactivists, who at times style themselves as scientific revolutionaries (e.g., Hutto & Myin, 2013, 2017), have stipulated rather than shown irreconcilable differences with alleged antagonists. My focus here is on enactivists restrictive view of computationalism that may pre-emptively lead them to reject positions such as functionalism.

In this article, I additionally touch upon historical points. Both pragmatists and the founders of enactivism react against many of the same trends in the history of psychology and philosophy of mind. They also have overlapping influences. Evolutionary theory is important to both. James (1890) cited Brentano, and Husserl (1936) referenced James, and phenomenology shaped the first versions of enactivism. Buddhist philosophy is central in originating enactive texts, and some may be surprised to learn multiple strands of Asian philosophy inflected American traditions, so that Dewey was probably already thinking in Eastern directions when he arrived in Japan and China for what would be a 30-month stay. Considering these matters clarifies current and past research on mind and helps explain the glue that binds them together. It simultaneously counters a tendency of some enactivists to engage in something like halfway empiricism by orienting themselves against intellectual enemies based more in fiction than fact.

Dewey and Enactive Variations

In preparation for later arguments, this section sketches how Dewey advances key enactive tenets yet oriented in ways that are not antagonistic to ecological psychology. One challenge is the volume of Dewey's work: it is enormous, so that misleading glosses are common. For this reason, I supply more direct quotations than is customary, both here and later,

with the aim of sketching a concrete map into Dewey's work, somewhat presupposing the reader's ability to parse statements but still providing explication.

Dewey (1925, p. 259) maintains that qualities of the world are not represented “‘in’ the organism at all.” They are instead “qualities of interactions in which both extra-organic things and organisms partake,” as when our caressing hand actively explores lacquered wood to bring out its smoothness, whereas a cat's digging claws realize its sinewy toughness. This assertion gels with enactivist and ecological writings, with versions of the supporting illustration showing up in both (cited earlier), along with phenomenological work (e.g., Merleau- Ponty, 1945/1962, pp. 367-368). Echoing Dewey (1896, 1920a, 1922, 1925), enactivists stress sensorimotor bases of perception and cognition (e.g., O'Regan & Noë, 2001a; Di Paolo, et al, 2017; Thompson, 2007). In other words, perception is an outcome of how sensation and motor activity coordinate around things to bring out specific properties, as in the lacquered wood example.

However, just as pragmatism has significant variations, the same holds for enactivism, rendering general comparisons misguided. O'Regan & Noë (2001a) argue that perception depends on knowledge of law-like relations between actions and contingent changes in sensory information. Though their account is close to Dewey's, the latter does not stress law-like connections and would not affirm O'Regan & Noë's (2001b, p. 101) claim that “knowledge of the laws of sensorimotor contingency themselves must surely be represented.” Although Noë (2009) later titles one of his books *Out of Our Heads*, his early views at least match what Di Paolo et al. (2017, p. p. 34-35) define as “in the head” understandings of mind.

Another enactive strain, which includes Di Paolo's work, follows the movements' founders (Varela et al. 1991) in emphasizing operational closure (e.g., De Jaegher & Di Paolo; Thompson, 2007; Di Paolo et al., 2017). Though not linear or unidirectional, operational closure

here characterizes a process where A produces B, leading to C and so on, with some aspect in this loop generating A. Another claim is that an operationally closed (self-generating) system oscillates to maintain itself in response to outside agitations. In Thompson's (2007, p. 13) vision, "the nervous system ... generates and maintains its own coherent and meaningful patterns of activity, according to its operation as a circular and reentrant network of interacting neurons." The "sensorimotor coupling between organism and environment modulates, but does not determine, the formation of endogenous, dynamic patterns of neural activity, which in turn inform sensorimotor coupling." Di Paolo, Rohde and De Jaegher (2010, p. 37) explain that self-creating or *autopoietic* aspects relate to enactivists' stress on autonomy: that organisms "follow laws set up by their own activity. Fundamentally, they can only be autonomous by virtue of their self-generated identity as distinct entities." Despite enactivists stressing the co-determination of organisms and environments, such statements imply a more skinbound view than Dewey prefers, with the outlook historically linked to subject-object divides and subjectivism.

Critics, then, object that operational closure traps agents inside their own private experiential domains (Cowley & Gahrn-Andersen, 2015; Fultot, Nie & Carello, 2016), but this is not a refutation if psychic existence in fact has a solipsistic character. On the other hand, while subjectivity is part of what most enactivists endeavor to explain, the phenomenon does not logically entail interiority. Indeed, ecological psychology can explain uniquely private views without insinuating anything internal. Mace (2005, p. 206) observes that merely by virtue of where his eyes are on his face, nobody else can see his nose and cheeks from his vantage.

Enactivists usually deny promoting subjectivism, but might a critic be forgiven for interpreting some of their statements as implying just that? Enactivists equivocate between asserting that organisms have "a *perspective on the world*" and that "*they enact a world*" (Di

Paolo, 2010, p. 39; original italics), opting for the latter when differentiating themselves from Gibson's ecological realism. In talking about reentrant processes, Thompson (2007, p. 13) explicitly asserts "the nervous system ... creates meaning." Enactivists (e.g., Thompson, 2007; Di Paolo et al., 2010) sometimes clarify that other processes like metabolism are involved in cognition or that meaning arises from relationships between internal dynamics and the environment. We will see that Dewey (1934) and Gibson (1966) agree, locating meaning in an ecological domain that is defined in relation to an organism's capacities and needs. But then enactivists also state things like the following: "the properties that specify what colors are simply have no non-experiential, physical counterparts" (Varela et al., p. 166); or that for bacteria, "the significance and valence of sugar are not intrinsic to the sugar molecules" (Thompson & Stapleton, 2009, p. 25). Here, one could be pardoned for asking whether this language reverts unwittingly to early Modern divisions between appearance and reality. In sum, enactivists' "world-involving" approaches (e.g., Di Paolo et al., 2017) dance between the subjective idea of "being in one's own world" and the more outwardly directed notion of "being in the world."

In response to some of the above, Dewey (e.g., 1908) would say that light wavelengths and the molecular properties of sugar are enacted through experimental manipulations, so that there are no intrinsic qualities in the first place. Additionally, few enactivists are neuroscientists or even biologists (Varela is an exception), making talk of neurodynamical patterns empty. Because the nervous system is mostly under the skin (with exceptions, e.g., olfactory sensors), the term "neurodynamics" could be exchanged for "internal dynamics" without losing much. In discussions about mind, moreover, "operational closure" is virtually only deployed by enactive philosophers, which is to say: empirical support from the biological sciences is lacking. This

need not be a problem, except that enactivists claim to be doing science (e.g., Thompson, 2007) and sometimes to be scientific revolutionaries (Hutto & Myan, 2013, 2017).

