The Fractal Geometry of Intersubjectivity

Excerpts from Chapter 8
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Many contemporary therapists have shifted from one-person to two-person psychologies… From a one-person perspective, psychological boundaries appear straightforward. The therapist's eye forms a clean mirror separating patients' inner from outer processes, subjective fantasy from objective truth. The move to a two-person perspective causes everything to shift, with the matter of psychological boundaries becoming especially complicated. The interlocking gaze between mother and baby functions like two mirrors facing one another, displaying the infinite recursion of two worlds, each endlessly reflected in and of the other. The transition from one- to two-person theories calls for a new language of intersubjectivity flexible enough to contain feedback loops and recursive elements, including the paradoxical entwinement of self and other…

This chapter covers complexity within self-other relations by exploring the clinical utility of fractals for re-conceptualizing psychological boundaries. Along with Philip Bromberg (1998, 2006) among others, I view intersubjectivity as pattern that forms uniquely in the space between self and other. This pattern is both emergent and self-organizing, offering a degree of complexity not present at the level of constituent people. Because fractals often reside in the space between objects, processes and levels, this chapter illustrates the clinical utility of fractals to model emotional dynamics, such as projective identification, where what is inside versus outside one person versus another becomes unclear, and patterns appear to arise in the intersubjective space created by two interlocking psyches. I begin with a clinical illustration, the case of Mae, chosen specifically for core dynamics that "leaked" across open therapeutic boundaries to become enacted within the therapeutic alliance. Mae's early trauma led to her inner dissociation between good and evil. Self-similar repetition of this trauma within the therapeutic alliance brought hopes for new levels of integration within Mae. By making these dynamics relationally alive, they could be consciously and conscientiously examined in doses enough small to be tolerated and affect inner repair.

Through conceiving fractal borders between self and other clinically, I demonstrate how dissociation easily translates into projective identification, as split-off, "unwanted" pieces of self become projected onto the other. When posttraumatic symptoms are present, "loose" boundaries between self and other sometimes appear as the pathological outcome of derailed attachment. Yet open boundaries and projective identification do not only indicate pathological condition. In this chapter I also show how self-similar operations of projective identification characterize normal, adaptive development…

GOING TO EXTREMES

From the beginning working with Mae filled me with extremes of horror and marvel. Mae's parents lived in China until each immigrated separately to America during early adulthood. Mae's mother was an unwanted baby girl, whose own mother had hurled her to the floor upon birth. Passed among distant relatives, Mae's mother never felt wanted or loved. So much early abuse and neglect perpetrated against this woman had infused her with an erratic, explosive temper. At times Mae's mother would bang her little girl's head against the bathtub or drag her sister by the hair across the apartment. Unwittingly Mae's mother also carried misogynist seeds implanted within her into the next generation. She readily mistreated her two girls, while not once laying a violent finger on her youngest, a baby boy.

Family rumor had it that Mae's father was sold as a sex slave around age 8. Although managing to escape, the boy suffered a bike accident in which he landed on the front of his head. Mae talked about her father as if he were an animal leading a simple life centered on insatiable appetites for sex, fight, and food. From Mae's description, I speculated that her father's accident caused severe neurological damage to his prefrontal lobes, including executive functions involved in higher judgment and impulse control. Mae's mother was raped on their first date, with sexual violence continuing throughout the marriage. In the apartment pornography was strewn everywhere. The degree of neglect and squalor is apparent from Mae's recollection of hiding under the bed after neighbors had called 911 to quell a parental fight. A policeman walking through the door involuntarily exclaimed, "What a shit-hole!"

