Sand Talk: Process Philosophy and Indigenous Knowledges

Julien Tempone-Wiltshire

Julien Tempone-Wiltshire has a doctorate in philosophy from University of Tasmania. Email: <Julien.Tempone-Wiltshire@acap.edu.au>.

Abstract: Through a close study of T. Yunkaporta's 2019's Sand Talk*, this article explores fractal thinking and the pattern of creation in Indigenous cosmology; the role of custodianship in respectful interaction between living systems; alternative Indigenous understandings of nonlinearity, time, and transience; the process-panpsychism and animism present in Indigenous perceptions of cosmos as living Country, illustrated in the Dreaming and Turnaround creation event; the role of embodied cognition and haptic and situated knowledge in Indigenous science; Indigenous holistic reasoning and the mind-body connection; the process-relational metaphysic embedded in ritual and yarning practice; the knowledge encoded in place-based totemic mythology, lore, and ritual; and Indigenous understandings of complex systems as adaptive, self-organizing, and patterned. This article does not offer a process reading of Indigenous thought but rather demonstrates the significant contribution to process metaphysics that may be provided by an Aboriginal Australian perspective. Yunkaporta's text carves out a language of resistance to the McDonaldization of Indigenous research. While historic scholarly engagement with Aboriginal culture has overemphasized content, Yunkaporta demonstrates how this has occurred to the exclusion of the processes of Indigenous knowledge transmission and creation. Yet a process view requires engagement with the how, not only with the what. Such knowledge transmission is discerned in daily lived relationships among land, spirit, and people—binding epistemology to participation in a specific landscape embedded within a living culture. Place-making for Indigenous knowledges requires exploring how Indigenous ways of valuing, knowing, and being, shaped by cultural activities on Country, offer new understandings for Western metaphysics.*

Introduction

Process ontology, or ontologies of *becoming*, are metaphysical systems that identify processes, change, and relationship as the foundational elements of reality. Contemporary philosophy makes sense of process thinking along the axis between the continental and analytic philosophy. Elsewhere I have explored the process philosophies of Nietzsche,

Heidegger, James, Whitehead, Merleau-Ponty, and McGilchrist, among others (Tempone-Wiltshire; Tempone-Wiltshire & Dowie; Tempone-Wiltshire & Matthews; Tempone-Wiltshire & Thakchoe). These thinkers help enrich our understanding of process and its foundational role in religion, philosophy, and science. The contention defended in this article, however, is that the dialogue around process philosophy is enriched by expanding beyond the Western canon to examine Indigenous and non-European alternative ontologies and epistemologies. In this article, I explore the relation between Australian Aboriginal Indigenous knowledges and process ontology, drawing particularly upon Tyson Yunkaporta's recent 2019 seminal work *Sand Talk*—and touched upon in Yunkaporta's 2009 work on the subject of Aboriginal pedagogies at the cultural interface, alongside Yunkaporta and Kirby's 2011 work on the exploration of yarning and Aboriginal ways of learning. It is important to start with a bidirectional relationship where the domains of Western and Indigenous knowledges are recognized as mutually informing. Consequently, this is not a "process reading" of Indigenous thought—with the hierarchical perspective contained in such a position—but rather an expansion of our understanding of process metaphysics from an Indigenous perspective.

In what follows, ancestral knowledge of process will be explored in relation, first, to the complexity and care that must be taken when enacting an academic engagement with cultural knowledges. This is necessary as difficulties arise when putting Aboriginal ideas in relation to Western knowledge systems without unwittingly assimilating Indigenous thinking to existing European systems of thought. This includes a recognition of the controversy surrounding institutionalizing Indigenous knowledge in academia when entering dialogue and the requirement to commence such an engagement with cultural humility. From this foundation, I turn to Indigenous perspectives and thought processes, the implicit critique they provide of contemporary Western metaphysics, and the alternative accounts of reality they offer.

To this end, I examine both Indigenous process-oriented ways of knowing as well as ways of being. I explore this subject in relation to fractal thinking and the pattern of creation in Indigenous cosmology; the role of custodianship in respectful interaction between living systems; alternative Indigenous understandings of nonlinearity, time, and transience; the process-panpsychism and animism present in Indigenous perceptions of cosmos as living Country; the metaphysical primacy afforded to *place* and *relationship* in Indigenous ontologies, evidenced in the Aboriginal

Dreaming and Turnaround creation event; the role of embodied cognition and haptic and situated knowledge in Indigenous science; Indigenous holistic reasoning and the mind-body connection; the relational metaphysic embedded in ritual and yarning practice; the knowledge encoded in place-based totemic mythology, lore, and ritual; and Indigenous understandings of complex systems as adaptive, self-organizing, and patterned. Through the examples of yarning and sand talk, we see how connection to land, kinship, story, and ritual animates Indigenous knowledges.

Dialoguing with Indigenous Knowledges

Yunkaporta's project, outlined in *Sand Talk*, is not to report on Indigenous knowledge systems for a global audience's perspective but rather to examine global systems from an Indigenous perspective. Similarly, I contend that process scholars ought not seek to categorize Indigenous metaphysics in Western terms but rather reveal Western philosophical presuppositions through an Indigenous perspective. I will explore the necessity for this in what follows. Yunkaporta states the following about his work: "Writing to provoke thought rather than represent fact, in a kind of dialogical and reflective process with the reader" (*Sand* 22). This notion serves as an important foundation for a process engagement with Indigenous thinking more generally. That is, I suggest that the mode of translation and conversation ought to begin etched in the discursive and dialogical, the provocative and open, rather than the convinced and factual, as there are dangers intrinsic to academic engagement with cultural knowledges.

