



An Indigenous Relational Approach to Systemic Thinking and Being: Focus on Participatory Onto-Epistemology

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Abstract

This article is structured around my locating a lacuna in the (mainstream) literature describing the history of the field of “systems thinking”. I investigate how dominant accounts of this history do not include an account of the contributions of Indigenous sages and scholars’ systemic thinking. Such thinking (and being) is grounded in a relational onto-epistemology and attendant axiology – where knowing is consciously tied to (re)generating reciprocal relations with others – human and more-than-human – as we enact worlds-in-the-making. The argument is that at the moment of “knowing/inquiring” we co-constitute with other agents (and not only human ones) the worlds that are brought forth. Otherwise expressed, there are never spectators, only participants in ongoing world-construction. I explore the way of explaining this as proffered by authors from a variety of geographical contexts as a backdrop to indicating how Indigenous critical systemic thinking has not been catered for by those writing the history of the so-called “systems community”. This is despite many Indigenous scholars self-naming their understandings as being systemic. I indicate that exploring global superwicked problems from the standpoint of an Indigenous onto-epistemology includes pointing to, and experimenting further with, radically different options for thinking-and-being than those that thus far have been storied by those writing the history of systems thinking. I indicate why it is important to take seriously this approach, rather than drowning its contribution.

Keywords Knowing tied to being (worldmaking) · Onto-epistemology · Modern-colonial existence · Political ontology · Ways of relating

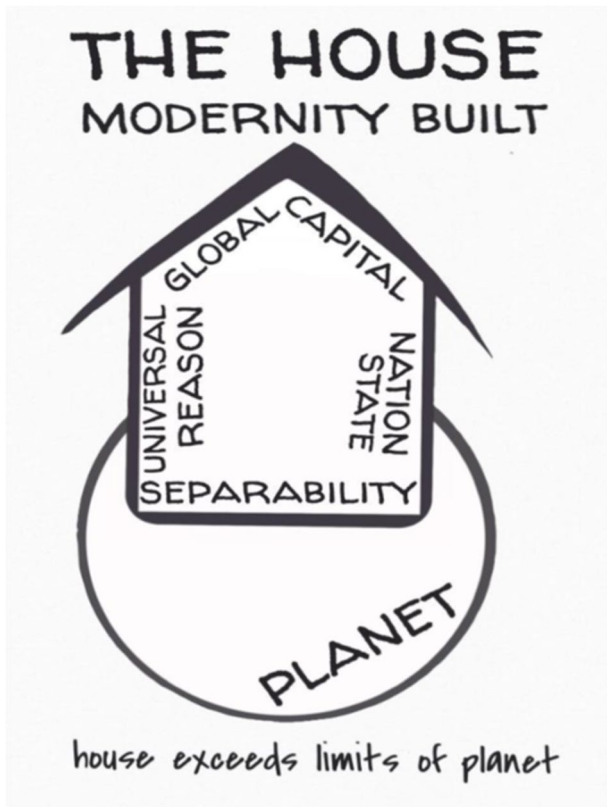
Introduction

My writing of this article was sparked by my concern that the literature storying the history of “systems thinking” as a (named) field fails to feature the systemic thinking of Indigenous sages and scholars, which dates to precolonial times in oral history and continues to be interpreted and advanced in relation to current global challenges (cf. Cajete 2020; Harris and Wasilewski 2004a, b; Netshandama and Nevhudoli 2021; Romm 2017). This article

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Fig. 1 Source: Stein et al. (2020, p. 50)



is an attempt to draw out the distinctive contribution of Indigenous systemic thinking to our understanding of all “things” (including ourselves and the more-than-human world) as existing in relation (that is, as not separable from their relations). I explain what this means in terms of regarding ourselves as enmeshed in a web of relations in which we shape worlds as we enact our thinking-and-being with others with whom/which we are engaged, with consequences for the continuing emergence of worlds-in-becoming. I explain how this implies a participatory onto-epistemology, where there are no “observers” of the world – only participants (Inoue et al. 2023; Ndlovu-Gatsheni 2018; Ngara 2017, 2018). Santos, in his *Epistemologies of the South* (2015), succinctly expresses this as that: “The very action of knowing, ... is an intervention in the world, which places us within it as active contributors to its making” (2015, p. 308).

The attendant axiology demands paying attention to how we enact our worlds with others (including more-than-human others), so as to try to create more balanced/reciprocal/non-exploitative relations (Chilisa 2020; Kovach 2009; Ngara 2017, 2018; Stein et al. 2020). It is argued that (Western-originated) ways of relating associated with modernity/coloniality run counter to what Andreotti (2023) calls “relational intelligence”. Stein et al. (of which Andreotti is a co-author, 2020) express this via a display of the “house modernity built”. (See Fig. 1.) Stein et al. are members of a collective of Gesturing Towards Decolonial Futures (GTDF) involved in “research, artistic, and pedagogical experiments in education” (2020, p. 45).

