

2022

Dancing with 4E Cognitive Science and Human Science Psychology

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Recommended Citation

Hall, J. (2022). Dancing with 4E Cognitive Science and Human Science Psychology. *Middle Voices*, 2 (2). Retrieved from https://dsc.duq.edu/middle_voices/vol2/iss2/2

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According to the “Embodied Cognition” entry in the Stanford Encyclopedia of Philosophy, the three landmark texts in the 4E cognitive science tradition are Lakoff and Johnson’s *Metaphors We Live By*, Varela, Thompson, and Rosch’s *The Embodied Mind*, and Andy Clark’s *Being There*. In my first section, I offer a phenomenological interpretation of these three texts, identifying recurring affirmations of the figure of dance alongside explicit marginalization of the practice of dance, perhaps in part due to cognitive science’s overemphasis on cognition to the exclusion of affect. In my second section, drawing on my previous interpretations of proto-affect theorists (including Spinoza, Deleuze, and Fanon), I channel this tension in 4E cognitive science into a dancing partnership with human science psychology, suggesting three “choreographic provocations” for therapeutic practice and psychological research, namely (1) treating clients/subjects as dancers, (2) reimagining research and therapy as improvised duets between practitioners and clients/subjects, and (3) pursuing an ideal of freer movement and an emergent flourishing singularity for clients/subjects. Finally, I reformulate these three choreographic provocations in terms of my new theoretical method of “dancing-with,” as well as the four psychological prerequisites for flourishing posited by my figuration philosophy of dance.

KEYWORDS: 4E cognitive science; Lakoff and Johnson; Francisco Varela; Andy Clark; dance; dancing-with

Dancing-with Cognitive Science: Three Therapeutic Provocations

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In 2012, a special issue of *Phenomenology and the Cognitive Sciences* was dedicated to the topic of movement in general. Originally intended to focus more narrowly on the art of dance, the issue contains several essays devoted to the latter, foremost among which is the contribution by Maxine Sheets-Johnstone. In response to the Call For Papers’ question as to the place for dance in contemporary cognitive science, Sheets-Johnstone argues that cognitive science, “being largely tethered to happenings in the brain,” thereby “lacks foundational grounding in experience, specifically, the actual experience of movement, which is to say in kinesthesia” (Sheets-Johnstone 2012, p. 39). Several thinkers in what has become known as 4E cognitive science, however, would argue that these two

attributes (namely, brain-dependence and experience-relevance) are not mutually exclusive. On the contrary, they argue, a researcher can quite easily be tethered to both brain and world—or, better yet, free to move, or dance, between the two.

According to the “Embodied Cognition” entry in the Stanford Encyclopedia of Philosophy, the three landmark books in the history of this approach to cognitive science are, in historical order, Lakoff and Johnson’s *Metaphors We Live By* (2003); Varela, Thompson, and Rosch’s *The Embodied Mind: Cognitive Science and Human Experience* (1992); and Andy Clark’s *Being There: Putting Brain, Body and World Together Again* (1998). On the one hand,

the explicit attention devoted to the practice of dance in these seminal texts remains minimal; on the other hand, all three texts frequently invoke the figure of dance in arguing for the superiority of the 4E approach. Due to the former fact, I am sympathetic to many of the claims in Sheets-Johnstone's essay; but due to the latter fact, I think that (contra Sheets-Johnstone) this lip-service is powerful and important enough to hold out hope for a meaningful dialogue between cognitive science and dance. Or, if this is not feasible within 4E cognitive science alone, the prospects are bright for choreographing a partnership between it and human science psychology.

In my first section, I offer phenomenological readings of the three foundational texts of 4E cognitive science, which reveal a recurring pattern of what I call "dance-resonance." By the latter phrase, I mean words (at the discrete levels of rhetoric, examples, and concepts) that connote or are otherwise suggestive of dance (with "resonance" intended, via its sonic overtones, to suggest the musicality that has been inseparable from dance for most of homosapiens' history). Despite this hypothetical openness to dance at a discursive level, however, these 4E theorists nevertheless also explicitly marginalize the practice of dance (perhaps in part due to cognitive science's overemphasis on cognition to the exclusion of affect), creating a tension between (a) its inattention to the practice of dance and (b) its utilization of the figure of dance. In my second section, drawing on my previous interpretations of proto-affect theorists (including Spinoza, Deleuze, and Fanon; Hall, 2012; 2013; 2016; 2017; 2018;), I attempt to channel this tension in 4E cognitive science into a dancing partnership with human science psychology, suggesting three "choreographic provocations" for psychological research and therapeutic practice, which I then relate to my new interpretive method of "dancing-with," and the four prerequisites

for ideal political flourishing posited by my figuration of philosophy of dance.