Enactivists derive their model of operational closure from the internal functioning of unicellular organisms (e.g., Thompson, 2007; Di Paolo et al., 2017). Now, creatures like slime mold solve navigation problems humans would find difficult and can plausibly be labelled as cognitively endowed (Crippen, 2020). Yet it is not clear that operational closure illuminates such feats. Supposing even it does, it would be somewhat amazing if cognition in cephalic organisms followed the same parameters. Such a scenario, moreover, would get close to past homuncular ideas (which enactivists disdain) positing that animals contain miniature minds in their cells.

Dewey (1916a, pp. 343-344) avoids speculative claims about internal functioning of the nervous system yet accepts the commonplace that “the brain is essentially an organ for effecting the reciprocal adjustment” between bodily capacities. These capacities already have synchrony by virtue of being conjoined in an organic structure that limits actions, and they cohere further around things encountered in the course of tasks. But without talking about representing rules for sensorimotor contingencies or reentrant neuron networks, Dewey still advances a number of core enactivist theses, albeit offering emphatically external version of constructivism. On this basis Dewey (1925, Ch. 9) argues that objection from the alleged side of realism that constructivism makes perception and knowledge a distortion reflects a confusion of tense. It is not that agents bestow traits that *do not* belong to things. Instead, their activity confers characteristics that *did not* belong to things, and once bestowed, these properties are really there in the world.

A Philosophical Fork?

Thompson (2007, p. 13) observes that agents “enact or bring forth their own cognitive domains.” Dewey (1916a) suggests cognition “is not the work of something ready-made called

mind, but that mind itself is an organization of original capacities into activities having significance” (p. 324). Varela et al. (1991, p. 9) state that “cognition is not the representation of a pregiven world by a pregiven mind but is rather the enactment of a world and a mind on the basis of a history of the variety of actions that a being in the world performs.” Dewey instantiates their claim. He says perception includes “results [that] follow upon motor response to a sensory stimulation” (p. 279); hence, “even such qualities as red color, sound of a high pitch, have to be discriminated and identified on the basis of the activities they call forth and the consequences these activities effect” (p. 280). O’Regan and Noë (2001, p. 961) similarly assert that “seeing the red hue of the wall consists” of “eye movements, shifts of attention.” In this section, I briefly examine the shared history that led Dewey and enactivists to argue that organisms create the qualities they encounter. I then expand on enactive constructivism and ecological realism to set up a philosophical fork: that enactivists either accept Dewey’s external constructivism, putting them close to Gibson, or grant that they indeed slide towards early Modern subjectivism.

Dewey and enactivists react against several common historical strands, such as intellectualism or cognitivism,² mind-body dualism, stimulus-response psychology and atomism. Their work also absorbs evolutionary and Asian influences. These historical factors will be discussed throughout this article. For now, the focus is on the Western philosophical context.

Dewey’s compatriot James (1878a, 1890, Ch. 9) vitiates the atomism of British empiricists, with Thomson’s (2007) citing the critique. James observes that, phenomenologically, perception is not a pixelated assembly of sensory atoms. Further, if the environment impresses discrete (atomistic) chunks onto mostly passive agents, experience would be chaos since a single

² Here, I follow Hutto and Myin (2013), who regard cognitivism (the mind as computer view) as an outgrowth of early Modern intellectualism. Both standpoints propose that minds is the manipulate of representations or symbols according to rules that are not derived from incoming sensory inputs. For a critique of the equation of intellectualism to cognitivism, see Destéfano (2021).

stimulation pattern can fit multiple contradictory perceptions or conceptions, as with Necker figures and certain Solar System models (see Appendices 1 and 2). Selective attention, says James (1890), shapes incoming information “much as a sculptor works on ... stone” (p. 288) and “*makes* experience” (p. 403), so that a carpenter sees oil as a wood darkener, a mechanic as a lubricant (James, 1879). He rejects Kant’s intellectualist claim that the mind uses *a priori* categories to synthesize (construct) its objects. Still, James (1878b, 1890, Ch. 28) sides explicitly with the “apriorists,” arguing that prior to encounters, each mind already has capacities (i.e., interests) that actively build coherent experience of the world.

In his rejection of atomism, stimulus-response psychology and mind-body dualism, Dewey (1896) argues that a motoric whole logically precedes the appearance of individual parts. He states that we begin “with a sensori-motor co-ordination,” our “movement ... determining the quality of what is experienced” and its “value,” hence the stimulus registered (p. 358). For example, a youngster’s strain (response) in climbing brings out a hill with an irksome quality and meaning (the stimulus). The relationship is bidirectional, for the child cannot do the same things with a hill and a cup, thereby limiting what quality- or experience-building actions are possible. For Dewey (1920a), interests like nutritive needs translate to bodily action, removing the need “for the elaborate Kantian and Post-Kantian machinery of *a priori* concepts and categories to synthesize the alleged stuff of experience” (pp. 90-91). Citing the Greek idea that having experience means being experienced or skilled (p. 79), he asserts that even an ameba gets close to this definition since it executes “adaptive courses of action, habits, active functions, connections of doing and undergoing; sensori-motor co-ordinations” (p. 91). In short, bodily limits and constraints on action in the world here replace Kant’s transcendental (*a priori*) categories. Key to Dewey’s constructivism is that creatures concretely change their

surroundings. This can be by building things, as when a carpenter brings out attributes of wood by working with it (pp. 114-115), or by otherwise altering arrangements in the world, for instance, placing lenses before one's eyes to reveal properties of stars (p. 113).

Certain enactivists (e.g., Noë, 2004; Thompson, 2007) likewise acknowledge Greek precursors. Thompson (2007) also sees Kant as an antecedent to enactive constructivism, lauding his "original and visionary account of the organism as a self-organizing being" (p. 129; also see Weber & Varela, 2002). Kant influenced the development of Husserl's and Merleau-Ponty's phenomenology, the latter matching Dewey closely (Kestenbaum, 1977) and important in the founding of enactivism. Thompson hints that Merleau-Ponty replaced Kantian transcendentals with bodily structures that impose limits on experience (Ch. 6), paralleling Dewey.