Stein et al. indicate that the “hidden costs” of subsidizing and maintaining this house include “historical and on-going expropriation [of Indigenous lands], land-theft, exploitation [of people and planet through the workings of global capital], destitution, preventable famines, incarceration, dispossession, epistemicides, ecocides, and genocides” (2020, pp. 49–50). Their reference to epistemicides is a reference to the epistemological violence that denigrates/destroys the contributions of Indigenous ways of knowing-and-being (e.g., Akena 2012; Ndlovu-Gatsheni 2018; Santos 2015). Instead of considering that the house modernity built has fundamentally “good scaffolding” (Stein et al. 2020, p. 56), they suggest it is crucial to nurture spaces where alternative onto-epistemologies become actualized/enacted – what they call “beyond reform” spaces (2020, p. 56). Inoue et al., in their discussion of the relevance of the term “political ontology” (introduced by Blaser 2009) indicate that this implies a commitment to a pluriverse, including “a space in which *different ways of worlding sustain themselves*, while interacting, interfering, and mingling with each other” (Inoue et al. 2023, p. 5, my emphasis).

In explaining their relationship to the (shaky) foundations of the house that modernity built (taking into account its oft-hidden costs, which do not enter mainstream discourses), Stein et al. indicate that they are “seeking to identify opportunities and openings for responsible, context-specific collective experiments that enact different kinds of relationships, and different possibilities for (co)existence, without guarantees” (p. 45). They go on to note that

we emphasize complexity, complicity, and uncertainty, and draw on multiple interpretations and dimensions of decolonial theory and practice – in particular, its ecological, cognitive, affective, relational, and economic dimensions. We undertake this work with a sense of humility, recognizing that our lives and livelihoods are underwritten by *systemic, historical, and ongoing colonial violence*. Thus, we can only “gesture” towards the direction of decolonization (2020, p. 45, my emphasis).

Andreotti, as one of the members of this collective, offered a plenary presentation at the 66th annual conference of the International Society for the Systems Sciences (ISSS, 2022) entitled: “*Gesturing Towards Decolonial Futures (GTDF): Resonances and tensions at the intersection with systems science*”. She noted that:

The artistic and educational interventions of the GTDF collective aim to build stamina to navigate volatility, uncertainty, complexity, and ambiguity and to hold space for difficult conversations about wicked social and global challenges (Andreotti, Abstract of plenary presentation, ISSS, 2022).

It is in the spirit of Andreotti’s (and the collective’s) gesturing that I write this article. As far as my positionality is concerned, I am White South African in terms of the official classifications introduced by South Africa’s National Party apartheid government in 1948. However, I regard myself as Indigenous-oriented, having learned much from interactions and friendships with Indigenous friends and colleagues over the years. In a story that Francis Adyanga (from Uganda) and I created for a book by CohenMiller (2023) in which she invited stories around “Learning from Others”, Adyanga stated the following:

I think your mind-set, your philosophy, your pedagogy is highly indigenous... . So, you can use the term “*indigenous oriented scholar/ally*”. You are a contemporary transformative scholar. You are an *ally*, you are an *indigenous-oriented scholar*, but for me, I call you an *indigenous scholar*, because of the way you articulate issues and because you know the importance of respect, relationality, reciprocity, and respon-

sibility/accountability (Adyanga and Romm, as recounted in CohenMiller 2023, pp. 87-88, my emphasis).

This article is intended to serve a performative function of urging an account of the history of “systems thinking” which better embraces the contributions of Indigenous systemic thinking (and being), with its focus on participatory onto-epistemology.

The Structuring of the Article

The article is built up as follows. In the next section I provide detail on the way in which the history of systems thinking has been written up in dominant writings in what is named as the “systems” literature, with failure to elucidate what can be called Indigenous systemic thinking. I indicate why this can be regarded as a lacuna. I point out that provision has not been made for Indigenous systemic accounts of knowing as active involvement in world-shaping processes (hence the term onto-epistemology).

I then offer a section providing pertinent quotations from a variety of Indigenous authors who have tried to elucidate the deep meaning of the suggestion that everything exists in relation. I begin with some phrases from Wilson (of Cree and Scottish heritage) in his book *Research is Ceremony* (2008). I then offer and unpack some additional quotations from other Indigenous authors (hailing from various locations). I highlight their onto-epistemological understanding of a participatory universe, which we – along with the rest of creation as a living process – play a part in forming.