Before going into these details, it might help to give a rough definition of dance in the present investigation. Elsewhere (Hall, 2012), I have constructed a phenomenologically based, historically informed new philosophy of dance, called "figuration," developed as follows. First, I performed a phenomenological analysis of my own decades of dance and choreographic experience to generate a small cluster of concepts that could be considered central aspects of dance. Second, I went back to the canonical philosophers who neglected dance and looked instead for these concepts in their work. I termed these central constructs or aspects of dance "Moves," and named them "posture," "gesture," "grace" and "resilience" (it is the latter Move, incidentally, which features the proto-affect theorists Deleuze and Fanon). Having thus constructed the four Moves, I then applied them to what I term the seven "families" of dance, namely "concert," "folk" "societal," "agonistic," "celestial," and "discursive" dance. By "families" here, I was attempting to channel Wittgenstein's concept of "family resemblances" (Wittgenstein, 1953); in this sense, there does not exist a unified thing called "dance," but instead a family of phenomena which are meaningfully related through a cluster of shared similarities. It is important to note, however, that this list is provisional, and open to change as communities of inquiry see fit.

Dancing with 4E Cognitive Scientists

My "discursive" dance (in figuration's terms) with these 4E cognitive scientists is based on the position that cognitive science is, after all, redeemable, but only to the extent that it makes "adequacy to dance" a necessary condition of its success. As my readings in this section suggest, however, this move is not one that they currently seem willing and able to make, which means that my suggested

partnership between 4E cognitive science and human science psychology may be a necessary first step in that direction. I will proceed historically in this section, beginning with the first classic text of 4E cognitive science, Lakoff and Johnson's *Metaphors We Live By*.

The most important dance-resonance of this founding text, on my reading, is the fact that the authors' explicit linkage of conceptuality to metaphoricity (insofar as it foregrounds the body and poetry) relies implicitly on an analogous linkage of non-dancing movement to dance (broadly construed). In other words, if concepts for Lakoff and Johnson are metaphoric like poetry, then, insofar as "poetry in motion" is a meaningful descriptor of dance, their analysis can be understood as enabling a kind of dancing conceptuality.

Perhaps significantly in terms of this latter point, the word "dance" appears explicitly on the very first pages of *Metaphors We Live By*. After claiming that our "ordinary conceptual system" is "fundamentally metaphoric in nature," (p. 3) Lakoff and Johnson's first example of what they term a "metaphorical concept," namely "ARGUMENT IS WAR," (p. 20) already includes the following reference to dance: "Imagine a culture where an argument is viewed as a dance, the participants are seen as performers, and the goal is to perform in a balanced and aesthetically pleasing way" (p. 5).

Both ARGUMENT IS WAR and ARGUMENT IS DANCE are what Lakoff and Johnson call "structural metaphors," which are metaphors that structure one conceptual domain in terms of another (p. 14). Another group of metaphors in their classification system, which are more strongly dance-resonant than structural metaphors per se, are "orientational metaphors." The latter, they explain, (a) organize "a whole system

of concepts with respect to one another," (b) "give a concept a spatial orientation," and (c) "arise from the fact that we have bodies of the sort we have and that function as they do in our physical environment" (p. 14). Dance, similarly, organizes multiple concepts into a coherent whole, fine-tunes one's spatial orientation, and takes the forms it does precisely because of the details of our embodiment. For example, the orientational metaphor "HAPPY IS UP; SAD IS DOWN" derives, they claim, from the fact that drooping "posture typically goes along with sadness and depression, erect posture with a positive emotional state" (p. 15).

It is here, in the figure of human knowers constructing metaphors from their creative movements through the world, that I find the strongest resonance with dance in *Metaphors We Live By*, since this figure appears to be a literal example of "poetry in motion." If, by contrast, they had only argued that all concepts are metaphorical, without making this additional, crucial, claim (namely that all metaphors are experiential vis-à-vis particular forms of embodiment in particular environments), then I would characterize their analyses as merely poetic.

The upshot of this survey is that for the first landmark text of 4E cognitive science, Lakoff and Johnson's *Metaphors We Live By*, the fundamentally metaphoric nature of cognition extends beyond verbal language to nonverbal embodied language. Put differently, thinking is not only essentially metaphoric (making all thinkers poets), but since that metaphoric thinking is grounded in bodily comportment, all thinking is essentially dance-like as well (making all thinkers dancers). Crucially, this dancing happens for the most part unconsciously, and thus a kind of intra- or infra-subjective dance. In short, there are bodily dances within the dancer that is the human being. Dance happens at multiple ontological

levels, crisscrossing the human subject in ways that can be both undermining and empowering, depending on how much we understand and embrace these dances.