Despite variations, most major enactive treatments offer similar testifying illustrations, such as behavior-based robotics, sensory substitution devices and inverting goggles (e.g., Varela et al., 1991; O'Regan and Noë, 2001; Noë, 2004; Di Paolo et al., 2017). Early behavior-based robotic vacuums were able to follow different shaped contours (straight lines, right angles, round pillars, etc.) by rolling into objects and moving forward, as opposed to executing complex calculations in their central processing unit (Crippen & Rolla, 2022). For enactivists, this exemplifies how problem solving (i.e., cognition) follows out of detection-actuation setups, in other words, sensorimotor coordination. Sensory-substitution devices use information from head-mounted cameras to stimulate the skin or tongue, and people actively exploring surroundings acquire an analog of vision. According to enactivists, this demonstrates that a vision-like modality does not depend on retinal stimulation but on actions and sensations coordinating when dealing with tasks in ways normally aided by the eyes. Spectacles that invert light patterns are

similar. While things first look distorted, vision soon normalizes. The point, once more, is that visual experiences have to do with how sensory and actions synchronize together.

Now, if these testifying illustrations capture the core of enactivism, then the outlook coincides with Dewey's external constructivism. Simultaneously, sensory substitution, inverting goggles and behavior-based robotics do not challenge ecological realism since affordances are not modality-specific. Instead, affordances are environmental features that are detected through a range of modalities. Food affordances, for example, might be smelled, seen or registered through sensory-substitution devices. Additionally, and contrary to an enactive leitmotif, ecological psychologists do not merely frame affordance detection as information pickup from the world. Indeed, Gibson (1966, pp. 138-139) gets close to asserting agents enact properties when he says that eating is "exploratory and stimulus-producing, since chewing releases fluids and aromas, and the movements of the tongue bring them to the chemically receptive areas. Tasting is a kind of attention, and the mouth can be said to focus on its contents."

It is relevant that Gibson (1966) talks about food affordances (p. 146), indicating he recognizes that internal needs orient creatures, even if he focuses on how this impacts environmental behavior. Like enactivists, he discusses values. In fact, he equates affordances to values (p. 285), so that after a storm a river may stop being safely navigable (i.e., cease having that use-value) and become dangerously flooded, just as peanuts may become inedible to one who develops an allergy, constituting what Gibson calls a negative affordance that constrains actions by threatening harm. For Gibson (1979), "these benefits and injuries, these safeties and dangers, these positive and negative affordances are properties of things *taken with reference to an observer*" (p. 137). Yet "the 'values' and 'meanings' of things in the environment can be directly perceived" and are "external to the perceiver" (p. 127).

Now, if enactivists indeed hold that values—for example, of sugar to *E. coli*—arise from relationships between internal and external dynamics (see Di Paolo et al. 2010, p. 40), then their dispute with Gibson is primarily verbal. After all, values as affordances are environmental features that exist in relation to organisms. Gibson (1979, p. 129) makes this explicit when he remarks that affordances are neither subjective nor objective but instead reveal the inadequacy of traditional dichotomies. Furthermore, Gibson’s account allows that internal needs can flip affordances or values from positive to negative. Consider somebody developing a moderate peanut allergy late in life, so that foods containing them become negative affordances, even if unpredictably due to an individual’s varying immune reactions.

This highlights a misunderstanding. Ecological psychologists emphasize vision, with certain enactivists following suit (e.g., O’Regan & Noë, 2001). But Gibson’s (1966) realism is not located merely in the fact that the ambient light hitting the eye has a spatial and temporal structure that directly corresponds to layouts since matters like the “affordance of prey odor” (p. 146) cannot be specified in this way. A plausible account of ecological realism is elaborated by Heft (2020). This interpretation simply holds that an affordance or value exists independently of the agents for which it has meaning. In other words, the properties that make peanuts dangerous to some remain even if nobody is around. And though Heft argues otherwise, scenarios like this are simultaneously constructivist and realist, along Dewey’s lines. The reason is that the negative affordances or value is brought forth by changes in the person’s immune system, hence by an altered relation in the world. This even while the threat exists independently in Heft’s sense as a real feature in the world, independently of the presence of susceptible parties.

At this point, enough has been said to set up my philosophical fork, which revolves around a question: How do we take the earlier quoted enactivist remarks about cognition being a

reentrant process, colors having no non-experiential counterparts in the physical environment or sugar molecules lacking intrinsic value? Specifically, how do we grasp these remarks considering repeated declarations that enactivists side with constructivism and ecological psychologists with realism? If, on the one hand, enactivists mean that value is generated internally within organisms, then the assertion that they are slipping into Modern era subjectivism has merit. But certain enactivists deny this, indeed claiming to repudiate the inner-outer divide (e.g., Di Paolo et al., 2010). So, if, on the other hand, they mean that the world manifests according to how creatures' internal needs translate to action, then enactivism largely collapses into ecological psychology. This is more so because Gibson's own remarks show that he did not reduce perception to information pickup, indeed describing ways that creatures enact their worlds. The thrust of the Dewey-guided arguments in upcoming sections will be that the two views overlap and do not conflict, even though proponents on either side sometimes examine different aspects and underpinnings of psychic existence.

Constructing Real Worlds

To elaborate on Dewey's suggestion that constructivism and realism amount to the same thing in embodied contexts, I want to expand on Asian and evolutionary threads that likely contributed to his position. Roughly the same influences impact early enactivists, so an additional aim is to make Dewey's account more palatable to proponents of that movement.

Evolutionary thinking dates to antiquity, but in the 19th and 20th centuries, it upsurged. Multiple evolutionary strains focused on adaptation, which relates to the body but also intelligence, linking embodiment and mind. Natural selection specifically stresses that organisms actively construct their environments and that species have a role in driving their own evolution. Gould (1979), for example, describes birds plundering milk bottles and a hypothetical evolution

of bill shape to facilitate the pilferage. Here, the bottles will only shape the species if members enact a desire to access the milk, with the added nutrition increasing propagation—an idea that James (1878a) articulated a century earlier. Darwin (1859, p. 73), moreover, advised an anti-reductive investigation of organisms “in ever-increasing circles of complexity,” grasping them ecologically, as opposed to examining them in isolation.

Picking up on this, Dewey (1920a, Ch. 4) said environments affect organisms, which modify their surroundings by constructing niches. Dewey (1911, p. 187) also wrote that “the evolution of life ... means an evolution of new environments, just as truly as of new organs.” A lesson Darwin (1859, Ch. 3) drew was that creatures change the selective pressures acting on them by modifying their environments, taken to include geographical spaces and creatures in them. If true, it follows that organisms coevolve. It further follows that this scenario is potentially constructivist and realist in Dewey’s sense since changes are introduced to the world, which can remain independently of the organisms enacting them.

Varela et al. (1991, pp. 201-202) regard coevolution as a vindication of enactivism. They note, for instance, that bee ancestors had sensitivity to UV light and that flowers with higher reflectance in this bandwidth pollinated more successfully. Bees with more sensitivity to UV frequencies likewise gathered more food, fostering the spread of their hive’s genes. This combination of pressures led to increases in UV reflectance in flowers and sensitivity in bees. Varela and colleagues cite this as showing “how environmental regularities are not pregiven but are rather enacted or brought forth by a history of coupling” (p. 202). Dewey too would regard this as a constructivist scenario but would claim it does not obviate realism for reasons explained. Gibson would likewise find the example unproblematic.