Mae was sexually molested by her father, which occurred at least twice around age 6. She remembered her father playing with her nipples, but did not perceive this as sexual abuse until her first boyfriend repeated the act during sexual petting. In her early 20s that reenactment brought out Mae's distress, causing her to seek psychotherapy. In the aftermath of so much early abuse and neglect, Mae struggled with compulsive eating and a host of physical problems, including fibromyalgia, endometriosis, and restless leg syndrome, for which she was taking L-Dopa medication. She remained in psychotherapy for about six months, until she became discouraged. Mae left believing her therapist had condemned her to the possibility only for adjustment and not full recovery.
This tenacious young lady rebounded by burying herself in college studies and attending medical school to become a surgeon. She also converted to Catholicism, where she found great solace in the strict doctrines and regular Church attendance. Mae stopped having premarital sex, a great relief, given that sexual activity had always felt "dirty." Mae had a history of compulsive masturbation beginning at age 11. She recalled a poignant moment as a teen-ager while baby-sitting, when she felt the clear potential to become a sexual

molester herself. A little boy accidentally brushed against her groin. Mae felt a flash of temptation to pull him closer to masturbate herself, and resisted the temptation "but for the grace of God."
Now Mae was engaged to Shep, a Caucasian doctor much nicer than her first boyfriend. During their several year relationship, Mae had become increasingly verbally and physically abusive to Shep. More and more she exploded with "episodes" she likened to epileptic fits, where she swore, taunted, hit, threatened and once even pulled out a knife to threaten him. Mae sought psychotherapy with me to interrupt the intergenerational pattern of abuse. Determined to make a good marriage, she expressed initial hopes of erasing all the bad from childhood. Mae's goal was to excise her trauma, as well as to undo and eventually redo her history. Mae had bucolic visions of living peacefully with her brother, sister, and parents, not in violence, but in love and mutual kindness.

Whoa! I've never seen anything like this! What an amazing contrast! Such exquisitely high functioning next to such primitive emotionality inside this competent doctor. Just look at that street kid from the inner city hood. So close to the surface. Wants to shake her fists. Yet such naïve hopes …such compassion for her abusive father…such a pure ideal to wipe out the bad, while preserving the good.

Over the next several sessions, months and years, I continually experienced reverberations of the "shock" at these contrasts within Mae's psyche and functioning. My awareness of the extremities of my own emotions provided a self-similar, titrated glimpse of Mae's own un-integrated extremes, providing good preparation for what was to come, and attesting to Bromberg's assertion (1998, 2006) of the utility of attending to such self-states.

During our fifth session Mae and I discussed a circulation problem in her leg that continued to elude the understanding of traditional Western doctors. The only thing relieving Mae's symptom even temporarily was a hip-opener, a yoga pose called Virasana (Sanskrit for "hero's pose"). With 30 years of yoga practice under my belt plus an intense interest in the mind/body interface, I could intuit the meaning of Mae's symptom. I suggested that perhaps Mae's legs were still trying to carry her away from the extensive abuse, through symptoms of going numb plus the "running" of her restless leg. Adopting the posture of a hero, gave Mae the strength and courage to still herself. Mae was nodding as I spoke, accepting my interpretation readily, as she sensed a fit with implicit processes within her body.

Mae appeared the following session clutching a piece of paper. As she walked into my office, she handed me the paper and asked me to read it to myself, because she could not speak the words. As I read silently, my entire being filled with horror. Apparently a new memory had surfaced in Mae between last session and this week's, consisting of Mae's father bouncing his young daughter on his lap. As he did so, he manipulated her genitals with his hand. Mae struggled to leave, but her father refused to let go. He pinned his young daughter down with strong arms, and as the sexual touching continued, Mae studied the look of utter determination on her father's face. Only upon bringing his daughter to climax, when her body slackened, did he release his daughter from his grip. Mae clearly saw the pain written all over my face as I read her words. We discussed the sequence of events that had just led to the re-surfacing of this memory. A female friend

of Mae's had mentioned the word "orgasm," and Mae remembered a moment of physically recoiling at the word. Later at home, as Mae worked on a crossword puzzle, the image of her father from childhood spontaneously arose. Minutes later, Mae's fiancé entered her apartment. One glance at Mae's face and her furious scribbling movements alerted Shep that something was amiss. When Shep asked Mae what was wrong, she continued to work on the puzzle without once looking up once. From somewhere deep inside her, strange and unfamiliar sounds came out in low pitch, scream-like sounds. In a voice utterly unfamiliar to Mae, choppy words flew out of her mouth like bullets to spit out the hateful image.