As for *Metaphors We Live By*, so for *The Embodied Mind*, dance is suggested as early as its Introduction, in the authors' discussion of how "we continuously circulate back and forth" between "our bodies both as physical structures and as lived, experiential structures" (Varela et al., 1992, p. XV). This description connotes dance not only because many dances involve circular repetition, but also because dance is a privileged site of the intersection of the body-as-thing and the body-as-structured-experience. Already in Chapter 1 of *The Embodied Mind*, this image of the circle is repeated, in the claim that "in reflection we find ourselves in a circle," which the authors then paraphrase as "an *entre-deux*" of "self and world" (p. 3). Dance, similarly, is itself often a literal *entre-deux* between the two people in a partner dance.

This image of the circle recurs in Chapter 2 in regard to the authors' relating Husserl's account of the relationship between phenomenology and the "life-world," in that he, too, was "haunted by the untraversed steps of the fundamental circularity" (p. 18). More specifically, although Husserl "tried to break out of the circle by treating the background [including the life-world] as consisting essentially of representations," this implies that phenomenology's (allegedly scientific) representations could contaminate that background (p. 18). In other words, the scientific objectivity of phenomenology's analysis of the lifeworld is always-already compromised by the fact that traces of phenomenology's own operations cocreate the very world that phenomenology attempts to discover.

To Husserl's credit, however, he not only recognizes this circularity problem,

according to the authors, but also tries to solve it (albeit counter-intuitively), namely by claiming "both that the life-world is prior to science and that our Western tradition is unique because our life-world is permeated by science" (p. 18). Thus, according to *The Embodied Mind*, Husserl "embraced the peculiar thought that the phenomenologist could stand both inside and outside of the life-world," which the authors describe as phenomenology's "peculiar contortion" (p. 18). Put differently (dancingly), Husserl accepts the primacy of the dancing aspect of human inquiry, and valorizes dance's creative torsions of human experience. Nevertheless, despite Husserl's therefore affirming a kind of dancing comportment, *The Embodied Mind* nevertheless ultimately rejects his approach because the authors claim it is exclusively theoretical.

Instead, *The Embodied Mind* prefers an intertwining of theory and practice, as exemplified in Buddhism, particularly in its dance-resonant concept of "yoking." The etymology of "yoke," that is, refers to the binding together of two beings for one purpose, which is accomplished, in partner dance, by the dance itself, which "yokes" the two dancers. Appropriately, the authors' description of yoking is also dance-resonant, in their claim that its goal is to "develop habits in which body and mind are fully coordinated," yielding a "mastery" which "is visible to others—we easily recognize by its precision and grace a gesture that is animated by full awareness," and "associate such mindfulness with the actions of an expert such as an athlete or a musician" (Varela et al., 1992, p. 28). Dance, too, obviously (a) requires extensive coordination; (b) is a kind of visually accessible, awareness-heightening, and graceful mastery; and (c) could, in many cases, be understood as a form of expertise at the intersection of musical artistry and athleticism.

Similarly suggestive of dance is *The*

Embodied Mind's later discussion of "emergence," which utilizes (a) dynamical systems theory, with its concepts of (b) attractors and (c) cellular automata. Dynamical Systems theory, first, is a relatively new branch of mathematics, the most famous subfield of which is chaos theory (so named because it concerns systems that are so dynamic that their behavior appears completely unpredictable). An "attractor" in Dynamical Systems theory, second, is any state for which a system seems to have a natural affinity (that is, to which it seems "attracted"). And a cellular automaton, third, is "a simple unit that receives inputs," (namely 1 or 0), "from two immediate neighbors and communicates its internal state to the same immediate neighbors" (Varela et al., 1992, p. 89).

With these definitions in place, the authors suggest a thought experiment built around a chain of these cellular automata that has been bent into a single ring or "circular array," the result of which looks something like a candy bracelet (Varela et al., 1992, p. 89). "This ring of cellular automata," they explain, "acquires a dynamics by starting at some random state and letting each cell reach an updated state at each (discrete) moment in time in a synchronous fashion" (p. 89). What one finds in such an experiment is that "even this simple, almost minimal network has rich, self-organizing capacities" (p. 89). One could think of this experiment as describing the (figurative and literal) unfolding of a circle dance (such as *Contra*), in which each dancer enters a different existential state (connected to their prior experiences), and in which patterns emerge from what one might call the existential osmosis of dancers' absorbing and imitating each other's energy.

Also suggestive of dance in this application of Dynamic Systems theory is the authors' description of the "two major classes of learning methods" that have been

illuminated by cellular automata experiments as involving "learning by correlation" and "learning by copying" (Varela et al., 1992, p. 92). In the former type of learning, "the system is presented with a whole series of examples and is molded by it for future encounters" (p. 92). A real-life example of this type can be found on any social dance floor, where the energies of various partners and couples generate complex patterns of intensity throughout the room. And in the latter type of learning, also "known as 'back-propagation,'" there is "a model that acts as an active instructor," like the method in dance instruction, called "backleading," wherein a more experienced follower (traditionally a woman) teaches a less experienced leader (traditionally a man) (p. 92).

