



Bridging the Unbridgeable: Toward a Meta-Reductive Science of Experience: Response to Harris and Cartwright Commentaries

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ABSTRACT

The two commentaries on “Synchronicity, Acausal Connection and the Fractal Dynamics of Clinical Practice” (this issue) raise a number of important philosophical and clinical issues when working with the “uncanny” and nonlocal phenomena. While Harris focuses on the importance of bridging prevalent binaries in clinical work, Cartwright contrasts veridical information sharing with the transformational aspects of local and nonlocal intersubjective connection, raising important questions about the nature of interobjectivity. Both reviewers reference parallels to Bion’s thoughts on Caesura. In this necessarily brief response, we attempt to clarify the utility of fostering fractal consciousness and intuitive knowing in clinical work, and wider implications for the collaboration between meta-reductive science and psychoanalysis.

Our target paper (this issue) extends our previous work on nonlocal neurodynamics in clinical work (Shapiro & Marks-Tarlow, 2021) and introduces synchronicity as a subset of “uncanny” experiences examined in light of contemporary meta-reductive science, which offers an understanding of complex adaptive systems, including mind/body/brain. It draws on the fields of quantum neurobiology and nonlinear dynamics that unify subjective and intersubjective realms of mind with objective realms of matter. In doing so, as Cartwright (this issue) suggests, we “attempt to broaden the relational paradigm to include physiological reality and the material world” (p. 493). We also emphasize the importance of grounding ourselves in the material world, partly by transcending the material/psychological boundaries in utilizing a *fractal epistemology* approach.

In sections to follow, we can only address selected elements among the rich ideas and associations presented by both commentators. Most importantly, we wish to stress that a fractal epistemology and nonlinear dynamical thinking potentially allow us to liberate the “uncanny” from supernatural connotations and utilize both local and nonlocal intuition to preserve the multi-level complexity of intersubjective interaction, without eschewing the wider physiological and informational reality beyond the confines of hermeneutic constructivism.

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Bridging the binaries

In the introduction to her commentary, Adrienne Harris (this issue) reminds us that nonlinear dynamics and fractal conceptualizations “have wide application both in thinking about psychic structure and various formations of complex subjectivity and in clinical process” (p. 487). She stresses the need to re-formulate the prevalent binaries of gender, race, and class as “emergent complexit[ies] with resonance and difference[s] that dissolve and reform” (p. 487). We are in full agreement with this social agenda. More generally, the notion of “emerging and dissolving complexities” can serve as a unifying principle for the evolutionary foundations of psychoanalysis, and a common ground between the emergence and evolution of complex adaptive systems in both biophysical and psychic structures (Shapiro & Scott, 2018; Slavin & Kriegman, 1992).

The paradoxical separating/unifying nature of fractal boundaries allows us to bridge the notoriously entrenched Cartesian chasms of brain versus mind, biological versus psychological, and subjective versus objective domains in clinical work. From this vantage point, the very binary of material versus psychological reality, which alienated psychoanalysis from natural sciences in the past century, can be seen as a superficial construct that rests upon an underlying psychophysical foundation (Shapiro & Marks-Tarlow, 2021). The opportunity in all these cases is to look past the binaries for a dialectical synthesis with a common underlying fractal theme or pattern—the “prime substrate” of a wider informational reality and our human experience of it.

The natural versus supernatural binary is another false dichotomy that needs to be addressed here. Harris contends that Freud’s notion of the uncanny “conjures up magic and the supernatural,” and “we do not need to evoke magic” in clinical work with our patients (this issue, p. 490). As one of the authors pointed out in his earlier work, “there are no ‘supernatural’ phenomena in Nature but only *as yet unknown* principles that will be incorporated within ever more encompassing naturalistic and trans-materialist paradigms” (Shapiro & Scott, 2019, p. 167). Indeed, the natural/supernatural dichotomy can be seen as yet another binary that a fractal epistemology allows us to transcend. In this light, the focus of meta-reductive natural and clinical sciences is to explore the *transcendent*—our differing ways of experiencing self-in-the-world, from rational/analytic to experiential/intuitive to nonlocal/participatory modes of consciousnesses, all the way to repressed and unrepressed unconsciousness.

Caesura and the spectrum of conscious states

Both commentaries touch on Bion’s construct of *caesura*, a form of primitive unrepressed unconscious that in the words of Bergstein (2013) “serves as a model for bridging seemingly unbridgeable states of mind” (p. 621). Indeed, the ontology of conscious experience may involve a wide spectrum of conscious states of which the conventional varieties of conscious and unconscious experience are only a small part. In reference to the transcendent, Tart (2009) forecast “the end of materialism” as a foundation of natural and psychological sciences, advocating for a meta-reductive framework with “state-specific sciences” requiring specific languages matching the prevalent mode of consciousness being utilized. A fractal epistemology offers us the first potential meta-language that allows for “bridging seemingly unbridgeable” by utilizing self-similarity and scale invariance among diverse physical,

biological, psychological, and social domains echoed in a vast variety of conscious and unconscious modes of experience.