In the process of branding and rebranding Indigenous knowledge, much has become lost or contaminated, and any attempted "philosophical categorization" of Aboriginal thought and practice poses this very risk. After all, Western civilizations are most notable for their ability to absorb objects and ideas and alter, sanitize, rebrand, and market them. The co-option of what is threatening, and the rewriting of holy texts to suit Western civilizational needs, are potent processes frequently utilized in exercising new systems of control. If ideas can be re-engineered to serve the interests of the powerful, then how, we must ask, might engaging Indigenous knowledges take place such that the attempt remains in good faith?

The challenge process scholars face is in engaging Aboriginal ways of thinking and knowing not in an appropriative or reductive form but as a framework for enriched and pluralized understandings of epistemology and ontology. How do scholars shape this dialogue from a spirit of

true engagement rather than mere polite acknowledgement, giving voice to, rather than extracting from, Indigenous communities? The Western academic tradition has historically involved a problematically formulaic narrativization of Indigenous peoples—a self-appointed curatorship of Indigenous pasts and perspectives. Such writing constitutes an exercise in power, offering a one-way view shaped from a settler-perspective of the objectified other.

Consequently, how Western philosophy engages Indigenous cultures in the coming years is critical. Historically, the gatekeepers policing or suppressing what constitutes Indigenous knowledge all too frequently end up reducing it to its basic content, artifacts, resources, and data. Such a division is into categories foreign to the Indigenous experience, imposed from the outside, in order that these knowledges may be stored and plundered as needed. As Yunkaporta writes, "Our knowledge is only valued if it is fossilised" (*Sand* 14). Thus, the popular requirement for simplistic and digestible characterizations of Aboriginal culture may in fact render Indigenous knowledge as fragmentary, primitive exotica to be examined, tagged, and displayed. This process sidelines the historical contexts of interrelatedness and the upheavals that characterize the Indigenous experience. As Yunkaporta notes, the problem is that engagements with Indigenous knowledge systems, historically, have been "always about the *what*, and never about the *how*" (19). It is precisely the *how*, the critique Indigenous pattern-thinking processes offer of contemporary Western metaphysics, that ought to be the focus of process scholarship. Going forward, there is a need to offer new stories emphasizing alternative metaphors and in this way unsettle the fixed impression of reality Western frames all too frequently impose.

Yunkaporta began his work *Sand Talk* by noting that he is *uninitiated*, meaning that at the age of forty-seven he has the cultural knowledge and status of a fourteen-year-old boy. Many of the initiatory rites of passage on his land no longer occur as the initiation grounds have been paved over by Western settlements. We begin from the obvious premise stated by Yunkaporta, but which is even more true in my own case: I am not *manth thaayan*: someone who can speak *for* Indigenous cultural knowledges. The Indigenous "self" has always been a construct designed by outsiders—as such it is easy to unwittingly participate in reducing the complex realities of contemporary Indigenous communities, identities, and knowledges, thus perpetuating the problematic "naming" of the marginalized Other (Battiste). The attempt to "make sense of" another's way

of knowing can too readily become a manner of dominating, or rendering down, alien worldviews into pre-existing categories. Indigenous scholars characteristically face a parallel challenge when seeking to be engaged by settler cultures. Yet, as Yunkaporta writes by analogy: "[T]he short-haired Gauls carried enough fragmentary Indigenous Knowledge and struggled enough within the harsh realities of transitional Romanisation to be able to offer some hybridised insight" (*Sand* 12). To engage in such dialogue, as a short-haired Gaul, requires a creole of sorts, a hybridized way of living between worlds, in order to proffer Indigenous knowledge solutions to contemporary crises of civilization.

Institutionalizing Indigenous Philosophy

We must situate this inquiry in the context of institutionalized philosophy and the emergent place-making for Indigenous knowledge in that domain. A principled approach emphasizing cultural humility is required in moving into the intercultural exchange. As Yunkaporta writes:

> Making yourself an expert in another culture is not always appreciated by the members of that culture. . . . You don't need to be an expert to understand the knowledge processes of people from other cultures and enter into dialogue with them. . . . Understanding your own culture and the way it interacts with others, particularly the power dynamics of it, is more appreciated. (*Sand* 97)

It is important to acknowledge that attempts have been made to rethink the role of Indigenous knowledges in the academy. Inquiries have been made, by Yunkaporta among others, into the cultural implications of academic colonization and the erasure and appropriation of Indigenous knowledges (Dei). The suggestion here is that Indigenous contributions to process thinking constitute one such avenue of academic decolonization. To achieve this end, we must begin by drawing attention to the contradictions and contestations that emerge when affirming the place of Indigenous knowledges in the academy. This involves, as Dei notes, a recognition that different bodies of knowledge continually influence each other; there is an ineradicable dynamism among knowledge systems.

While Indigenous knowledges are gaining traction in some disciplines, it remains the case that Indigenous philosophy is an inchoate field in philosophy departments throughout Australia. Muecke ("Australian") demonstrates that settler Australians have predominantly imported their philosophical traditions from the global north while leaving it up to social science disciplines to engage in the project of translating the works

of knowledge present in Indigenous traditions. Anthropology, history, and cultural studies have engaged in earnest with what is frequently dismissed in mainstream philosophical circles as "ancient" philosophy. This periodization, when imposed by colonial societies, often proves damaging, implicitly suggesting that Indigenous knowledge lacks philosophical relevance today. Exclusion through periodization is unsurprising as the construct of the "modern" has always been historically used to exclude Aboriginal culture and people from contemporaneity. While recent years have seen the growth of "African" philosophy in the United States as well as East Asian and Subcontinental philosophy, more generally, philosophy departments in Australia still predominantly maintain the European division between "continental" and "analytic" philosophy. As such, there remains limited Australian or Indigenous philosophical teaching carried out in mainstream academia.