Varela et al. (1991) discussion of coevolution links to the Mahayana Buddhist tenets on which they draw (also see Thompson, 2007). Though Buddhism has many variants, they generally undercut self-identity on the grounds that any entity is always evolving into something else. Lack of self-attribute additionally stems from dependent co-origination, the Buddhist tenet that properties are relational outcomes, so that isolated entities and qualities are self-contradictory. Varela and colleagues cite this as affirming their thesis that there is no pre-given world or mind. Dewey (1934, p. 177) similarly observes that though “we speak of perception and its object,” the two “are built up and completed in one and the same continuing operation.” An example of this is that a cat’s digging claws (subject) not only bring out wood’s sinewy toughness (object) but their own capacities as well. This position also aligns with Gibson’s view, which regards the scratchability of wood as a typical affordance for cats unless they are declawed or otherwise incapacitated. Once again, therefore, constructivism is not at odds with ecological realism, according to Heft’s (2020) definition of the latter.

What is not widely recognized is that South and East Asian philosophy influenced American traditions. Wang (2021) provides a book-length exposition showing that many celebrated US Founding Fathers idealized Confucian texts, cited them regularly, and admired Chinese technological innovations. Though different from Buddhism, Confucianism stresses social relationality, combining the characters for person (人) and two (二) to connote humanness (仁). This indicates we only gain importantly human features (e.g., language, cooking, religion) in communities. American transcendentalists also cited and translated Confucian writings from available French. They did the same for the *Lotus Sutra*, a Mahayana Buddhist scripture, and Thoreau may have read that the *Daodejing* (Crippen, 2023). Compared to Confucianism, Buddhism and Daoism focus less on social harmony. They also differ from each other and have

their own subvariants. However, we have already seen that Buddhism rejects the idea of isolated property-bearing entities, as does Daoism.

Dewey's aesthetic views have been labeled as enactive by some (Crippen 2016, 2017, 2021; Vara Sánchez, 2022), and they matured during his stay in China and Japan (Martin, 2002, p. 401). Dewey's lectures and letters from that period (1920b, 1920/1973) describe encounters with East Asian art, and it could be his aesthetics may have been influenced by painted handscrolls from the region that unfold narratives in an almost cinematic manner. Of paintings, Dewey (1934, p. 174) noted that our eyes, and hence neck, body posture, and more, explore pushes, pulls and climactic focal points, with our sensorimotor activity bringing the work dramatically into coherence. His aesthetics recall the holism common to Chinese thinking, as we cannot register the functions of a focal point without the brush strokes leading to it and vice versa. The same holds for other aesthetic culminations (e.g., stories, music) and for means and ends, which Dewey regarded as mutually defining throughout his career. These perspectives resonate with what Thompson (2007, p. 38) calls "dynamic co-emergence," which holds that "part and whole co-emerge and mutually specify each other."

The *Yijing* is a precursor to Confucianism and Daoism, which mixed with Buddhism in China. Ideas from this book have been compared to the quantum physics realization that observations change what is observed (Jung, 1950, p. xxiv). Emerson (1836, p. 92)—the leading transcendentalists—hinted at the same point, writing that "nature is not fixed but fluid. Spirit alters, molds, makes it... Every spirit builds itself a house; and beyond its house a world... Build, therefore, your own world." Dewey (1929) referenced quantum mechanics in arguing that perception and cognition entail changing realities, yet added the same occurs when we shake, thump and otherwise alter conditions to "make changes which will elicit some previously

unperceived qualities” (p. 87). Enactivists similarly remark that “the individuation of objects, properties, and events appears to vary according to the task at hand” (Varela et al., 1991, p. 148). Once more, if tasks at hand involve working with and thereby changing things or else changing relations between them, then constructivism here implies realism.

Dewey also wrote on Enlightenment admirers of Asian philosophy, including Leibniz, who was fascinated by the *Yijing* and neo-Confucianism, both influenced by Huayan Buddhism and Daoism. (Fung, 1942; Rentmeester, 2014).³ Leibniz’s explorations potentially influenced his subsequent work (Rentmeester, 2014). Huayan Buddhism was itself shaped by Nagarjuna’s Madhyamika philosophy (Van Norden & Jones, 2019 discussed by Varela et al. (1991). Dewey’s book (1902, pp. 109-110) on Leibniz offered interpretations that have a pragmatic and enactive flavor. These include the claims that experience is an activity undergone and not necessarily consciously contentful; that will, action and ideas are not separate; and that “there is ... no ‘state’ of mind” but “only a tension, a pushing forward.” The upshot is that prior to his 30-month visit to China and Japan, Dewey was already equipped to comprehend local perspectives.

In Asia, Dewey (e.g., 1920a, 1922) additionally crystallized his concept of experience as culture, which aligns with Confucianism. The idea is conveyed by how we interchangeably speak of the Korean experience, world or culture, repeating this in spheres like parenthood. Texts like the *Analects* (trans. Slingerland 2003) emphasize learning through doing, habits (ritual) and their role in character building. Contrasting Aristotle, who tends to regard individual excellence as the foundation for flourishing societies, Dewey inclines towards the Eastern stress on shared experiences as prerequisites for individual excellence. Mirroring this, Dewey (1920a, p. 92, 1922, pp. 62-63) asserts that the sensorimotor activities, and hence infant’s minds, link with

³ Fung Yu-Lan (cited above and often transliterated Feng Youlan) was one of several of Dewey’s Chinese doctoral students.

those they depend on—a claim reiterated by Noë (2009, p. 31), Merleau-Ponty (1964, Ch. 1), Trevarthen (2011) and others. Dependent activity continues through life, becoming more intricate as we navigate language and other social complexities.

For Dewey, social constructions are not mere psychological projections, but concrete or real aspects enacted in human arrangements. Gibson alludes to this (1966, p. 39, 1979, Ch. 8) when describing “gastronomic values” that “relate to ... cookery” and other social sides of affordances, such as cultural habits of sitting and tool use. Against what some commentators suggest, it is not clear why enactivism is needed to explain actions that are physically possible but socially discouraged like sipping from a stranger’s cup at a café or vaulting the counter to make an espresso (e.g., Di Paolo et al., 2017; McKinney, 2020). After all, indiscretions have costs, including personally threatening ones such as bodily harm. So, etiquette breaches fall within the purview of Gibson’s negative affordances. Consequently, this is yet another case of constructivism and ecological realism implying one another. This is because socially constructed café grammars really are there independently of any single agent and stand as unforgiving realities with which people must contend.