I also discuss some of the work of Netshandama in connection with a community of practice in which I am involved, whose stance I am therefore familiar with. I indicate how she refers (with Nevhudoli 2021) to authors who plead for us to create a pluriverse which accommodates different ways of knowing-and-being. (This is intended to undercut the hegemony of dominant narratives of the meaning of “development” – Kothari et al. 2019.) I indicate how this relates to Inoue et al.’s (2023) account of Indigenous and traditional communities’ ways of knowing-and-being in planetary justice, where they explain this in terms of the concept of political ontology. I furthermore relate this to Pinzón-Salcedo, Bernal-Alvarado, Ramírez-Franco, and Pesca-Perdomo’s suggestion that “although systems thinking is commonly seen as a product of the Western world, other cultures have developed their own versions with unique characteristics” (2022, p. 3).

In a section entitled *A Drowned Wave of Systemic Thinking* I examine a few articles appearing in systems journals and in systems handbooks which have been co-written by Indigenous and non-Indigenous authors (e.g., Midgley et al. 2007; Cordoba-Pachón and Midgley 2006; Rajagopalan and Midgley 2015; McIntyre-Mills 2021; McIntyre-Mills et al. 2022, 2023). I pinpoint what I take to be important in these texts. I underscore how these authors implicitly or explicitly draw on a conception of a participatory universe as expressed, for example, by Ngara (2017, 2018). Ngara argues that modern quantum theory, which recognizes that any observation is also an intervention in the way events unfold, has now caught up with Indigenous thinking in this regard. As she puts it: “The cutting-edge science of the twentieth century is finally catching up to eons of indigenous wisdom” (2018, p. 15). However, the import of this onto-epistemology does not feature in mainstream storytelling around the history of systems thinking.

As part of my discussion, I make reference to the methodology of Structured Democratic Design (SDD), also called by other names such as dialogical design science, interactive system design, or when used by Indigenous Native American and other Indigenous leaders, Indigenous Leaders Interactive System (ILISTM). Christakis (2014, p. 50) refers

to his liaison starting in the 1980s, with LaDonna Harris – a Native American leader who founded the Americans for Indian Opportunity (AIO) – to whom he introduced the methodology. ILISTM is very similar to SDD in that both are aimed at drawing maps of people’s emergent collective thinking about “influence relationships” between constructed ideas in relation to challenges of concern, aided by computer software (Christakis 2014; Christakis and Harris 2004).¹ In a particular case of ILISTM referred to by Harris and Wasilewski (2004b) the challenges around which they were deliberating were the complexities involved in developing strategies for “expanding a web of transnational Indigenous interactions” (via an organization called Advancement of Global Indigeneity – AGI). Harris (based in New Mexico) and Wasilewski (based at the International Christian University in Tokyo, Japan) were formally invited, along with a group of Native Americans and Maori participants, by past President of the ISSS (Aleco Christakis) to actively participate in the 47th meeting of ISSS held in 2003.

Harris and Wasilewski state that an important purpose of the Organization for the Advancement of Maori Opportunity (AMO) and the AIO attending this meeting was to “share our Indigeneity with an international forum of system science practitioners and to engage in conscious evolution with other systems thinkers” (Harris and Wasilewski 2004b, p. 506). Here they indicate that these participants regarded themselves as systems thinkers on a par with other systems thinkers. Harris and Wasilewski also subsequently wrote up articles in SRBS (2004a, b) which presented the conceptual contributions that they felt Indigenous people can make to contemporary global discourses in the face of globalization (Harris and Wasilewski 2004b, p. 506). However, despite their plea for their systemic thinking and being-in-the-world to be taken seriously as a result of attendance of ISSS and writings in SRBS, this did not seem to occur.

Threaded through my article, I indicate that I am wary of the proposal of Cabrera et al. (2023) to bring “maturity” to the field of systems thinking through DSRP. They suggest that it is possible to identify a “parallel structure (D, S, R, and P, standing for identity-other Distinctions, part-whole Systems, action-reaction Relationships, and point-view Perspectives) in both real-world systems and the mental models we build of them [as independent existents]” (p. 14). I believe their account of DSRP does not give sufficient notice to