Yunkaporta's work *Sand Talk* contributes to edging open the door to the academic field of Indigenous philosophy. The dual engagement present in the popular uptake of his work, alongside scholastic dialogue provoked, has led to greater recognition of the relevance of Indigenous knowledges accumulated and refined for well over 60,000 years (McEvoy). Indigenous philosophy, then, is currently in emergence in Australia, and *Sand Talk* is both an outgrowth and progenitor of this institutionalized dialogue and exchange. Nonetheless, there are major barriers to uptake. One such barrier concerns the fact that Western intellectual traditions are predominantly written, and oral traditions have been largely ignored by scholars (Hulan and Eigenbrod). A further barrier concerns the process of acculturation; making Indigenous knowledge systems comprehensible in Western terms may occur in reductive or appropriative ways, negatively impacting core aspects of these traditional knowledges. Nonetheless, we have grounds for optimism here. As Muecke writes:

> When you write philosophy in good faith, I think it is actually difficult to steal a concept, because you are constantly translating, from one semantic system to another, from one context to another. That said, it would be inappropriate for me, or any other whitefella, to set himself or herself up as an authority giving the meaning of things on behalf of Aborigines—for instance, with a complex concept like the Dreaming. ("Australian" 4)

Processes of translation and transmission have always existed in relation to the theft and distortion that results from claims to false authority. To counter this danger, attention must be given to engaging and raising

the voices of Indigenous scholars. As Muecke ("Australian") notes, highly knowledgeable Aboriginal people have published books on these subjects; consequently, there is no excuse to leave these works uncited. For instance, further inquiry is needed regarding process philosophy's relation to Aboriginal linguistics, evident in the writings of Indigenous scholar Jeannie Bell concerning the maintenance and revival of ancestral languages. Relatedly, there is a need to study the metaphysical underpinnings of Aboriginal tertiary education relying upon the work of MaryAnn Bin-Sallik, an Indigenous scholar who offered a seminal examination of how the Tertiary Education system can better serve the needs of Aboriginals. In this exchange, what must be offered is negotiation and collaboration, essaying and experimentation. To participate in dialogue, then, to "think" in public—in negotiation with and across cultures—is a difficult pursuit, yet arguably there is no pursuit of greater importance today.

From Knowing to Being

There is a need to avoid both clinging to a romanticized vision of our palaeolithic past and perpetuating a prejudicial myth of primitivism. We must also separate out appreciation of the qualities of the undomesticated—the wild and unschooled mind that possesses innate knowledge of process—from both the faddish pedestaling of specific features of Indigenous cultures and the myths that denigrate them. One means of achieving this is by reflecting upon how Indigenous ways of valuing, being, knowing, and doing shed new light on foundational concerns of Western metaphysics. These ways have been shaped by cultural activities in which Indigenous peoples share and produce knowledge on Country. As such, from an Indigenous perspective, what we *can* know is determined by our obligations and relationships to people, ancestors, land, law, and creation. *What* we know is that the role of custodial species is to sustain creation. The *way* we know this is through our cultural metaphors, and the way we *work* with this knowledge is by sharing and adapting these metaphors (Yunkaporta, *Sand*). Process engagement with cultural knowledges thus benefits from this perspective.

Decolonizing movements, intent on rejecting Western systems of thought, have focused attention on ways of *knowing* rather than ways of *being*. This bias has resulted in the devaluation of the Indigenous knowledge that exists embedded in daily life. Indigenous knowledge is constantly under threat from amendment and misinterpretation—a gradual form of cultural erasure produced by the contamination and

consequent unravelling of communal knowledges. This has led to the emergence of an anticolonial pedagogy that emphasizes the complexity of Indigenous peoples' individual experiences of culture as constituting a living praxis and mode of resistance in itself (O'Sullivan; Caxaj and Berman).

There exists much complexity surrounding the relationship between contemporary Indigenous identity and cultural innovation, in particular the tendency to frame Indigeneity grounded in rural locations as emblematic of authentic or "real" Indigeneity (Peters and Andersen). Yunkaporta gives attention instead to the importance of "demotic" cultural innovation. By this he refers to the practice and forms of life that are the product of organic sequences of adaptation. These evolve through daily lived interactions, in deep relationship among land, spirit, and groups of people, and consequently produce cultural forms that mirror the patterns of creation. Such demotic innovations, or cultural modifications, are the result of a group effort aligned with the patterns of creation and discerned from participating in a specific landscape embedded within a living culture. These may be said to constitute "authentic innovations" in that they retain and reiterate a deep and complex pattern responsive to our belonging to an infinitely complex self-sustaining system, as we will explore further. The subject of the different ways of approaching knowledge leads directly to considering Indigenous "ways" versus "things."

From Things to Ways

Contrary to Western propositional models of knowledge generation, which emphasize content, it is the *processes* of knowledge transmission that prove central to Indigenous knowledges (Rundstrom; Berkes and Berkes). Too frequently, an overemphasis upon the transmission of *content* results in what Yunkaporta describes as the "[t]oken inclusion of cultural clippings [which] serve only to further diminish and exclude the cultural identities of First Peoples" (*Sand* 114). In considering Indigenous metaphysics, we turn first to the *processes* of knowledge transmission. Engaging Indigenous ways (the *how*) rather than objects (the *what*) moves us beyond the call to objectification. As Yunkaporta suggests, such a shift would mean we no longer practice implicitly coaxing Aboriginals into performing the paint and feathers, the pretty exotica of Indigenous culture, "viewed from the other side of a glass box." Western objectifications of Indigenous wisdom render it down into such exoticized and tokenized fragments of land-based cultural knowledge to be displayed in galleries,

exhibits, agendas, and actions (Cameron; Haig-Brown; Leane). Such objectifications are commonplace. Yunkaporta describes his years running Aboriginal student support programs in schools, writing: "making my didgeridoos and spears and clapsticks and dancing corroboree and hunting kangaroos and performing the exotica of my culture that I'd learnt over the years. . . . [I]t was all disconnected and hollow, just fragments and window dressing" (*Sand* 6). After such experiences, Yunkaporta was determined to use his knowledge to go out and fight for Aboriginal rights and culture, working with Aboriginal languages, schools, ecosystems, research projects, philanthropic groups, and song lines. "I saw that it was our ways, not our things, that grounded us and sustained us" (8). In exploring the implications of ancestral knowledge for process ontology, we turn to Indigenous ways of being.