Old and New Bridges

Ecological realism implies that environmental affordances provide abundant information, eliminating the need for mental construction. Proponents, however, would grant that water manifests different affordances depending on whether one wades into it or smacks into it at terminal velocity, so they would accept that action-driven construction goes on in the world. Enactive constructivism holds that “even the simplest organisms regulate their interactions with the world,” such that they build or “transform the world into a place of salience, meaning, and value.” Transformations occur “through the organism’s sense-making activity” (Thompson &

Stapleton, 2009, p. 25), which engenders what is not in the physical setting alone. Gibson (1979, 140) agrees with this, if the sense-making activity is not internal. He writes that registering an affordance “is a process of perceiving a value-rich ecological object. ... Physics may be value-free, but ecology is not.” In this section, I offer more details about enactive and ecological views on values, and how Dewey’s pragmatism and resonant Asian philosophies may strengthen the rapprochement between constructivist and realist interpretations.

Varela et al. (1991) and Thompson (2007) take their “no pre-given world and mind” refrain as an anti-realist assertion and take the Buddhist idea of dependent co-origination as further affirming the point. But there are multiple schools of Mahayana Buddhism, with more than one developing from Nagarjuna’s thought. This includes Yogacara and Weishi, which tend towards mind-only constructivist idealism. However, other turns in the same lineage, such as Huayan and Tiantai Buddhism, sometimes collapse the distinction between real and apparent worlds—“apparent” here roughly interchangeable with “constructed.” If everything is enacted, transformed and thus imbued with value, then apparent worlds become the sole ones. This renders apparent worlds real because we forfeit the baseline option for a truer alternative, which is another reason why constructivism does not always negate realism.

This constructivist-realist interpretation helps explain both individual experience and intersubjectivity. From ecological perspectives, humans largely encounter the same affordances because they are embodied similarly. In enactive terms, this means they mainly bring forth or construct comparable realities. To the extent this is true, people inhabit overlapping worlds, which is partly why individuals can comprehend one another a lot of the time, even without speaking the same language; or why genders usually understand each other, even though men are sometimes a blind to dangers women customarily face because they are embodied a little

differently on average. Less skeptical flavors of Buddhism offer parallels to this analysis. *The Flower Ornament Scripture* (trans. Cleary 1993) states: “Because of differences in the force of acts/Living beings’ lands are not the same” (p. 243), a view that fits enactive, ecological and pragmatic outlooks. A little later, it adds: “By the individual acts of beings/These worlds are infinite in kind”. (p. 246). Much further on, it concludes: “The multiplicity of the worlds does not destroy this one world, and the singleness of this world does not destroy the multiplicity of those worlds” (p. 821). This fits with the observation people’s worlds and experience are similar because we are embodied similarly.

It has been repeatedly stated that constructed values can be real(ist) features, and here thinkers in the American tradition add a few things. Thoreau (1842, p. 40) warned not to “underrate the value of a fact.” In other words, the fact of the matter and its value can be the same, as when a community encounters a rampaging buffalo as dangerous, or a chemist and cook respectively regard sugar as a hydrocarbon or sweetener because of what they care about, to adapt James’s (1879) example. Dewey (1934) similarly claimed that the “early use of words like sweet and bitter was not to denote qualities of sense as such but to discriminate things as favorable and hostile” (p. 16), here approaching Gibson’s notion of positive and negative affordances. Dewey went on to discuss how we concernfully grasp space and time:

Space is room, *Raum*, and room is roominess, a chance to be, live and move. The very word “breathing-space” suggests the choking, the oppression that results when things are constricted. ... Lack of room is denial of life, and openness of space is affirmation of its potentiality. What is true of space is true of time. We need a “space of time” in which to accomplish anything significant. Undue haste forced upon us by pressure of circumstances is hateful (p. 209).⁴

⁴ Some commentators (e.g., Mace, 2005) observe that some of Gibson’s writings reject the concept of space as an empty abstraction that we do not perceive. However, the first pages of Gibson’s (1979, p. 2) last book clarify that he is talking about a Cartesian notion and that he accepts something close to a phenomenological or lived grasp of space, in line with thinkers like Dewey and Merleau-Ponty.

This characterization will be familiar to anyone who has experienced the viscosity of space and time when crushed by traffic.

Some readers may notice similarities between the Dewey quotation and Gibson's (1979, p. 138) mostly approving reference to the Gestalt idea that "the meaning or the value of a thing seems to be perceived just as immediately as its color. The value is clear on the face of it." If affordances are values, then the Dewey passage can be understood as describing affordance-like restrictions on what we can do. When combined with more recent affordance-inspired research, Dewey's statement can also be interpreted in an enactive way. Experiments suggest that factors like sadness, low blood sugar, illness, tiredness, indebtedness and bad weather—anything that depletes energy—make hills and stairs appear steeper or farther away because they are harder to reach or climb (Bhalla and Proffitt, 1999; Schnall et al., 2010; Zadra et al., 2010; Riener et al., 2011; Liu et al., 2018; Ekawati et al., 2022). This implies that internal conditions (i.e. energy levels) influence the kind of world we bring forth. At the same time, this constructivist view entails a changed relationship in the world, specifically between a depleted person and environmental features. Moreover, a Gibsonian might argue that the properties that make hills and stairs challenging for those in diminished physical states still exist even when no one is present to experience them.

Dewey (e.g., 1934, p. 67) offers another argument for the external reality of values. To see what he is getting at, consider how a cheerful pub district, along with the jovial faces in it, take on a threatening tone at night for a woman who is at greater risk. This relational view applies widely. An example is color constancy: when viewing an entire scene, a sliced potato will usually appear white, which most agree is an accurate way of seeing it, even when reflected orange-yellow light from a sodium lamp is hitting the eye. Dewey (1929, Ch. 5-6) extends this

relational perspective, noting Einstein's observation that so-called primary attributes like length vary with relative velocity. Given that few regard length as merely subjective, it is not clear that we should reject the reality of affective tones in the world, which are products of relationships.

Returning to the example of the woman in the street, we can see that ecological psychology and enactivism reinforce each other. Using ecological and enactive terminology, one might say that the threatening atmosphere is brought out by the woman's embodied predicament and enacted by the behavior of others, the net result constraining what she can safely do. To borrow from what Dewey (1934) says about aesthetics and apply it here, it is not that the situation causes an emotional experience "in us." Instead, the affective valence or mood is "a total effect brought about by the interaction of external and organic causes" (p. 250).