As we talked about the incident, I quickly realized that nowhere inside of Mae did she want to believe her memory was real. No sooner had we discussed the episode, than Mae begged me to declare it all a product of an overly fertile imagination.

I'm aching with your pain…wish I could support your wishes, but I can't. The event is too embodied…your body is screaming what your mind has little capacity to believe. Your legs want to run. Your words come from a place beyond your control. All the while, your heart dedicates itself to preserving your father's innocence. As I experience this tragic split, my own gut yells out, "This feels all too real."

We could speculate that by accepting my interpretation about the comforts of Hero's Pose, Mae's symptoms themselves changed, as if she took something of me into her that served as a detoxified reenactment of earlier boundary violations, leading to what happened next. While the content of my interpretation contributed to Mae's recall, simultaneously I suspect there was also a non-verbal enactment to our own interaction. In a way we could say I too was "touching her down there," not for the same reasons and clearly with a different intent of my own. The violation and penetration was similar but different enough from what happened with her father. The event occurred on a much smaller, titrated scale, allowing Mae's mind to re-create this memory within a new context.

WILL THE REAL DEVIL STAND UP

For Mae the aspect that was too real to bear/ bare concerned the problem of evil. When Mae had remembered the nipple fondling alone, she could imagine that her father acted out of the animalistic simplicity of his own damaged mind. If he did not know what he was doing, then maybe he did not realize he was hurting his daughter. Maybe he even acted out of love. However this new memory of being touched "down there" blew apart that whole construction. The actions of Mae's father were too sexually explicit to sustain her former belief. The revised version was too painful, too incongruent for Mae to assimilate and integrate. As Mae understood it, such acts could only be perpetrated out of evil. As therapists we can envision the behavior of Mae's father a bit differently. Through a more clinical lens, the abuse appears to be a dissociative re-enactment of Mae's father's own early trauma, however evil or driven out of his own acknowledged pleasure.
In the following months, as Mae and I dipped in and out of the memory and incident, she experienced some relief from chronic anxiety. Once in the middle of the night, Mae left a panicked question on my machine, Can this "thing" with my father ever go away? Indicating a moment when Mae was not sure she had the resources to handle her

dysregulated emotion, our work felt like a continual tooling and refueling of Mae's resources to address her difficulty accepting what she remembered and felt. Our sessions jumped around erratically, touching various topics including intense discussions about race, class, and abusive friends. Meanwhile eating-wise, Mae "fell off the food wagon." Then a series of violent explosions erupted towards Shep, plus a dream that her abuse of Shep was "all her own fault…"

In counterpoint to moments of intense emotionality, our sessions often waxed "clinical," as we delved into the neurobiology of trauma-driven symptoms. I highlighted the nature of dissociation within Mae's continued difficulty regulating emotions of fear and vulnerability that so quickly switched into bursts of anger and violence. Her outbursts were so sub-cortically driven that Mae felt she had no control over them and strained even to remember the events surrounding these explosions at all. Mae took well to this level of analysis, which was consistent with her surgical career choice. These discussions helped her develop a witnessing consciousness while decreasing shame, partly by normalizing Mae's strong emotions and violent outbursts.

Then one day for the first time, Mae did not show up to therapy. When I reached her by phone she confessed profound fears to face me. After running out of Paxil, she had masturbated for the first time in years while suffering withdrawal symptoms from the drug. Mae felt she had committed a mortal sin. Furthermore because I am Jewish, she feared I would not be able to understand the nature of her sin. I would respond by trying to take away Mae's beliefs, perhaps stealing something from her as her father had. Mae was also frightened that talking about this would trigger my anger concerning her doubts about the utility of our continued psychotherapy.
Our even-paced telephone conversation helped to relieve Mae, and because it had gone well, she agreed to return the following week. On that day, much to her surprise, Mae did not find it so hard to face me. During our session Mae was shocked to learn that her chronic, low-level "dirty" feelings around sex were not something everyone else felt, but were yet another post-traumatic symptom. Mae expressed both relief and hope for her future.