In an Australian context, scholars such as Yunkaporta and Foley have begun to offer an "Indigenous standpoint theory," an Indigenous methodology that contains within it an implicit critique of what Foley terms the "McDonaldization" of Indigenous research. The institution of Indigenous scholarship too often adopts the characteristics of the fast-food chain—easy efficiency and calculable output (predictable, standardized, and controlled production). Yunkaporta's work begins to carve out a language of resistance to such a research trend. Through both word and image, he seeks to express Indigenous patterns of thinking, being, and doing—ways usually rendered invisible or obscured by the more readily legible and pre-established categories of exotica Western audiences consume. Such lines of inquiry can only be understood in relation to wider Indigenous scholarship and emerging proffered Indigenous solutions to global issues. Such an inquiry is enriched when placed in relation to contemporary and emergent trends, such as the Re-Gen movement, metamodernism, the deep ecology movement, and recent waves of complexity science (Alfred and Corntassel; Storm). Further work is required to elaborate these connections. For our purposes, however, in considering Indigenous ways of being and process, we might begin then with pattern.

Pattern and Process

The first subjects that form a barrier when approaching ancestral knowledge are the thorny questions: Who are the *real* Indigenous people? Who carries the *real* Indigenous knowledge? In the context of Indigenous knowledge claims, the ambition to seek authenticity has been frequently harmful. As Yunkaporta writes, whether the speaker is wearing a grass skirt

or business suit ought to be, ultimately, understood as irrelevant. Rather: "Authentic knowledge processes are easy to verify if you are familiar with the pattern—each part reflects the design of the whole system" (Yunkaporta, *Sand* 14). It is the presence of *the pattern* of Indigenous knowledge that ought to be understood as the authenticity-marker of the knowledge, rather than any sanctioned markers of authenticity imposed from outside.

We might consider the gestalt of authentic Indigenous knowledge in relation to the fractal. The "fractal" is a useful metaphor for picturing dynamic systems, like language, as never-ending patterns, infinitely complex and self-similar across scales. It is created through the repetition of a simple process, over and over again. Such metaphors map the dynamism of human systems, be they symbolic systems of language or socially mediated constructions of reality. They are systems responsive to nonlinear iterative processes. This relates to the concept of "feedback." Mathematically, a feedback loop corresponds to a special kind of nonlinear process known as "iteration." This, too, is the catch cry of fractal approaches to psychology. Such feedback loops aptly characterize processes of human-mindedness. Further, such approaches are concerned with pattern, depth, and process in psychological practice. From this perspective, an individual's "world" is conceived as a projection of the deep-conscious mind, and fractals serve as a means by which system dynamics get etched into form via self-similar, recursive loops (Marks-Tarlow; Galatzer-Levy). Ontologies of becoming thus prove to be interesting dialogue partners with systems-theory and fractal thinking. While one identifies change or shifting relationships as the true elements of reality, the other emphasizes the processes by which change occurs across scales. The relation between systems theory and process ontologies will be elaborated below.

Fractal thinking is, unsurprisingly, present throughout Indigenous culture as well. To illustrate, Yunkaporta refers to the fractal nature of the big bang pattern in Indigenous cosmology. The big bang describes an initial point of impact that expanded outward on the massive scale of the universe, to be repeated infinitely in all its lands and parts. Many creation stories refer to this point of impact, often represented by a stone at the center of a place or story. Uluru is the story at the center of this continent's history, a pattern that repeats in the interconnected and diverse stories of many smaller regions, indeed reflected in our own bodies at the navel. As Yunkaporta writes, "[I]n this way of knowing there is no difference between you, a stone, a tree or a traffic light. All contain knowledge, story, pattern" (*Sand* 29). In Indigenous thought, it is respectful observation

and interaction within the system—with the parts and the connections between the parts—that is the only way to see the pattern. You cannot know any part, let alone the whole, without respect. For this reason, the role of custodians and Indigenous stewardship is understood as inextricable from maintaining a respectful relationship, in which each part is dignified as an embodiment of the knowledge of the whole.

A further illustrative pattern identified by Yunkaporta concerns the large-scale genocide of Indigenous peoples. He explores the consequent fractal disruptions in the intergenerational transmission of ancestral knowledge produced by this genocide and systemic forms of oppression. Yet positive fractal patterns remain present, too, in the integrity and value that fragments of cultural knowledge carried forth by individuals possess. The pattern is present in these fragments, which even if fragmentary nonetheless ramify across every aspect of a life: *in the fragment, the pattern*. As a boy mentored by Yunkaporta writes: "I can't discern parts that are Indigenous and parts that are not because all of my actions are Indigenous—the way we move through the world, my social interactions, my way of thinking about anything. It bleeds through you no matter what" (*Sand* 36). The emphasis upon pattern thinking is not particular to Indigenous thought but reappears across process philosophy. In Bateson's text *Steps Towards an Ecology of Mind*, we receive an account of the mind's nature as an ecology of patterns, information, and ideas as embodied things. Seeking to understand patterns of relationship is defining not of Indigenous thought but of process ontology and the nonlinear scientific paradigm currently in emergence. In process thought, and Yunkaporta's account of Indigenous knowledges, there is an emphasis upon the need to address wider global concerns through a radical reconstruction of our patterns of thinking. What is called for is a shift toward an ecological, systemic, and process-based view of causal relationships. Understanding fractal patterns of thinking in Indigenous philosophy requires a turn both toward the patterns of creation and engaged complexity.