The Embodied Mind's account becomes even more dance-resonant when it later complicates its previous analyses with the concepts of "structural coupling" and "natural drift," both of which are dance-resonant even in name (Varela et al., 1992, p. 151). The authors propose structural drift as an important supplement to the concept of adaptation (often considered by mainstream evolutionary biologists as the sole important factor in evolution). More specifically, evolution, in the authors' view, proceeds not only via organisms surviving by adapting to their environments, but also via the "drift" produced by random variation/mutation (p. 188). Or, put more critically, natural selection by itself has trouble explaining the following five phenomena: (1) linkage/pleiotropy, (2) lifespan development, (3) random genetic drift, (4) stasis, and (5) various proposed candidates for the basic unit on which natural selection acts.

It is in the authors' detailed analyses of the latter five phenomena that the dance-resonant moments of this section appear. First, regarding development, they refer to "pattern formation and morphogenesis"

as “highly constrained cellular choreographies” (Varela et al., 1992, p. 189, emphasis added). Second, as for drift, there are two possible “sources”: (a) “if a gene is actively selected, it will bring along”—like a leader guiding a follower in a social dance—“any others that are close enough;” and (b) if the size of “a biological population” remains constant over a period of generations, then “its gene and genotype frequencies will ‘drift’ from generation to generation” (p.191). Moreover, since “about 40 percent of the genome is not expressed and is repetitive,” the authors conclude that the “constraints of survival and reproduction are far too weak to provide an account of how structures develop and change” (p.194).

In response to the latter insights, the authors then sketch an alternate approach to evolution which features even more dance-resonant moments. First, this “natural drift” alternative entails a “switch from a prescriptive logic to a proscriptive one,” wherein “what is not forbidden is allowed,” which is suggestive of the ways that rules in (especially social) dance often work, since in both cases creativity and diversity are thereby facilitated (Varela et al., 1992, p. 195). Second, the natural drift approach replaces “optimizing” with “satisficing,” a kind of making-do reminiscent of the oft-repeated advice in social dance circles to “fake it till you make it” (p. 196). The authors also describe this second implication as involving the concept of bricolage, “the putting together of parts and items in complicated arrays...simply because they are possible,” wherein the question quickly becomes one of “how to prune the multiplicity of viable trajectories that exist at any given point” (p. 196). In dance, similarly, choreography often begins with simply trying to see what dancers’ various body parts are capable of, after which the dance instruction tends to focus on weeding out the many undesirable variations generated thereby.

The upshot of this survey of the second landmark text of 4E cognitive science is that the key to Lakoff and Johnson’s dance of cognition—at both the human and infra-human level—is partnership. The human performs a partner dance with the world, and with its own body as object; the mind dances with the body; theory dances with practice; and cells and genes partner with each other across lifespan, historical and geological time. Crucially, these dancing partnerships are performances that are bottom-up, autonomous, and even (one is even tempted to say) “democratic.” There is no master choreographer, nor struggling pupil, but rather two or more dancing entities or phenomena that coordinate together on the spot, more or less spontaneously. One does not dance alone, and one does not exert total control over one’s dancing partnerships. The more this is understood and embraced, the more the dancers involved will flourish.

As with both *Metaphors We Live By* and *The Embodied Mind*, Andy Clark’s *Being There* also implicates dance as early as its Introduction. Clark first names dance in Chapter 1, “Outing the Mind.” At the beginning of a section (dancingly entitled “The Robots’ Parade”), Clark introduces the first in a long series of robot-study analyses, his first two historical examples thereof are the “animal-like robots (sometimes called ‘animats’)” named Elmer and Elsie. These robots’ accomplishments include having taught themselves to engage in what Clark describes as “amusing, self-tracking ‘dancing’” (Clark, 1998, p. 12).

Chapter 2 of *Being There* traces similar insights about dancing interaction from the field of developmental psychology, beginning with the concept of “action loops.” Clark’s first example of this phenomenon—his description of which actually includes the word “dance”—is the experience of assembling a jigsaw puzzle, in which we “make

a rough mental determination and then physically try out the piece to see if it will fit,” and maybe also “physically rotate candidate pieces even before we try to fit them” (Clark, 1998, p. 36). Jigsaw assembly, in other words, is yet another example of “an intricate and iterated dance in which ‘pure thought’ leads to actions which in turn change or simplify the problems confronting ‘pure thought’” (36, emphasis added).