Pragmatic Pluralism

O'Regan and Noë (2001, p. 947) imagine a homunculist antagonist who believes that visual experience entails "pictures in the head" and that "to see red, there must be red neurons in the brain." However, almost nobody in cognitive science defends such a view today, and O'Regan and Noë provide no citations. Even Descartes (1637/1954) cautioned against such explanations. While not defending homuncular accounts, there are cases where a phenomenon has a mirroring underlying mechanism. For example, a rotating star is a collection of atoms moving in a similar trajectory, and it is logically possible that a pattern on the retina could correspond somewhat isomorphically to neural activity in the brain. Di Paolo et al. (2010, p. 46), in their turn, challenge the claim that values are genetically encoded. They assert that this means 1) that built-in values would have "priority over the living acting creature"; 2) that this usually means that values are part of the genetic makeup; and 3) therefore, that built-in values imply genetically encoded a priori semantics executed according to pre-programmed rules. Aside from

moving from a firm to a probable premise and then back to a certain conclusion, what prevents Di Paolo and colleagues from simply citing their alleged antagonists? Not specifying opposing literature, whether recent or old, stipulates—rather than shows—purported antagonisms, exaggerating the sense that we must choose between one view or another. An alternative is to follow James, who advanced pluralism both as an assertion about reality and as a methodological tenet, a cue that this section explores.

On the face of it, enactivists avoid monism. In fact, Varela and colleagues (1991) call Gibson a monist due to his unipolar emphasis on the external world (pp. 202-203). Unlike many ecological psychologists, moreover, enactivists avoid but do not entirely dismiss representational accounts. Here, O'Regan and Noë's (2001b) remarks have already been mentioned. Di Paolo et al. (2017, p. 27) maintain that representations are not operative in minimal agency and are not essential to the mind, but accept their role in complex, socially mediated, public forms of life. Hutto and Myin's (2017) "duplex" story is similar. However, most enactivists agree that their approaches are right, and others are wrong, as if one theoretical perspective will ultimately settle all questions about the mind. Di Paolo et al. (2010, p. 33) particularly worry about contradictory hybrids that mix enactivism with other views. Granted, contradictions are bad in relatively simple cases, such as proposing a square circle. But it is not evident why researchers would expect something as complex as the mind to be explainable by a single logically consistent theory.

Granted, pushing an account within tightly prescribed and logically consistent limits can be fruitful. "The Ten Commandments of Ecological Psychology" has already been written and includes prohibitions against invoking computational and representational explanations (Michaels and Palatinus, 2014). As a practical maxim, the unyielding approach has successfully

shown how often commentators have unnecessarily invoked representationalism or computationalism since ecological psychology has managed to explain so much without recourse to these concepts. However, it is a separate question whether this indicates that representationalism and computationalism are explanatorily useless, or if it demonstrates that minds never deploy such mechanisms. Put another way, enactivists and ecological psychologists could be falling into what James (1897, p. 447) terms halfway empiricism, which sticks to explanations not because of evidence but regardless of it. An example from James's day is the belief that everything occurs for mechanistically causal reasons. If someone presented evidence to the contrary, believers would respond that the evidence must be confused; things must be different than they empirically appear.

Instances of halfway empiricism in enactivism are not hard to find. Noë (2004, p. 112) attempts to get outside the brain by downplaying it. Without empirical support, he asserts that sensory substitution devices do not activate the visual cortex. Yet Noë then bizarrely contradicts his statement by granting in an endnote that the occipital lobes (which contain the visual cortices) may be involved—a concession he issues in response to a critical evaluation of his work. Varela et. al.'s (1991) make much of a study where pairs of kittens were put in an illuminated setting for a few hours daily, with one moving under its own volition, pulling the other in a cart. They state that the carted kittens, upon release, “behaved as if they were blind: they bumped into objects and fell over edges” (p. 175). The problem is that the 5-page article (Held & Hein, 1963) that they cite (perhaps from hearsay) reports none of this. Instead, tests showed impaired paw placement and that kittens in the second group exhibited the same behavioral responses to shallow vs. deep drop-offs, albeit returning to normal after a few days of freedom in illuminated conditions. Rather than vindicating the enactive thesis that seeing is

learned through sensorimotor coordination, the study may only indicate that kittens' coordination suffered due to a lack of practice (Prinz, 2012, p. 179).

Enactivists have something like a decades-old greatest hits of findings they like to cite. High on the list are vision-inverting glasses, sensory substitution devices, bodily mechanisms for anticipating the trajectory of a ball and more—all intended to show that perception entails motor coordination. Another favorite is behavior-based robotics, with Brooks' work referenced in virtually every book. The citations typically date back at least 20 years, and for a reason: the literature sharply declined in the mid-2000s. While leading to Roomba and a Mars rover, researchers had trouble scaling up detection-actuation systems (robotic sensorimotor coordination) to do increasingly complex tasks or to execute them more efficiently. Even Brooks' Roomba now gathers and stores representations of the static environment (see Lluvia 2021). Not that it is usually wise to model the mind on a technological zeitgeist but given that enactivists regularly lean on behavior-based robotics, they might mention how it evolved and explore whether it indicates limits of their position. The fact that they not only repeat examples but invoke outdated ones is indeed a symptom—even if minor—of what Lakatos (1978) calls a degenerating scientific program.

Enactivists have been scolded for their libertine definitions and especially condemned for conflating cognition with behavior, neglecting that the former occurs inside the brain (e.g., Aizawa 2014). Here, James would side with enactivists, not only due to his embodied views but because a narrow definition pre-determines conclusions. Furthermore, if cognition is a problem-solving mechanism, it is peculiar not to attribute it to brainless organisms like slime mold, which solve mazes that would challenge humans absent an aerial perspective (Crippen, 2020). Yet James might also criticize enactivists for characterizing representations narrowly, echoing arch-

cognitivists like Fodor, guaranteeing in advance that their accounts will definitionally exclude representations. For example, Di Paolo et al.'s (2017, p. 89) non-representational account includes statements like, "the presence of the attractors may further be dependent on sensory signals that correspond to certain events in the environment." Now, if representations are defined as discrete brain-based stand-ins for things in the world that are computationally available for syntactic and semantic processing, then yes, this does not meet the threshold. Nonetheless, the formulation is verbally close to Spencer's (1855) classically representationalist understanding of mind, especially his account of creatures like amoebas or trees, for which he does not propose an exact mirroring, but rather a coordination of inner to outer events. Or to consider another case, would we firmly deny that a buzzer represents the inferno that triggers it simply because it does not emit a pictorial repetition?