Primitivism and the Myth of Progress

It is important to caution against the assumption that all Indigenous logic automatically conforms to a process philosophy, as forced conformity may equally constitute a mode of erasure. This is important to emphasize, as First Peoples in Australia live with considerable disruptions and threats to their ways of life on a daily basis. What is required, instead, is attention to the ways in which ancestral thinking and knowledge have

been transmitted over evolutionary history. The project of evolutionary psychology is often a limited, and self-limiting, one, defined by the imposition of "just-so" stories, spurious narratives for describing the evolution of purportedly universal human character traits (Parsell; Sterelny, "Alternative" and *Evolved*; Sterelny and Fitness). There are significant problems, for instance, in a naïve adherence to the naturalistic fallacy. Yet, thinking in evolutionary terms can nonetheless be of great value. Humans evolved within complex, land-based cultures over deep time, and in this process developed brains capable of trillions of neural connections. This evolutionary process bears significantly upon our evolutionary understanding of relevance, meaning, and wisdom (Vervaeke and Ferraro). Indeed, Yunkaporta suggests that present-day civilizational messes are the products of diverging from this evolutionary past. In particular, diverging from human relationships embedded in small groups, maintaining a ceremonial and ritualized connection with Country. Today, the majority of humans have been displaced from our cultures of origin. He describes this planetary majority as a global diaspora of refugees severed not only from land but from the sheer genius that comes from belonging in symbiotic relation to it (Yunkaporta, *Sand* 2–3). His suggestion is that the messes civilization has created might be corrected by drawing on the resources of ancestral, Indigenous knowledges.

The suggestion made is that modernity's narrative of "progress," the idea that increased technological production will inevitably lead to positive human evolution, is a myth that has in fact reaped havoc upon the world today, both environmentally and interpersonally. This myth has depended, in turn, upon the fiction that our ancestors led primitive, brutish, and short lives. Yunkaporta suggests a disruptive counternarrative to the grand story of our ancestor's primitivism. Contra the common image of Palaeolithic lifestyles as basic and harsh, he asks, "What kind of sophisticated lifestyles would be needed to evolve the massive brains and neural connective nets we have inherited?" (Yunkaporta, *Sand*). The narrative of harsh survival in a hostile landscape is challenged by the fact of the nutritional abundance required to develop the delicate machinery of mind of the present (Sterelny, *Evolved*; Parsell).

Much has been written on the relation between sustainability thinking and Indigeneity. We might consider the drawing together of Indigenous relational ontologies and environmental management practices (Muller et al.) or the related application of Indigenous thinking to climate change adaptation (Johnson et al.). Perhaps, most notably, we can refer to Pascoe's

seminal work *Dark Emu*, in which he argues for a reconsideration of the "hunter-gatherer" tag for precolonial Aboriginal Australians. He points to Indigenous practices and systems of food production and land management in order to rebut the colonial myth of the "Indigenous nomad"—a narrative drawn upon to justify dispossession under *Terra nullius*, the Latin expression for "nobody's land," a principle of international law used to justify claims to "discovered" territory.

The relation between sustainability thinking and Indigeneity benefits from Yunkaporta's consideration of the way in which Indigenous knowledge systems, having evolved as embedded patterns within nature, consequently maintain a balance, harmony, and ecological stability. This may be contrasted with contemporary Western knowledge systems informed by industrialization mentalities, which have consequently broken down natural systems under the banner of exercising a civilizing control over the "chaos" of the natural world. These modes have, like a virus, infected complex patterns with artificial simplicity. This is present, as will be seen, in modern industrial Western settler societies' frequently simplistic renderings of global problems and solutions as set against the wisdom present in Indigenous-engaged, complexity-based approaches. Postindustrial society, and the failings of neoliberal solutions to complexity-based problems, have been widely acknowledged in recent years. Indeed, the recent demand for the imposition of simplicity and order across the complexity of creation is in part responsible for the imbalances present in contemporary human societies. Viewing the world through a lens of simplicity may make things more *complicated* while simultaneously less *complex*. This suggestion mirrors the arguments made in the field of systems science by the likes of Capra and Luisi. There is a need to rethink our understanding of relationship, pattern, and context and to draw upon a systems science. This need is recognized in the paradigmatic shift occurring within the sciences away from the linear and atomized toward a radically new systemic conception of life characterized by the holistic, nonlinear, and ecological. Yunkaporta demonstrates how Indigenous process knowledges have a great deal to contribute to this transition.

Time and Linearity

Complexity sciences call for an orientation toward forming networks of dynamic interaction to find solutions to complex problems. Yunkaporta (*Sand*) also calls for such an engagement in sustainability studies; there is a need not to proffer expert answers but rather to dialogically generate

different questions and ways of looking at things. This principle informs the recent attention to the value of lived experience and the important role of codesign in community projects (Blomkamp). Yunkaporta goes further to suggest that, in turning to Indigenous knowledges, we may encounter an impression of the patterns of creation itself, and such an impression may inform our social and ecological policies. This impression is evident in the language by which the ideas of Yunkaporta's *Sand Talk* are transmitted. While *Sand Talk* may appear unstructured to the reader, his stated ambition is to allow the logic of the writing to follow the complex patterns he seeks to describe. As such, the flow is intentionally dissimilar to the familiar cause-effect relationships governing academic print-based texts. This is important because, as Yunkaporta suggests, the English language places Western worldviews at the center of every concept, and in this way unwittingly obscures alternative understandings (Ashcroft et al.). We can see this obscuration in relation to Aboriginal conceptions of linearity, time, and process.