The subsequent section of Chapter 2 deals with a central concept for the book, namely Leo Vygotsky’s concept of “external scaffolding,” which also possesses connections to dance (Clark, 1998, p. 45). Two of Clark’s first examples of this phenomenon, already bordering on dance practices themselves, are the activities of providing “support for the first few faltering steps of a near-walker and supporting a baby in water to allow swimming movements” (p.46). Much “like the elasticity of muscles,” Clark explains, these external supports “form a backdrop relative to which the individual computational problems facing the child take shape” (p. 46). In dance, similarly, the choreographer and the partner function as external supports to help the shape the dancer’s posture, gesture, and other movements.

Think, for example, of the famous scene from the film *Dirty Dancing* in which the dance instructor teaches his new student about the dance frame, tracing an imaginary horizontal circle (formed by the connections of hands, arms and shoulders) connecting leader and follower in what is known as the “closed position” of ballroom dance. The imaginary two-dimensional plane that is outlined by this tracing, I would suggest, is comparable to the platforms supported by the poles of scaffolding erected for the purpose of painting a new building. To flesh out this metaphor, perhaps choreography and dance instruction constitutes a kind of metaphorical scaffolding for the purposes of

“painting” graceful new movements onto the body of the student.

In Chapter 6, “Emergence and Explanation,” Clark turns to Dynamical Systems theory for the same purpose as *The Embodied Mind* did before him, to buttress his account of 4E cognitive science. Also like his predecessors, Clark does so in a dance-resonant way, which includes returning to their central concept of emergence, illustrated with several dance-resonant examples. Clark’s criticism of these explanations of dancing phenomena, however, is that they “are not constrained to constitute detailed recipes for building the kind of devices that they both describe and explain” (Clark, 1998, p. 117). In response to such criticisms, Clark observes, some defenders of the theories in question have elected to “attack the criterion itself,” rejecting the idea that “real understanding requires ‘knowing how to build one’” (p. 121). Clark argues, however, that this defense “misses the point,” which is that “we should understand something of how the large-scale properties are rooted in the interactions of the parts” (p. 121).

My question here, however, is the following: what if, as in the case of dance, a given “whole” really is more than “the sum of its parts”? That is, perhaps the dance is what makes the parts “parts” in the first place (rather than the other way around). Interestingly, Clark himself appears to gesture in this direction at the beginning of his subsequent Chapter 7, “The Neuroscientific Image.” The context here is Clark’s review of a scientific study that concluded that a monkey’s “isolated digit [finger] movements” are “the complex case, with ‘more rudimentary synergies, such as those used to open and close the whole hand’ as the basic adaptation” (given that a monkey’s “primary need is to grasp branches and swing”) (Clark, 1998, p. 131). To make an analogy with dance, the monkeys’ (a) swinging would be like dancing (perhaps

of the “swing” variety, pun irresistible), their (b) opening and closing their hands would be like doing specific moves in a dance, and their (c) individual finger movements would be like every non-dancing thing that humans do with our bodies. What I am suggesting is that we cannot “build” dance from the ground up, or even understand dance by trying to build it from scratch, because our bodies, and the scientific experiments that we design with them, are nothing other than (later) permutations of our species’ millennia-long dances with our environments.

In Chapter 8, “Being, Computing, Representing,” one section is particularly full of dance-resonant moments, which is unsurprising given its title, “Beating Time.” It begins with Clark’s survey of the controversy (initiated by philosophers such as Varela) regarding whether representational approaches can “do justice to the crucial temporal dimensions of real-world adaptive response” (Clark, 1998, p. 160). His first example of such real-time adaptation is “running to catch a moving bus,” in which “there must be a delicate coupling between the temporal activity of the runner and the bus (p. 161). And what better phrase could there be, to describe the core of partner dance, than “delicate coupling”? Cognitive scientists, however—rather than conceding that what is involved in catching a bus is an irreducible dance of would-be passenger and vehicle—have stubbornly clung to failed attempts at a representational solution.

Some of the most popular tools applied in this failing effort have been “adaptive oscillators,” devices which produce “periodic outputs all their own,” namely, electrical signals responsive to “incoming signals” (Clark, 1998, p. 161). More specifically, he explains, when such a device “detect[s] incoming signals, it fires (spikes) immediately and alters its periodicity to bring it slightly more in line with that of the incoming signals,”

such that, “over time,” the oscillator will “come to fire perfectly in phase with the outputs” (p. 161). Or, as he elaborates—using language that could have been borrowed from a conversation about dance—“regular signals” from the environment (of the adaptive oscillator) “cause the device to ‘pick up rhythm’” (p. 162, emphasis added).

To his credit, Clark himself admits that this oscillator-example is vulnerable to anti-representational critiques as well (such as those offered by *The Embodied Mind*), specifically through “appeal to the presence of continuous, mutually modulatory influences linking brain, body and world” (Clark, 1998, p. 163). One of Clark’s examples of this continuous mutual modification makes the connection between that concept and dance explicit. It concerns “players in a jazz trio, when improvising,” and jazz music is foundational for multiple Western dances, including ballroom, swing, Latin, tap, jazz and hip-hop (p. 165). Although Clark introduces this example with the qualification that such “continuous reciprocal causation” is neither “a rare or exceptional case in human problem solving,” jazz and its improvisatory core are, on the contrary, (a) revolutionary in the context of Western aesthetics, and (b) not obviously common in other aspects of a typical white Westerner’s experience today.