At the level of clinical discourse, Harris questions whether we can “think of uncanny resonance as a process available to us all, in analysis and in life . . .” (this issue, p. 491). We believe that intuitive knowing, in its local and nonlocal domains, reflects core processes of psychophysical unity that underlie biophysical (brain) and psychosocial (mind) dynamics. However, we must distinguish between *fractal thinking* and *fractal knowing* here, which parallels the distinction between rational/analytic and experiential/participatory domains (Flor-Henry et al., 2017). In translating intuitive knowing into conscious awareness, the intersubjective dialogue allows for a conscious choice of more adaptive action, both within the therapeutic dyad and in the patient’s life outside the office. This applies to both local and nonlocal forms of knowing, such as extraordinary kinds of transcendent states comprising Bion’s concept of O.

Bion’s prescience

Bionian Field Theory exemplifies a common but deeply problematic psychoanalytic assumption that intersubjectively shared states are somehow composed of “energy” and represent “information exchange.” The laws of physics tell us that all energy fields have a carrier and degrade with the square of distance in space, whereas conscious processes and uncanny “extraordinary knowing” do not. In our previous paper (Shapiro & Marks-Tarlow, 2021) we suggested shifting the clinical metaphor from *information exchange within an intersubjective field* to *information sharing within an intersubjective matrix* of the analyst and patient, wherein cascading fractal patterns serve as channels of resonance between quantum and classical domains.

We agree with Cartwright (this issue) that Bionian Field Theory can be updated by these more contemporary ideas and that Bion’s description of O bears uncanny resemblance to the notion of a unified prime substrate. However, as Cartwright suggests, we speak of information sharing, while Bion speaks of transformation. Where, when, and how transformation occurs in contrast to mere information sharing remains an important issue that needs to be explored. From the perspective of thermodynamics and complexity theory, systems that exist in far from equilibrium conditions, including living organisms, are the most likely to display *emergent novelty*, which enables evolutionary complexity and transformative processes compared to systems existing close to equilibrium (Qian & Beard, 2005). We would suggest that this holds clinically as well. When the coupled dynamics of the therapist/patient dyad are high in emotionality, arousal, and shared motivation, and particularly when the rational/analytic domain is complemented by the openness to experiential/intuitive processes such as free association, reverie and dream states, systemic transformations spontaneously self-organize within the intersubjective matrix, which may lead to qualitatively different trajectories of the patient’s life (Shapiro & Scott, 2018).

As Cartwright notes, “Bion’s formulation of O has come in for a lot of criticism for being ‘less disciplined . . . mixing and blurring categories of discourse, embracing contradictions, and sliding between ideas rather than linking them’” (this issue, p. 496). Ironically, this criticism aims at “fractal sensibilities” evident in Bion’s thinking at the time. It is striking that the very aspects of Bion’s ideas for which he has been criticized—fuzzy boundaries and co-existence of internal contradictions—reside at the heart of a fractal epistemology. Yet, as

occurred with Bion, the dismissal and ostracism of prescient concepts as “sloppy”, “wrong”, or “deranged” occurs again and again across all disciplines in the history of ideas.

Why the edges comprise the center

Cartwright asks for clarification about the need to “shift focus” from the center to the edges of the phenomena we observe. We believe that focusing on the boundary conditions and transitions of the clinical processes makes for a more dynamic and inclusive psychoanalytic theory. Whether in nature, the intersubjective matrix, or culture at large, boundary zones are ripe with novelty and most accessible for discovery. One reason that dreams are so powerful in revealing the totality of the psyche is their emergence at the edges, in the space between unconscious and conscious processes.

From a relational perspective, focus on a patient’s sadness is certainly helpful, especially when their primary need is to be seen, accepted, and accompanied in the face of trauma or losses in their past. Yet, to focus on transition points into and out of the sadness—its trigger points and points of dissolution—promotes an engaged and dynamic focus that includes a potential for revising the patient’s templates of relatedness within the here-and-now of clinical interaction.