Attempts to explain Aboriginal notions of time prove futile if you can only describe them as *nonlinear*. As Yunkaporta notes, "[This] immediately slams a big line right across your synapses" (*Sand* 21). That is, in reading the word "nonlinear," we do not register the "non" but only the "linear." Linear is the shape the word takes in our mind. This occurs because to use the term "nonlinear" is to describe the concept by saying only what it is not, rather than what it is. Yunkaporta claims no word exists in an Aboriginal language for nonlinearity, as the winding path is just how a path is and, therefore, requires no name (*Sand* 21–22). Similarly, many Indigenous languages lack separate words for time and space (44). In some kinship systems, every three generations there is a reset in which your grandparents' parents are classified as your children, creating an eternal cycle of renewal, contra the linear trajectory of industrial civilization. As Yunkaporta writes:

> Kinship moves in cycles, the land moves in seasonal cycles, the sky moves in stellar cycles and time is so bound up in those things that it is not even a separate concept from space. We experience time in a very different way from people immersed in flat schedules and story-less surfaces. In our spheres of existence time does not go in a straight line (45).

As with other process philosophies, Indigenous thought challenges the view of change or transition as either being illusory (as in Parmenides) or accidental (as in Aristotle) and rather conceives transience, change, and

becoming as the only fundamentals of everyday life (Muecke, *Ancient*; Peters et al., *Indigenous Education*; Choudhury). In each instance, we see curious parallels with phenomenological traditions and the way attention to actual experience, and the metaphors that structure experience, unsettle our assumptions regarding the nature of phenomena that are built from purportedly "objective" third-person science. Here we see the contribution Indigenous psychology offers to cross-cultural phenomenology (Kim et al.). We see parallels, of course, between Indigenous and nondualist metaphysics, including the process philosophical traditions of Shamanic Bon, Tibetan Buddhist, and Indian Vedanta lineages (Dreamson).

Animism and Dreaming

Related to this account of space-time, we might consider the English term "dreaming." Arguably, this term is a mistranslation of what might be described more aptly in Yunkaporta's phrase as a "supra-rational interdimensional ontology endogenous to custodial ritual complexes" (*Sand* 22). Interesting work is currently being done concerning the process aspects of the mythic. Vervaeke suggests, for instance, that we might arrive at a rich process understanding of cosmology, communities, ritual, mythos, mystical experiences, and symbolic participation and the provision of worldview attunement, present in elements of the dreaming. For simplicity, we will continue with the use of the term "dreaming" as we begin to discuss Aboriginal cosmology and patterns. We ought to discuss, too, what Yunkaporta terms the "turnaround." Turnaround is an Aboriginal English word used to describe the creation event and times before Westerners invented the dreamtime. According to turnaround, creation should not be understood as an event in the distant past but rather as something continually unfolding, something that needs custodians to keep cocreating by linking the two worlds together via metaphors in cultural practice. Story places and sacred sites are loci of overlap between these worlds.

A further area of plausible correlation between process philosophy and Aboriginal thought concerns Indigenous panpsychist tendencies. The continual unfolding of the turnaround creation and the Indigenous perception of the cosmos as "living Country" may be understood in relation to animism. Are stones sentient? It has been suggested that the Western identification of matter as dead as opposed to living is an inheritance of Greek culture, post-Parmenides (see works by Skrbina). This has been viewed as a misidentification that has for centuries limited Western understanding of phenomena—from the nature of consciousness to the nature

of self-organizing systems such as galaxies. The cosmos provides an illustrative example, as Yunkaporta suggests. While the space between stars has been frequently viewed as lifeless and empty in Western cultures, Indigenous stories always represented those dark areas as living Country. This is based upon the observed effects of attraction from those dark places upon celestial bodies.

There is significant research suggesting that Indigenous knowledge systems are panpsychist in orientation, and frequently animist (Mathews, "Living"). As Winkelman suggests, a return to Indigenous plant medicines is bolstering renewed attention to the potentially animistic facets of ritualized aboriginal cultures globally. Meanwhile, recent work has contended that panpsychism is fundamentally a process metaphysic, deeply structured by an ontology of units (Delafield-But). Furthermore, Sjöstedt-Hughes has drawn clear links between process metaphysics and animistic, or panpsychist, thinking. Nonetheless, at present, inadequate scholarly attention has been given to the relationship between process metaphysics and animist or Indigenous thought. While such inquiry is beyond the scope of this article, for further discussion of the relation between panpsychism, animism, and process, see the works of Skrbina.

Embodied Cognition and Indigenous Science

Attempts have been made to suggest that the discoveries of twentieth century science, in particular quantum theory, demonstrate that the observer cannot be separated from the act of observation. Consequently, there are always observer effects as reality shifts in relation to one's viewpoint. Yunkaporta (*Sand*) suggests that the quantum "uncertainty" principle aligns with Indigenous understandings of reality. Does quantum uncertainty bear a meaningful relationship to Indigenous ways of knowing? Formulated by Heisenberg in 1927, the uncertainty principle holds that we cannot know both the position and speed of a particle, such as a photon or electron, with perfect accuracy. Similarly, Yunkaporta suggests that in Aboriginal cosmology humans are viewed as inseparable from the field: that is, reality is intrinsically subjective and in relation. Consequently, the ambition of scientific objectivity and impartiality is considered foreign to the Indigenous mind. The quest for objectivity fails to acknowledge the intrinsic value of the situatedness of our knowledge claims. For this reason, Western science is unlikely to engage with Indigenous methods of knowing at the genuine level of *how* and rather demonstrate interest predominantly at the level of *what*.