Unless, that is, one thinks about Clark’s very next example, with which I conclude this first section of the present investigation. “Dancing,” he notes, like jazz improvisation, “sometimes exhibit[s] the kind of mutually modulatory dynamics which look to reward a wider perspective than one that focuses on one component and treats all the rest as mere inputs and outputs” (Clark, 1998, p. 165). Put differently, representational analyses always imply a hierarchy consisting of a primary thing and a secondary representation of that primary thing, whereas in dance it often seems impossible to meaningfully identify

one dancer as the important part of the dance and another dancer as merely a source of, and (automatic) reaction to, the information from the first dancer. Instead, both dancers often seem equally primary as causes and effects of their dance.

The upshot of this survey of the third and final landmark text of 4E cognitive science is that for the dance of cognition (from Lakoff and Johnson), with its ground-up autonomous partnerships (from Varela, Thompson, and Rosch), the most effective approach is for the more empowered and centrally-controlled partner in the dance (such as the robot vis-à-vis its legs, the adult supporting the baby trying to walk in water, and the choreographer with a student dancer) to empower the less empowered partner in the dance to freely move and generate activity, responding as needed to coordinate that motion with the more empowered partner. That is, the partner dance has always already begun, so there is no need for (nor benefit from) trying to start it from scratch, nor for imposing a controlling, top-down vision on the movements that arise from all the bodies involved. The idea, instead, is to become aware of the dance which we are already dancing—or which is dancing us—the dance that has danced us all since before we were human, and perhaps will do so after we are human no longer.

Dancing-with Practitioners and Clients

Reviewing the above analyses, one can distill from them three “choreographic provocations.” First, from Lakoff and Johnson’s *Metaphors We Live By*, all psychological practitioners, clients and research subjects can be meaningfully understood as dancers. This implies, chiefly, a creative artistry and embodied grounding for both practitioner and client/subject, on which grounds the latter should be approached as a body-mind

seeking to perfect their artistry in the ongoing dance of existence. Second, from Varela, Thompson, and Rosch’s *The Embodied Mind*, practitioners and clients/subjects engaged in therapeutic encounters and research should be understood as engaged in a partner dance, specifically a duet, or pas de deux (literally “step of two”), over which dance neither partner has (nor should have) full, independent control. And third, from Andy Clark’s *Being There*, the most effective approach to therapeutic and research encounters is for the practitioner to empower the client/subject, allowing the latter the greatest possible freedom of movement and initiation, confining the practitioner’s responses to creating interpreting “scaffolding” for emergent patterns in the client/subject’s movement. This allows the client/subject maximal relational autonomy within their own dance, unlocking its transformative power.

Unfortunately, the 4E cognitive science tradition on its own has been reluctant to fully embrace such analyses and their implications, perhaps in part due to its over-emphasis on cognition and marginalization of other aspects of embodiment that are foregrounded by dance, including affect. For example, Clark anxiously backpedals away (vis-à-vis Varela, Thompson and Rosch) from conceding enough importance to dance for it to undermine the dance-inadequate concept of representation that Clark nevertheless defends. Overall, 4E cognitive science has drawn on dance as a kind of ideal, while exiling actual dance so far from cognitive science’s center that dance cannot challenge its scientific legitimacy.

Fortunately, the very dancing conceptuality noted above in this tradition can be utilized to address this problem. In the remainder of the present investigation, I attempt to choreograph several new dancing partnerships, to perform responses to the above choreographic provocations, namely

duets between (a) 4E cognitive scientists and human science psychologists, (b) psychological practitioners and their therapeutic clients, and (c) psychological practitioners and the subjects of their research studies. This terminology is inspired by my own background and training in Rogerian person-centered therapy, as a crisis/suicide counselor and a support group facilitator. I have modified Roger's original terminology (of "therapist" and "client") to encompass various mental health workers (not just therapists) as well as research psychologists and their subjects.

The model for these proposed partnerships is an interpretive method that I call "dancing-with," which emerged (including in the Dynamical Systems sense of that word, as deployed in *The Embodied Mind and Being There*) from the process of writing the first half of the present investigation, along with multiple other articles inspired by the figuration philosophy of dance (cited above). In each case, I offered close readings of a theorist through the lens of dance (from the schools of French feminism, African critical race theory, German Idealism, and analytic philosophy of art), which generated the following pattern: (a) the theorist uses dance, especially as a figure or metaphor, to refer to the most valorized aspects of their theory and the world, while (b) nevertheless marginalizing dance, especially as a concrete embodied practice, on the grounds that it is trivial and associated with the most denigrated people and aspects of the world. Deploying a method inspired by Derridean deconstruction, however, one can strategically flip the dichotomy dance/non-dance, and thereby perceive how dancing aspects permeate the entire theoretical text, invisibly sustaining its structure. Embracing the latter understanding, finally, can help empower both social justice and psychosocial flourishing, to which I return below.