Two weeks later Mae missed another session. Again wanting to terminate therapy, she only agreed to return for a last meeting. That session proved to be one of the most extraordinary encounters of my life. Mae was open and frank about a new set of horrors. She felt the Devil was leading her down a dangerous path of temptation through our psychotherapy. My comfort and clinical attitude towards her masturbation was wrong. She now felt compelled to seek help in a different form. She strongly believed she either needed to visit a priest-therapist or someone else more like herself, who viewed masturbation as a sin and who, like her, perceived evil literally and concretely in the form of the Devil. The immediate trigger for Mae's crisis in faith had been a book she recently read about possession. One of the cases documented involved a therapist who was an atheist. Under the devil's spell, the therapist denied the existence of evil, partly by treating the presence of the Devil more symbolically than concretely.

Oh my God. I can't believe this is happening. Feels like a dream. Maybe a movie. I feel so removed from Mae's world, yet so connected to her. So much sympathy for her plight. Of course she's confused. Of course our differences seem threatening. Maybe she's right.

Maybe she does need priest or a therapist who is more like her. What a strange contrast – I'm clear as a bell, yet filled with doubt. Have to hang in there until we figure the right course of action out.

Carefully Mae and I examined the nature of her promptings to leave therapy with me. Partly she yearned for guidance. Mostly she was gripped by fear that the Devil was leading her astray. But when it came down terminating, Mae confessed that she did not really want to leave, especially when she considered how well understood, helped, and freed from previous symptoms she felt.

Next we talked about how the Devil operates (medical pun intended). Mae explained that the Devil does not want people to feel helped. Instead he instills doubt and fear in order to draw people away from the light of God. This was an eye-opening moment for us both. Upon hearing her own words, Mae suddenly experienced a change of heart. The Devil was not tempting her with the sinful, forbidden fruits of therapy. Quite the opposite – the Devil was tempting her away from an important source of help, solace and healing.
In a flood of relief, Mae recognized the necessity of continuing our work together. If there was anything about how I participated with Mae that allowed her to recognize this, I suspect it was my willingness to thoroughly entertain doubts along with her, so that the solution to the cultural "problem" of our psychotherapy became a shared affair. My "relenting" stance (see Hesse & Main, 2006) helped reverse any previous penetrations and opened up some space for Mae to come forward with her own new interpretation. By not starting out "aggressively" with an agenda towards which I was determined to move Mae, the "eye opening" instant came spontaneously for both of us from Mae, an intersubjective moment of mutual surprise…

FRACTIONAL DIMENSIONALITY

Before analyzing this case in terms of fractal boundaries, let us examine the formal quality of fractional dimensionality where, as mathematically defined, fractals reside in the infinitely complex space between ordinary Euclidean dimensions. Most of us remember Euclidean geometry from grade school, where we learned how regular shapes like points, lines, planes and solids, combine to form various angles and objects. We studied the Platonic solids, those regular polyhedra with angles and lines all equal in size, as the building blocks of nature.

As simple as these shapes are, their geometry is still abstract. No one has directly experienced a zero-dimensional point, a perfect sphere, or even a truly one-dimensional line… Whether involving points, lines or planes, this spreading out between ordinary dimensions constitutes the essence of fractal dimensionality. A fractal can be understood as a lower dimensional object that occupies a higher dimensional space. For example, a cloud is a cluster of zero dimensional points that spreads into three-dimensional space; a coastline is a one-dimensional line that squiggles around a two-dimensional plane; a mountain range is a two-dimensional surface draped over a three-dimensional foundation. Quaternions are three-dimensional objects that dance across four-dimensional space. Some believe that quaternions and other hyper-complex shapes provide clues to the internal landscape of higher dimensional thought (See Wolff, 1994; Mindell, 2000)…

THE EYE OF THE BEHOLDER

Fractals are entirely observer-dependent shapes, because the exact shape seen is completely relative to the size and quality of the measuring device. For this reason, the notion of fractal dimensionality reveals some extraordinary magic in ordinary objects surrounding the unexpected relationship that holds between observer and observed. Generally the smaller the measuring sticks the larger the measurement. In this way fractal dimension is not only a measurement of quantity as we usually conceive it, but also a measure of the quality of relations between the observer and observed. No wonder fractals are so useful as model and metaphor for internal experience.