Hutto and Myin (2013) similarly aim to explain perception without internal representations. In other words, they assert perception is contentless, "where content is understood in terms of either reference, truth, or accuracy" (p. 82). Sensorimotor endeavors like hammering do not have propositional value. Likewise, truth and falsity do not show up in smelling or seeing but get introduced by verbal assertions about things we perceive. Thus, Hutto and Myin (2017, pp. 188-193) suggest that if we have the wrong idea about the color of a famous architectural structure before seeing it, it is a discursive component that adds content. But does this always hold? Imagine relaxing in one of the many public hot spring baths in Korea, and shifting to lean back into the wall behind, only to find it is farther than expected, therefore losing balance slightly. This meets Hutto and Myin's threshold for being contentfull, even though no proposition was made; yet this interactive, dynamic and relational episode does not seem to depend on sociocultural practices, so simultaneously matches their idea of basic perception,

unless the term is ipso facto defined as content free, which would circularly assume the point to be demonstrated. Another occurrence is when we are on a train, and have without thought or intention reversed the orientation of the side windows, engendering the perceptual impression that we are traveling opposite to the direction we are actually going. This again seems to be a case of basic perception misrepresenting things.

One response is to replace the word “representation” with a phenomenological term like “background horizon.” However, the difference seems mostly verbal. Di Paolo et al.’s (2017) have an alternative, namely, virtual affordances. They observe that we regularly deal with affordances that are out of view, as when at a friend’s house, looking up at an unfamiliar cup in a high cabinet. Although we cannot see the hollow portion, our sensorimotor mastery with similar objects in comparable situations introduces a normative dimension, making the hollowness virtually present to us. Di Paolo and colleagues simply extend this to things that are further out of view, such as a hotel in another city. Suppose the plan is to meet a lover in the hotel, whose face we look forward to kissing. Faces have been framed as affordances (see Crippen, 2021), so Di Paolo et al.’s answer could work here. It is also true that when anticipating seeing somebody’s face, I do not experience a projection in my head. However, I do experience a grainy not-quite-there projection in front of me, in a sort of virtual space. Perhaps virtual affordances still fit, and I prefer that over representational language, but the debate brings to mind James’s (1907) Peircean recommendation: “If no practical difference whatever can be traced, then the alternatives mean practically the same thing, and all dispute is idle” (p. 45). In other words, I am unclear about what is at stake in steadfastly denying that anything representational is occurring here, even though I avoid such explanations almost fanatically.

Let me conclude this section with a discussion of why categorical demarcation can be counterproductive. Consider as an example Thompson's (2007; Thompson & Stapleton, 2009) criticism of the extended mind thesis. Clark and Chalmers (1998) originated the thesis, but the former has written more extensively on it, and he is Thompson's main target. Still, the theory does not end with what Clark says since there are other commentators, so this is already a little narrow. Thompson (2007) deems the extended mind position to be functionalist. Among his beefs with functionalism are that 1) it is computational; and 2) it proposes that computations can be carried out on multiple substrates, which, for Thompson (2007), makes "the embodiment of the organism essentially irrelevant to the nature of the mind" (p. 5).

Now, all this may be true for Clark, but Thompson circumscribes a needlessly narrow view of computation. Consider a fish-like robot developed by Long (2011). Long asserts that the machine's tail computes according to water's fluid dynamics. By this he means that the device calculates "everything that the microcontroller running the Interactive C program doesn't: all the really difficult physics" (p. 104) Long further observes that his aquatic robots got smarter through adjustments to their bodies, not their CPUs. Roomba's round body likewise computes the shapes of walls and other things by rolling into objects and moving forward to follow their dimensions. Notice, moreover, that the computations could be executed via a different substrate, say, if an artist replaced the plastic casing with aluminum or wood in the same shape. Something comparable holds for humans, whose biological limbs can be substituted with prosthetics that go on computing in the same way Roomba and the fish tail do. Prosthetic hippocampuses may also be available soon. These could be housed inside the brain or outside of it, fitting Clark's thesis in the twofold sense of 1) pushing cognition outside into the world and 2) extending it onto an artifact, in this case a hippocampal replacement. Notice, moreover, that the bodily computations

of Roomba (and the fish tail too) do not involve representations; and further, that multiple realizability need not repudiate embodiment since the structure (the round shape) of Roomba's body remains essential. In short, enactivism and the extended mind thesis can be deployed in complementary if not mutually affirming ways. This is at least on the assumption that the conceptual territory is not tightly circumscribed.

To return to disputes between enactivists and ecological psychologists, they unnecessarily attempt to differentiate themselves from competitors and predecessors. Gibson, (1979, pp. 138-140) recognizes his debts to Gestalt theorists but critiques their separation of the behavioral and geographical world as a problematic subject-object dichotomy. This is even though Gestaltists get close to the phenomenological distinction between the lived-world and second-order abstractions from it, which does not indicate a subject-object divide. Varela et al. (1991) do to Gibson what he did to Gestalt psychologists: they acknowledge some kinship, but then aggressively stress a radical departure, as opposed to simply framing their work as building on older models, and developing them in new directions.

Conclusion

This article centered on Dewey's assertion that organisms do not encounter pre-existing realities but instead bring them into existence by modifying their environments, a position very close to enactive constructivism. Unlike enactivists, however, Dewey does not oppose constructivism and realism but regards them as mutually implying. From this, I raised a dilemma: if enaction mainly involves changing the external milieu, it mirrors pragmatism and erodes a distinction many devotees use to differentiate the movement from the realism of ecological psychology. Conversely, if enactive construction is predominantly internal, as proponents' language

sometimes suggests, critics may legitimately argue that the movement regresses into early Modern solipsism.

I wrapped up by suggesting that enactivists sometimes perpetuate what James describes as monistic halfway empiricism, where positions are maintained not because of evidence but despite it. I also highlighted cases where enactivists stipulate terminological definitions rather than adequately demonstrating their legitimacy, thereby preemptively excluding opposing views. While this provided further basis for suggesting that enactivism and ecological psychology are not fundamentally at odds, it also raised the possibility of a rapprochement with functionalism, which most consider irreconcilable.

Throughout, I touched upon historical points, focusing on common trends from the past that pragmatists and enactivists reacted against, as well as shared influences, particularly from evolutionary theory and Asian philosophy. This was done to highlight the glue that binds the movements together and counter the tendency of some enactivists to engage in something similar to halfway empiricism by orienting themselves against intellectual enemies based more in fiction than fact.

It goes without saying that there were other fascinating historical threads not followed, and I will briefly mention a few here. Scholars have suggested that US thinkers were influenced in various ways by Indigenous American thought (Mann 2005; Pratt 2002; Wilshire 2000). Among much else, this may have played a role in the place-based metaphysics of transcendentalists and pragmatists, perhaps absorbed somewhat into Gibson's work. Emerson, moreover, was one of the few philosophers Nietzsche praised, the latter influencing Heidegger, and by extension, enactivists. Another unexplored avenue is that ideas circulated along the Silk Road through Asia and North Africa into Europe. Moving up to the Mediterranean from Sub-

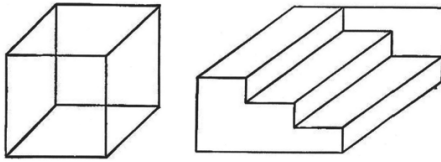
Saharan Africa, across the Middle East and into India and East Asia, one finds a series of partly overlapping perspectives that are relevant, for example, to the discussions of the notion of experience as culture or relational holism (see Appendix 1 for a schematic depiction of history).