A more general example of the centrality of the edges is evident within statistical methods available through fractal geometry. The traditional Bell curve is a linear statistic that presumes independence of underlying elements—all too often a false assumption, especially when used in service of comparing clinical treatment trials. The Bell curve works by collapsing population variability to a central tendency. As a result, the more one samples a population—the more stable and reliable its central tendency becomes. By contrast, *power law distributions* that capture real-life processes and fractal patterns over time, such as stock market fluctuations, weather patterns, or variability of self-states (Delignières et al., 2004), presume *interdependence* of underlying elements, where linear statistics no longer applies. The result is marked *sensitivity to initial conditions*, where the system’s precise trajectory cannot be predicted in advance, and we can only speak of general patterns or *attractor dynamics*, which never precisely repeat themselves. The more one samples the population—the *greater the uncertainty and variability* encountered. This occurs precisely because the “power” of a power law statistic does not reside in the middle (central tendency) but “in the tails” (West, 2016).

Clinically, pattern analysis and the need to “sit with uncertainty” are familiar to all dynamic therapists. The outcome of any course of treatment or any therapy session is unpredictable from the outset, but we can utilize fractal pattern re-enactments—or self-similar themes in the transference/countertransference dynamics—to gradually change the trajectory of the patient’s life. As Amini et al. (1996) suggested, “The therapist’s job is to allow the duet to begin and to take up his/her place in the melody, so that the piece can gradually be directed to a different ending” (p. 234). Experience trains psychoanalysts to seek nuances and tiny differences from patient to patient, session to session, and moment to moment. To an attuned clinician, no two depressions look the same; if they did, that person could not function as a competent therapist.

A third way that the edges comprise the center when viewed more holistically involves *interobjectivity*. Despite their prevalence, experiences of synchronicity and other “uncanny” phenomena tend to be relegated to the edges of the field of psychoanalysis due to their controversial nature and previous difficulty finding a scientific framework to explain them.

We hope that by offering a fractal epistemology as a solid scientific framework, our colleagues will feel freer to speak and write about phenomena such as telepathy, distant and precognitive awareness, remote healing, etc.

The nature of interobjectivity

Mystery will always be part of the scientific exploration, but mystical realms no longer need to imply magical or supernatural connotations. The challenge of “scientific mysticism” is to map a rigorous study of nonlocal/participatory knowing that would “sift facts from imagination, and construct empirically verifiable models of these phenomena” (Shapiro & Scott, 2019, p. 151). Cartwright states that “Bion thought that it was ‘... impossible to know and talk about O, just as one cannot sing potatoes’” (this issue, p. 496). This implies two more binaries: the left rational/analytic versus right experiential/intuitive modes of knowing, and local-interactive versus nonlocal-participatory modes of consciousness. Bion’s conventional definition of “knowing” and his association between “knowing” and “talking” may be too limiting in that he implicitly equates “knowing” with the verbal rational/analytic domain. As Cartwright suggests, with the expanded vision of a fractal epistemology, “perhaps we can ‘sing potatoes’ after all” (this issue, p. 496)—the lyrics and melody accessible not in the form of words and notes but in attending to intuitive experiential/participatory channels.

From the fractal psychophysical perspective, mind and matter are seen as two sides of the same coin—‘turtles all the way down’, from cosmological to quantum scales. Especially for post-modern constructivists, this renders the transsubjective realm of interobjectivity an important anchor to ground all subjective and intersubjective processes. Alongside the informational prime substrate, the material realm is vital within clinical practice. It is essential to incorporate a physiological understanding of how the brain, nervous system, and body develop and interact to form healthy and unhealthy attachments through regulation theory (Schore, 2012). How a somatic experience correlates with a feeling or intuition in the mind; how a brain scan relates to clinical experience, how a clinician’s experience of outer reality contrasts with a psychotic delusion—all are important aspects of the material realm that need to be folded into clinical practice. While from a purely subjective perspective, there may be no outside metric for evaluating these phenomena, the interobjective perspective provides additional sources of evidence and corroboration.

The very sciences of mathematics and fractal geometry simultaneously represent inventions of the human mind and discoveries corroborated by nature, displaying an interobjective dimension where fractal self-similarity unifies and substantiates the interpenetration between processes of the mind and the material world. While correlations between inner and outer processes is a main advantage and utility of the interobjective concept, there is no veridical solution space that holds for all therapists and patients. What feels “true” must be scrupulously examined from multiple subjective, intersubjective, interobjective, and objective angles in search of empirical corroboration of how complex adaptive systems of mind/body/brain that comprise our subjectivities interact in physical and social worlds.

Fractal consciousness and clinical intuition as trans-theoretical factors

Broadly, Cartwright wonders whether we “are suggesting a specific analytic approach or . . . embrace a particular theory of technique or analytic process,” continuing that “it is relatively unclear what the analytic goals should be, based on fractal epistemological sensibilities” (this issue, p. 500). We admit our reluctance to state specific analytic goals or even to limit our concepts to the psychoanalytic domain. To start out with well-formulated goals or ideas of what should happen tends to reductively constrain what *actually* does happen. Given that fractal sensibilities operate in the larger matrix of uncertainty, ambiguity, and open-ended complexity, we believe it prudent to avoid predetermined, cognitively driven directions, both in psychoanalysis and natural sciences as a whole.