Defined formally, a given theorist X can

be said to "dance-with" with a second theorist Y insofar as X "choreographs" an interpretation of Y which is both true to Y and Y's historical communities, and also meaningful and actionable (i.e., empowering social justice) for X and X's historical communities. In this pursuit, the method of dancing-with involves both (1) a creative "torsion" of Y's thought (particularly in the direction of unconscious, embodied and political factors at work in Y's texts), and (2) a resultant, sympathetic torsion of X's thought toward Y. In other words, X and Y "meet in the middle," like two dancers walking onto the dance floor to explore the promise of a flourishing artistic partnership. In this partnership, each must attend to the way that political meanings are inscribed on the other's raced/sexed/etc. body, both to react maximally justly, and to maximize the movement options that can be brought into play.

It might be helpful to reframe the method of dancing-with in terms of the Latin social dance tradition of salsa, by which the method was inspired, in part because this emphasizes its affective and embodied dimensions. Imagine, if you will, two strangers dancing together for the first time. Dancer X approaches Dancer Y, gesturing toward the dance floor, to which dancer Y perhaps responds with a smiling nod of acceptance. Imagine further, and here I blend the hypothetical with the real, that Dancer X is a 6'3", 180-lb, white cisman, while Dancer Y is a 5'2", 100-lb, ciswoman of Indian descent. For X to have a satisfying and effective dance with Y, one issue they must negotiate is their height difference, especially when X is performing what are called "leads" in the discourse of salsa—movements by the leader which both indicate and initiate other sequences of dance movements for both partners. Additionally, both X and Y must be open to a wide range of possibilities regarding each other's background and circumstances. For example, for all X initially knows, Y might be attending

her first-ever Latin dance, or she might be a professional instructor with fifteen years' experience. For another example, there is always the possibility (especially given the diverse and multicultural makeup of many salsa dance communities), that X and Y are not both fluent in a common language. In fact, the only safe assumptions which X and Y can make are that, given that they have embarked upon a dance together, both will do their best to make that dance a positive experience (if only for the sake of their own individual satisfaction), and each will probably make at least some movements which are unfamiliar and challenging to the other.

At this point, a reader might easily misunderstand dancing-with to be a mere restatement of a postmodern strategy sometimes dubbed by critics "creative misinterpretation" (and often associated with philosophers such as Jacques Derrida and Michel Foucault). The difference between dancing-with and the stereotypical postmodern theory, however, is that dancing-with includes a specific, value-laden comportment. More specifically, dancing-with presupposes an ethical commitment to a comportment of trust and sympathy with one's theoretical partners, grounded in the strategic positing, by theorist X, that theorist Y shares X's goal of ideal psychological flourishing for everyone involved in the psychological practice.

This ethical commitment also derives in part from the fact that dancing-with is modeled on the world of Latin social dance. For any readers unfamiliar with that scene in the U.S. today, amateur dancers gather, around once or twice per week, at a bar, restaurant, or nightclub, in an event usually lasting around four hours, often referred to now as a 'social'. Speaking as someone who has belonged to many of these social Latin dance communities over a twenty-year period, the goal of these communities is to make these dances flourish as much as possible, where "flourishing" includes (but is not limited to)

large crowds, new people, a friendly atmosphere, and aesthetically satisfying dance encounters. To achieve this flourishing, the average dancer must give each of their partners the benefit of the doubt, and act as if those partners are similarly motivated to achieve this flourishing. The stakes for the dancers, moreover, are quite high, in that all are to some degree vulnerable—physically and mentally—to their partners, any of whom could cause injury, discomfort, and feelings of rejection, unworthiness, etc. That we are not deterred by these high stakes, however, begins to suggest the scope of the benefits—which fortunately can be exported to the realm of psychological practice.

More precisely, dancing-with consists of four virtuous powers, which psychological practitioner X posits in client/subject Y, and which correspond to the ethical commitment required of X. First, dancing-with requires moral imagination, for X to imaginatively occupy Y's embodied position to sympathize with Y's ends. By "moral imagination" here, I mean the systematic discipline of bracketing one's moral judgment of another until one has made a sustained effort to imagine oneself occupying their sociohistorical position. (Crucial here are Hannah Arendt's interpretation of Kantian reflective judgment in the political sphere, and Richard Wright's conception of the necessary pain involved in expanding the moral imagination, as discussed in Hall 2016 and 2018, respectively). Second, dancing-with requires courage, for X to understand Y against the grain of present-day conventions and fads. Third, dancing-with requires trust, for X to believe that Y is willing and able to revise their being-in-the-world given new truths and obstacles. And finally, dancing-with requires flexibility, for X to remain open to the possibility that X, X's professional communities, and even X's entire era, might be wrong.