Important parallels exist between the emphasis upon the situatedness of our knowledge claims, present in Indigenous science, and contemporary innovations in Western cognitive science. Innovative challenges to the prevailing cognitivist paradigm have emerged from the phenomenological tradition, which align with a process perspective. For example, there are challenges from the domain of embodied cognition in cognitive science and Indigenous standpoint theory in epistemology as well as the challenge that the neurophenomenological project poses to scientific imperialism's biases toward third-person empiricist methodologies. As Seibt has demonstrated, the turn to embodied cognition provides another strong motivation for the shift from a substance to a process metaphysics. Recent research exists linking these scientific trends, and emerging paradigms, to process thinking. See, for instance, the process view of self that emerges from the enactivist work of Varela et al. and Foley's works on Indigenous epistemology and standpoint theory.

In Indigenous science, there is an understanding that the mind is not limited to the physical brain but extends into the tangible world. In this sense, minded processes are understood to occur not only throughout the body but out in the world beyond. When we hold a tool, our brain recognizes it as an extension of our arm; in this way, it becomes an embodied and minded extension of our neural processes. At more abstract levels, the meaning we make of places, people, and objects, and the way we organize interactions among these things, becomes an extension of our thinking mind. As Yunkaporta notes: "Through meaning-making we effectively store information outside our brains, in objects, places and relationships with others. This is how spirit works" (*Sand* 115). This is present also in the embodiment paradigm and is termed "haptic" or "distributed cognition," which involves recognition that thinking and learning occur also outside the brain in the objects and beings we interact with and in the relationship among them (Shapiro).

In Aboriginal societies, knowledge, too, is encoded in objects as part of a sacred creation process. One example is the traditional message sticks in which a kind of haptic knowledge is encoded. There is a similar haptic relationship with Country and with the Ancestors one might call out to when walking on particular parts of Country. Such encoded knowledge is valued because memories attach to places that, in turn, can be evoked by revisiting those places. Haptic cognition is understood to occur throughout the entire body—knowledge and intelligence are encoded in the hands, feet, even hair. Using your body consciously and meaningfully

can unlock this intelligence. It is for this reason that Indigenous knowledge transmission practices have incorporated kinaesthetic learning, which has proved highly effective (Mills and Dooley). The contemporary Western embodiment paradigm in cognitive science has recognized the value of haptic knowledge; this is evidenced in the emergence of technologies for contacting emotion, feeling, and memory through intentional movement. Consequently, we are seeing the emergence of somatic practices that draw upon haptic design in the broader "embodiment movement" (Rajko et al.).

Relatedly, the modern awareness of gut health and the mind-body connection has long been recognized in Indigenous cultures. Every Aboriginal language has a term for the gut's importance; the seat of your big spirit, your "higher intelligence" (Yunkaporta, *Sand* 117). In the Aboriginal world, the energy of the gut must be kept clear and constantly moving through mental, spiritual, physical, and cultural activities or else it will become stagnant, thereby making a person sick. The interaction between gut and brain cannot happen mechanically but must occur, as Yunkaporta suggests, through cultural practice involving the transferal of knowledge from one domain to another with metaphoric reasoning that sees the interconnection between parts within a dynamic system (*Sand* 117). As he writes: "Eels, silky oaks, wattle flowers, honey, fruit bats and tobacco all interacting in reciprocal relationships within a dynamic system of life and knowledge. . . . [H]ow can we bring these ideas into a dialogue with science in ways that will actually help?" (193). Evident in this passage is the close relationship that exists between embodied cognition and holistic reasoning. Yet the term "holism" has been largely co-opted and has lost much of its meaning. Rarely today does "holism" refer to a mode of reasoning grown from a lived cultural framework and embedded in relationship to the landscape and the patterns of creation—that which characterizes Indigenous holistic practice. More detailed work is required in disambiguating the distinct Indigenous expressions of holism in Indigenous metaphysics (Mika). But work has already been carried out examining the relationship between holism in Indigenous knowledge and the need for fuzzy logic when engaging ecological complexity (Berkes and Berkes). An Indigenous orientation within complexity science would involve integrating land-based pattern thinking into our reasoning processes when seeking to provide solutions to systemic problems. Such thinking requires the examination of multiple interrelated variables situated in place and time.

Relational Metaphysics Embedded in Yarning and Ritual

Indigenous ontologies identify change, difference, and relationship as the basic elements of a foundational metaphysics. While classical Western "substantialist" ontologies view transient processes as ontically subordinate to "essentialist" substances, Indigenous metaphysics, by contrast, treats objects, thoughts, and entities as mere abstractions, ultimately ontologically dependent upon underlying "true" processes (Seibt). Thus, the metaphysical "basics," from an Indigenous perspective, align with a process ontology. This Indigenous metaphysical process picture emerges from an emphasis placed upon interaction and difference, pattern and symmetry, interpretation and context, as will be discussed in what follows.

Much has been written on the centrality of relationship to process metaphysics, and relationship proves foundational across Indigenous thought. For instance, Indigenous oral traditions have always grounded knowledge and ways of thinking in profound networks of relationship, organized both horizontally and vertically. Yunkaporta terms this "kinship-mind": "The only sustainable way to store data long-term is within relationships—deep connections between generations of people in custodial relation to a sentient landscape, all grounded in a vibrant oral tradition" (*Sand* 167). Relationships *between* systems are just as important as relationships within them. Understanding the importance of relationship in Indigenous cultures requires inquiring into what it means to exist within a network of relations and cultural affiliations across a community to which we have obligations. Such relationships, in carrying obligations, demand that we move in the world with respect and care.