With fractals, sticking only to quantitative measurement leads to a paradox, precisely because the smaller our measuring device, the longer the measurement. This led to Mandelbrot's (1977) famous question, "How long is the coast of Britain?" along with his remarkable conclusion – the length of any stretch of coastline is infinitely long. This paradox demonstrates why fractal boundaries are "irresolvable." We can never converge on any objective agreement about their precise quantitative measurement that is true for all observers on all scales. But as often happens in science, paradox is averted through new discovery. By expanding the traditional notion of dimensionality to include fractional dimensionality, the paradox is absorbed as new relations are redefined between the observer and observed.

Sometimes fractals form the boundary zone between two basins of attraction. When a fractal boundary appears, the whole of each basin becomes recursively enfolded infinitely many times at the edge. Because each side recurs at ever-smaller scales, fractal boundaries form endlessly complex, self-referential zones of articulation and negotiation. When a fractal occupies the space between attractors … many paradoxes arise. The boundary comprises a bounded area, yet is infinitely deep. By including everything surrounding it, the boundary is both inside and outside the attractors it divides, serving to separate and connect at the very same time.

We can easily translate this image to a psychological situation. Simply imagine an obsessive-compulsive person trying to use logic to make an emotional decision, such as which flavor of ice cream to select at the store. Trying to decide between strawberry, vanilla, mint chocolate chip and bubblegum, the person will jump from one to the next randomly, getting lost in the spaces between them, within fractal boundaries that separate while connecting each attractor basin. Images drawn from nonlinear science can help us better to understand why thought needs to be integrated with emotion, the left-brain with the right, in order to avoid endless thought-looping if attempting to use only linear logic when making decisions such as this.

WHO HOLDS THE EVIL?

With these new concepts in hand, now we are ready to conceive of coupled dynamics within the intersubjective field in terms of fractal borders. In returning to the case of Mae, rather than picturing four colored basins representing possible flavors of ice cream, imagine only two basins of attraction, one shaded black and the other white in order to represent good and evil. Once again porous fractal boundaries both separate and connect these two basins permeating multiple intrapsychic, interpersonal and even cultural descriptive levels of observation.

With this concrete image in mind, let us try to form an intersubjective picture of what happened in psychotherapy. Mae could not tolerate the recognition of evil within her father. So she relocated the conflict first within herself, through her concerns about masturbation, which she perceived as evil, and then into me, for my comfort in supporting Mae's evil behavior.

From a dynamical systems perspective we can see self-similar repetitions of the original abuse within coupled operations of our psyches working together, albeit it largely at unconscious levels. The multiple enactments between Mae and myself reveal how open, fractal boundaries surrounding core dynamics can so easily and self-referentially spill across the intersubjective space between therapist and patient.

The internal boundary, between good/evil, impermeability/untouchability, permeability/vulnerability, so clear-cut in the beginning, became increasingly mixed up and violated by me as therapist at multiple levels, both implicitly and explicitly. When I touched her "down there" with my interpretation, the violation – in the form of interpenetration between good and evil, black and white – first triggered inner trauma and then crossed an outer boundary to translate into transference/countertransference enactments between us.

Within the safety of our therapeutic alliance echoes of early trauma transformed Mae's internal split into an external struggle between us. This repetition, related to what psychoanalyst Levenson calls "isomorphic enactment," proved a double-edged sword. Self-similar themes carried the threat of dissolution alongside the promise for healing. My relenting, in the form of compassion for the disruption in our therapy, was a role reversal that probably helped Mae to find her own penetrating insights. As Mae healed from the split that erupted between us – where I/therapy appeared evil versus a priest/religion appearing good – at a small scale, Mae integrated what she needed to heal similar splits on larger scales and other descriptive levels.