The first section of the present investigation began as one such example of dancing-with, namely the present author (as a philosopher trained primarily in the continental and pragmatist traditions) dancing-with the more analytic-dominated field of 4E cognitive science. In the original process of constructing those interpretations, I found myself becoming more sympathetic to analytical philosophers' creation of sub-concepts through analysis, or clear and precise definitions. This resulted from my realization that their multiplications and subdivisions of concepts could be extended even further, all the way to the logical extreme that one might characterize as a promiscuous plurality of individual beings in the world. That is, infinite analysis would asymptotically approach one concept per entity. This phrase, incidentally, might also be apt for a qualitatively-driven psychology such as that of William James—for whom the best analysis is arguably a singular painted portrait—as well as for the ideal in human science psychology of both practitioner and client coming to understand the client as a singular being (rather than subsuming them under the necessarily imperfectly-fitting universals of the DSM).

In other words, this dancing-with helped me to see greater value and flexibility in 4E cognitive science's analytic methods, and I am hopeful that my interpretations of these three landmark texts have shown that that there is more in their work than has yet been utilized by either dance theorists or psychologists. Put differently, I have tried to show that they can be enticed to dance, even if they might initially seem to have “two left feet.” My assumption here is that all humans possess, in part through our evolutionary heritage, a latent desire to dance (in the broadest sense, inclusive of spontaneous and unscripted, full-bodied, joyous movement), evidence for which includes the pervasiveness of dance in social, warm-blooded, and

mammalian species, as well as in young children.

To translate this point into more concretely dancing terms, the life of psychological practice is like a social dance, at which a maximal diversity of styles might ideally be represented. But this diversity would challenge each dancer-practitioner to get comfortable with, and at least minimally competent in, as many of these styles as possible. And in the latter process, each dancer-practitioner would—albeit subtly, and primarily unconsciously—be shaping their own style in the direction of those diverse other dancers who are learning that style by dancing with them. For my part, I am committed to discursively dancing with as many different theoretical styles as possible, and continue to find those styles more amenable to mine than I initially imagined, and to find myself increasingly flexible and adaptive in transmitting those styles to others.

More generally, and zooming out from the method of “dancing-with” to the figuration philosophy of dance on which it was based, I have argued that figuration implies four psychological and political prerequisites for ideal flourishing, as indexed to its four Moves, namely posture, gesture, grace, and resilience. I will now, by way of conclusion, briefly re-summarize these conditions for the individual. First, posture suggests that the individual is always in motion, and always in tension, despite apparent calm and stability, which means that individuals must always pay attention to their evolving needs and desires, especially at dramatic changes of life such as puberty. In other words, individuals perpetually move and change, and thus require a psychological preparedness for change and capacity to adapt flexibly. Second, gesture suggests that psychological well-being is impossible without physical well-being, and that the apparent foundation

of the mind is built upon a complex and dynamic system of tensions in the active body. Thus, psychological health requires physical health, which requires bodily stimulation and discipline. Third, grace suggests that any situation in which the environment is prevented from flowing through the individual, and vice versa, will ultimately result in isolation and dysfunction, which entails that psychologically supportive, evolving and challenging environments must be provided for the vulnerable and evolving individual. That is, permeability to the environment is beneficial, which means we must promote environments with which fusion is desirable. And finally, resilience suggests that repetition is inevitable, and that what appears initially as madness may be crucial to survival and flourishing. Thus, cycles and patterns will always be repeated, which requires a tolerance of repetition and compulsion per se (though not, of course, tolerance of all specific forms thereof).

To summarize, in the present investigation I have explored the foundational texts of 4E cognitive science, discovering therein a tension between a valorizing of the figure of dance and the marginalizing of dance practice. Regarding the former, these texts suggest that all cognition is an emergent, improvised partner dance, best facilitated by the more empowered partner providing the less empowered partner with scaffolding for producing free movement and identifying emergent patterns therein. From this, I derived three choreographic provocations for psychological research and therapeutic practice, involving treating subjects/clients as dancers, research and therapy as improvised duets, and the ideal psychological practical encounter as the facilitation of freer movement and an emergent flourishing singularity for the client/subject. Finally, to help activate these provocations in psychological performance, I reframed them in terms of my theoretical method of dancing-with,

followed by the four psychological prerequisites for ideal flourishing posited by my figuration philosophy of dance. By way of conclusion, I wish to extend an invitation to the reader to dance-with me as well, and thereby more fully embrace our shared dance of philosophical and psychological practice.

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