At times, this article may have seemed aggressive in its criticisms and in asserting that much of what enactivists have said was previously stated by Dewey. However, I want to close by expressing my admiration for enactivism. I am compelled to do so because, for me, it is very similar to pragmatism, a movement I deeply appreciate. This is not backhanded praise.

Enactivists provide a great deal of empirical reinforcement that was not available to pragmatic thinkers, and gathering all this evidence is no small feat. Beyond this, it should be remembered that pragmatism was also a new name for old ideas. This is not just because James said so, with Dewey indicating the same, but also because pragmatists openly borrowed key ideas from their predecessors.

Appendix 1

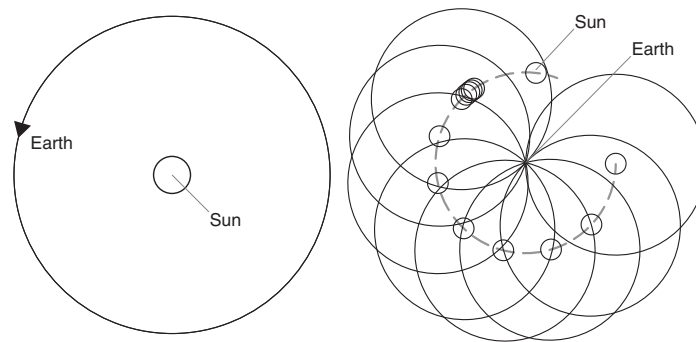
Necker Illustrations



In the image on the left, the top or bottom square may appear in the front or back position depending on how the observer focuses attention. The image to the right inverts with either the top shape or bottom shape popping forward depending on whether one focuses on the upper or lower non-oblique plane. Adapted from Woodworth 1921.

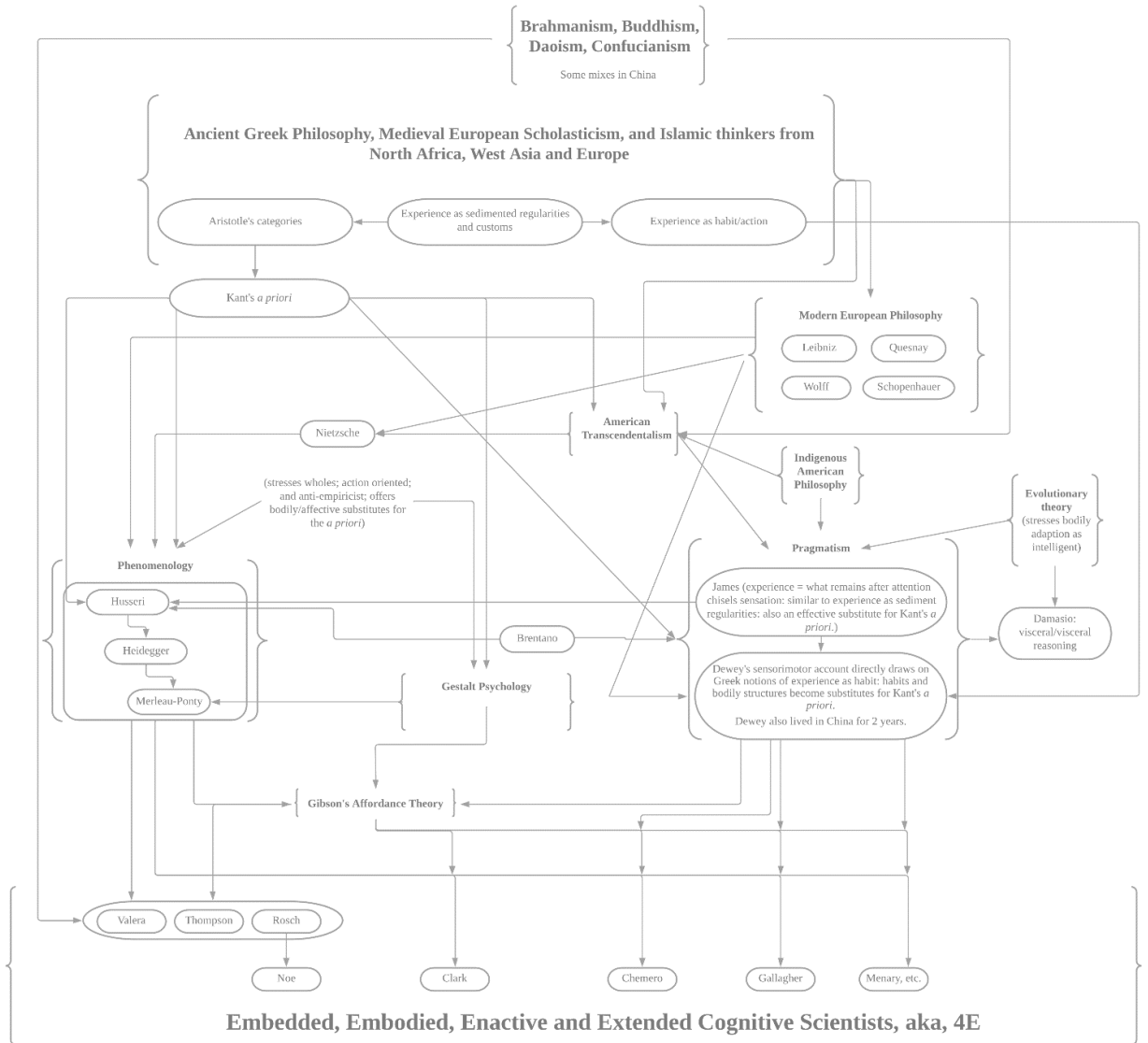
Appendix 2

Two possible relationship between the Earth and Sun



For the image to the left, imagine a stationary finger placed through the central hole of a DVD, symbolizing the Sun, while a finger from another hand moves along the DVD's edge, representing the Earth. For the image to the right, the Sun and Earth are represented by the same fingers. But this time, the one standing for the Earth remains fixed, and the one representing the Sun pushes the DVD around the stationary finger in a circular motion. Despite the changes in movement, the spatial relationship between the two fingers stays constant—they always maintain the same distance from each other. Image prepared by Matthew Crippen.

Appendix 3



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