The importance of relationship in Indigenous knowledge systems reappears in the context of yarning, knowledge transmission, and rituals. Yunkaporta states: "This connection is interwoven with every learning experience within the communities of First Peoples; it is ritual, the force that animates all Aboriginal Knowledge; a spirit of genius that shows the difference between yarning and conversation, Story and narrative, ritual and routine, civility and connectedness, information and knowledge" (*Sand* 157). Stories, images, and yarns are one antidote to the settler-centric worldview the English language imparts. Narrative is the primary mode of communication drawn upon during "Yarning," though sand talk and shared material cultural activities, like weaving, painting, and string-making, may also be included. "Yarning" should be understood as a verb, a process, and a narrative by which stories come together to gain meaning. Such an exchange of stories is understood as requisite for growth

and awakening. As Yunkaporta notes, from an Indigenous perspective, meaning is made in the meandering paths between words, not in the isolated words in themselves (*Sand* 21). Yarning, then, is a structured cultural activity, a rigorous methodology for knowledge production, inquiry, and transmission (130–131). This ritualized practice for meaning-making and innovation is highly contextualized in the local worldviews of those yarning, as it is embedded in relationship with both place and kinship circles. Furthermore, it is shaped by protocols of active listening, respect, overlapping speech, nonlinearity, and the revisiting of ideas. In this way it unearths interconnections and correlations between diverse sets of data.

The exclusion of Indigenous traditions in Australian philosophy departments occurs as Aboriginal concepts are place and body based, not word or logic based; thus Indigenous knowledges fit poorly within the tradition of analytic philosophy (see the works of Muecke). For this reason, Indigenous practices are largely dismissed as merely "cultural" habits and customs, rather than as knowledge or wisdom traditions. Yet Indigenous modes of knowledge transmission, in particular the oral cultures of First Peoples, alongside the use of symbols and physical gestures, enhance our understanding of process metaphysics and epistemology. As described, the basic orientation in many Indigenous cultures is oral cultural exchange. This mode of knowledge transmission constitutes a distinct way of producing, preserving, and conveying knowledge between generations. It also serves to connect speaker and listener in communal experience that unites past and present in memory (Hulan and Eigenbrod). In a similar vein, Yunkaporta uses the term "umpan"—an Indigenous word for cutting, carving, and making—to describe the mode of writing he draws upon (Frazer and Yunkaporta). This mode incorporates image and story attached to place and relationship, expressed through cultural and social activity. This involves "sand talk"—a representation of the Aboriginal custom of drawing images on the ground to convey knowledge (Yunkaporta, *Sand* 17). Sand talk calls for meaningful schematic links to be made between the symbols and what they represent in our lived reality.

Seeing Relationships and Reading Patterns

People today will mostly focus on the points of connection, the nodes of interest like stars in the sky. But the real understanding comes in the spaces in between, in the relational forces that connect and move the points. . . . [I]f you can see the relational forces connecting and moving the elements of a system, rather than focusing on the elements themselves, you are able to see a pattern outside of linear

time. . . . [I]f you bring that pattern back into linear time, this can be called a prediction. (Yunkaporta, *Sand* 91)

Symbiotic dances of land, culture, and species are nonlinear and complex interdependent relational systems. Indigenous mythology, lore, and ritual all speak *to* and *from* such intensely interrelated processes, occurring within totemic groupings of animal and place. As such, Indigenous modes of thought, utilized when making complex predictions, emphasize the value in reading patterns. When attempting to understand the overall shape of the connections between things, when navigating contemporary systems, the principles of such Indigenous thinking might be applied to patterns and contexts beyond the bush. As Yunkaporta writes: "This calls for looking beyond the things and focusing on the connections between them. Then looking beyond the connections and seeing the patterns they make" (*Sand* 89).

We may apply Indigenous process-based pattern thinking to most contemporary structural problems, as it is often the case that systems that appear chaotic are undergirded by patterns that can only be properly discerned with a holistic view. "The whole is intelligent, and each part carries the inherent intelligence of the entire system. Knowledge is therefore a living thing that is patterned within every person, being and phenomenon with creation" (Yunkaporta, *Sand* 95). In the West, this is beginning to be understood through the contemporary sciences of chaos theory, complex systems, network theory, and fractal theory. Indigenous knowledge contributes to our understanding of complex systems as adaptive, self-organizing, and patterned with a logic that is not responsive to external design or centralized control.

While industrial cultures focus on "owning" lands—exerting artificial power over "territory"—nonindustrial cultures worked within self-organizing systems for thousands of years. Despite this, scholarly recognition and appreciation has only recently been given to Indigenous modes of governance and understandings of land and waterways stewardship. This appreciation has not extended to mainstream policy making (Grimwood et al.; Avalos). Such modes of governance emerged as a product of existing within complex patterns of relatedness and communal obligation and thus were born out of the need to respect social, ecological, and place-based knowledge systems (Maldonado et al.; Donkor and Mearns). Kinship structures, too, are reflective of the dynamic design of natural systems; this is evident in the emphasis placed on living in totemic relationship with plants, animals, and land (Smith). In Indigenous belief

systems, then, the process of unearthing relationships by reading patterns requires connecting abstract knowledge with concrete applications.

Conclusion

It is critical to turn attention toward the contributions of the Indigenous knowledge systems, demonstrated herein, to metaphysical and epistemic thought. As Indigenous knowledge transmission occurs through lived relationship among land, spirit, and people, seeking to understand Indigenous traditions requires a process-oriented engagement that emphasizes the *how*—not only the *what*. In this foray across ideas explored in Yunkaporta's *Sand Talk* and elsewhere, what becomes apparent are the great points of intersection and the fruitful dialogues in emergence between Indigenous knowledge traditions and process thinking. We have contended that process metaphysics would benefit substantially from greater engagement with Indigenous process-oriented traditions, which bind epistemology to participation in a specific landscape embedded within a living culture. Place-making for Indigenous knowledges is vital as Aboriginal ways of valuing, knowing, and being, shaped by cultural activities on Country, offer profound insights for Western metaphysics.

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