One important implication of a fractal epistemology for clinical practice is to elevate and underscore the role and value of clinical intuition for attuning to the full complexity and variability of what is present and unique from moment to moment. Our rational/analytic left brain, powerful as it is in allowing for symbolic language and abstract reasoning, is simply too slow and limiting for the task, much like trying to analytically calculate the precise trajectory of a baseball run. Rather than theory-driven tasks, it is openness to diverse theoretical perspectives and various forms of clinical intuition, both local and nonlocal, that best preserve the analyst as an open container that allows for emergent novelty and transformation. From this perspective, clinical intuition, especially as informed by fractal sensibilities, is a key trans-theoretical factor in healing and growth. Here too, the power lies at the edges or “in the tails.”

Until the advent of interpersonal neurobiology and advanced brain scanning techniques that enable the simultaneous measurement of two brains immersed in relational context, even local forms of intuition were considered too ephemeral or “magical” to be a valid aspect of a clinical theory or training. A fractal epistemology argues for the value of cultivating and tuning into clinical intuition more than it supports specific practices or goals.

Perhaps it behooves us to heed to Bion’s call for putting aside “memory and desire” at the meta-level of theory. The epistemology is best viewed as a framework for perception and conception in dynamic, spontaneous, and emergent ways, serving as a metaphorical lens for processing experience rather than as a heuristic for technique or action. It also motivates us to look at how we know what we know, without confining our knowing to the rational/analytic domain. Once we “see” fractal dynamics in the natural and psychological world, we cannot “unsee” them. As clinicians start to process transference-countertransference, epigenetically induced genetic expressions, intergenerational patterns, and self-similar cultural resonances as fractal processes, we hope that analytic discourse will continue to morph in as yet unimaginable ways.

Since the inception of psychoanalysis, the number of schools of psychotherapy have proliferated at an extraordinary rate. Gilbert and Kirby (2019) have identified more than 400 schools of psychotherapy, a number that is ever multiplying. Yet empirical studies suggest that what practitioners actually say and do is more similar than divisions among their theoretical positions may indicate. Most schools of therapy yield roughly equivalent results, the so-called “Dodo bird effect” that led to the importance of identifying trans-theoretical “principles of care.” The quality of the patient/therapist relationship and the patient’s subjective experience far outweighs the impact theory-specific interventions,

which only account for 1 to 8% of the treatment outcome (Norcross & Lambert, 2019; Shapiro, 2018). More recently, memory reconsolidation (Lane et al., 2015) has been highlighted as another trans-theoretical factor in trauma work.

We suggest that clinical intuition as informed by a fractal epistemology is yet another crucial trans-theoretical factor. If fractal consciousness is indeed the underpinning for clinical intuition, then both topics should be of utmost significance to all clinicians, especially within training programs. One of us (Marks-Tarlow, 2012, 2014a, 2014b, 2015) has written extensively on the nonlinear nature and importance of clinical intuition for filling the gap between theory and practice. How each practitioner “sees” fractals in the psyche and larger world will color their subjective and intersubjective palette in ways that differ from person to person, much as the particular blend of local and nonlocal forms of clinical intuition differs between us.

Conclusion: fractal epistemology as meta-theory

Fractal processes exist at all levels in nature, providing hidden order underneath seeming chaos that extends from quantum realms to how rivers bend and stars cluster. Their ubiquity opens doors to multidisciplinary as well as multicultural input. If our offices are sealed hermeneutically to natural science and material reality, clinicians operate in a vacuum that excludes and devalues the shared dimension of the natural world and our place in it, from shared physiology to chemical, biophysical, and ecological underpinnings of life.

Within a meta-reductive perspective offered by nonlinear dynamical systems theory and informed by a fractal epistemology, clinicians can utilize findings from both social and hard sciences, building on the wholistic complexity to the benefit of our patients. We can now expand on Freud’s dream of the “science of the mind,” bridging “seemingly unbridgeable” domains of consciousness versus matter, subjectivity versus objectivity, order versus chaos, rational versus intuitive, analytic versus experiential, and local-interactive versus nonlocal-participatory without reducing them to one component at the expense of another or engaging in endless debates about which perspective is “the truth.” The real debate has never been about psychoanalysis versus science or social constructivism versus material reality—but about our pervasive tendency to reduce the vibrant wholeness of “emerging and dissolving complexities” in our experience and the world around us to a rational set of algorithms, whether materialist or hermeneutic. It is our sincere hope that a fractal epistemology approach will serve a transformational and integrative role in the dialogue between psychoanalysis and neuroscience, and among diverse psychotherapy approaches to the benefit of all clinicians and their patients.

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