The trauma-based issue of "Who holds the evil" was too hot to handle. When she first entered psychotherapy Mae had not repressed the memory of her father's sexual abuse, so much as split off her experience of her father's evil plus her own rage at the violation. This distinction points towards an important difference between repression and dissociation as defenses/processes. Internally Mae preserved her father as a good, sick, simple soul who knew not what he did. All of Mae's parental rage was reserved for her mother, who Mae considered more responsible for her sins of failing to leave her husband or protect the children.

Over time psychotherapy became dangerous to Mae's internal world, threatening to break down her dissociative barriers by which good and evil had been kept separate. On a cultural level, this could threaten harmony in the household, a condition so central to the Chinese psyche, reflected by Mae's early fantasies of undoing/redoing the past. Emotional and cultural issues distilled together to form a single core conflict – whether I/therapy was good or evil. Part of Mae wanted to protect the split inside by thrusting the issue outside and declaring me evil. Then she could flee from self-reflection and the difficult emotional struggle of integrating her incongruent images and emotions. By

declaring our work evil, Mae could eject the part of her father she wanted to deny – the same part of herself she struggled with actively when abusing Shep or justifying her right to do so.

Here is the core paradox of self-reference: if Mae succeeded in splitting off the evil and injecting it into me or into our therapy, ironically she would have embodied the very evil she sought to avoid. The Devil would have acted through her unconsciously to ensure that the multigenerational pattern of abuse begetting abuse perpetuated. Fortunately Mae had come too far along to succumb to such temptation. By choosing to stay, Mae allowed her psyche to grow more complex. She understood implicitly that the evil in her father had begot the evil in herself, which now threatened to demonize her very healing – the work of the Devil indeed!

We can see how a fractal interpretation of this case provides an expanded context for "radical" ideas presented by object relations/Kleinian thinking, such as projective identification, now almost universally recognized as body-to-body communication that arises through physiological coupling. Fractals help to concretize the transpersonal dimension to intersubjectivity, which changes the whole quality of transference/countertransference phenomena.

The nonlinear account of self-similar enactments also fits nicely with how Schore conceptualizes dissociation (2002) and elegantly links such dynamics to the neurobiology of resonant, sub-cortically linked, right-brain to right-brain processes. Such intersubjective processes also tie in fundamentally with Borderline Personality Disorder, as well as its spectrum recently identified (Meares, Stevenson & Gordon, 1999) linking Borderline Personality Disorder with dissociative phenomena like posttraumatic symptoms that stem from early relational traumata …

Selected References

Bromberg, P. (1998). Standing in the Spaces. Hillsdale, NJ: Analytic Press.

Bromberg, P. (2006). Awakening the Dreamer: Clinical Journeys. Hillsdale, NJ: Analytic Press.

Hesse, E. & Main, M. (2006). Frightened, threatening, and dissociative parental behavior in low-risk samples: Description, discussion, and interpretations. Development and Psychopathology, 18, 309-343.

Mandelbrot, B. (1977). The Fractal Geometry of Nature. New York: W.H. Freeman.

Meares, R., Stevenson, J. & Gordon, E. (1999). A Jacksonian and biopsychosocial hypothesis concerning borderline and related phenomena. Australian and New Zealand Journal of Psychiatry, 33, 831-840.

Mindell, A. (2000). Quantum mind: The edge between physics and psychology. Portland, OR: Lao Tse Press.

Schore, A. (2002). Dysregulation of the right brain: A fundamental mechanism of traumatic attachment and the psychopathogenesis of posttraumatic stress disorder. Australian & New Zealand Journal of Psychiatry, 36, 9-30.

Wolf, F. (1994). The dreaming universe: A mind expanding journey into the realm where psyche and physics meet. New York: Simon and Schuster.