¹ Christakis introduced the structured dialogical approach aided by the *Cogniscope* software tool to Harris (and later he became an honorary member of AIO). Briefly put, the *Cogniscope* software facilitates the gradual development of an influence map (or influence tree), based on people’s collective deliberations around pair-wise comparisons between ideas. The ideas located at the root of the tree are treated as particularly influential, such that a change of them is considered crucial to reconfigure the system. Besides SDD in the form of Indigenous Leaders Interactive System (ILIS™) being used by Indigenous leaders, it has also been used by facilitators in a myriad of other contexts, as noted, for instance, by Flanagan (2021, p. 770). For example, it was used extensively in the context of exploring prospects for generating dialogue between Turkish and Greek Cypriots (cf. Laouris et al. 2009, 2015). Christakis and Bausch (2006), in their detailed exposition of how the SDD process is to be used to harness collective wisdom, refer to many instances of using the process with participants from across a variety of cultural heritages. Laouris, Dye, Michaelides and Christakis (2014) indicate how the co-laboratories of democracy offer choices for designing sustainable futures. Laouris and Dye (2023) for their part provide an account (from their perspective) of developments in SDD since its inception. Laouris and Romm (2022b) offer their proposal for why SDD must be recognized as a problem structuring method. And in another article elaborating on its employment with a cohort of African youth (2022a), Laouris and Romm indicate how it resonated with African styles of critically systemic knowing-and-acting (through the feedback we received).

the Indigenous-informed understanding of the way in which the language we use not only makes distinctions (in terms of some perspective) but *shapes/enacts an emerging world*.²

Notably, Cabrera et al.'s talking about the need to explore “universality in mind and nature” (p. 7) already makes a distinction between these posited worlds (“real worlds” and our “cognitions”). Indigenous authors propose (and live) a different onto-epistemology. They argue that their onto-epistemology better allows for developing relationships of reciprocity in our encounters with a world being enacted (where models themselves can be construed as enactments). They propose as part of their argument that even the distinction between “humans” and “others” becomes fuzzy (Kovach 2009; Mabunda and McKay 2021; Naidoo 2021; Pinzón-Salcedo et al. 2023; Romm and Lethole 2021; Rosiek et al. 2020). Cabrera et al.'s statement that their DSRP theory has “seen considerable testing” (2023, p. 13), via, for example, a “burgeoning amount of empirical evidence”, is based on using their criteria for testing, which may not be agreed upon by others and can be self-fulfilling (as I also argued in Romm 1995, with respect to other authors who supposed that their theories had been well tested). What it means to speak of “empirical evidence” as if this can be a court of appeal for a framework, is already questionable. Other criteria they offer such as “substantial peer reviewed publication history, and sizeable citation histories” (p. 13) means that those in the specified community performing reviews and citing the work have judged the arguments as compelling. That is, there has apparently been some intersubjective agreement in the judging community (which may not have included many Indigenous/Indigenous-oriented scholars).

In my Conclusion I re(iterate) the importance of appreciating as part of the literature on the history of systems thinking (and its future agenda) the onto-epistemology of Indigenous systemic thinkers who forward a specific relational approach which urges decolonial alternatives to the “house modernity built”. I also indicate that some of the terminology used by Klein et al. (2021, 2023) in their proposed agenda setting for the “systems community” can be revisited in terms of concerns raised from the Global South. (As conceptualized by Santos 2015, this does not refer to geographical positioning on the globe, but to onto-epistemological struggles against modern-colonial-type dominance.)

Lacuna in the Dominant Narrative of the History of Systems Thinking

The history of systems thinking is normally storied by authors regarded as prominent in the field as having developed as a system of thought through the “hard” systems approaches, and “systems dynamics” ones developed in the systems sciences starting in the 1950s.

² Cabrera et al. offer many examples of distinctions that are made. For example, they remark that “a sociologist distinguishes a *norm*”, as distinguished “from other sociological concepts (e.g., deviance ...)” (2023, pp. 25-26). But the problem with this distinction (as made by some sociologists) is that it can all-too-easily have the upshot of *enabling people in powerful positions in society to justify the denigration/oppression of activities regarded within dominant discourses as “deviant”*. This is an indication of how the words we use *enact* worlds, which is what is stressed in Indigenous onto-epistemologies. Hence, we need to be careful of the likely consequences of any distinctions that we – with concerned others – make. Instead of a conventional Sociology, Santos, in his *Epistemologies of the South*, pleads for a “*sociology of emergences* [which enables] anticipatory consciousness and nonconformism before a want whose fulfillment is within the horizon of possibilities” (2015, p. 289, my emphasis). Akomolafe poetically expresses this as: “May this new decade be remembered as the decade of the strange path, of the third way, of the broken binary, of the traversal disruption, the kairotic moment, the posthuman movement for emancipation, the gift of disorientation that opened up new places of power, and of slow limbs” (<https://www.bayoakomolafe.net/>).

It is noted that these thinkers queried the erstwhile commonly-held mechanistic view of the world, and offered a view of (real) systems as relationships and processes, linked in certain ways to their environment (Cabrera et al. 2023; Flood and Jackson 1991; Jackson 1991, 2003, 2019)³. As Cabrera et al. put it, such systems thinking “started in reaction to inadequacies in traditional, reductionist science and continues to evolve to this day” (2023, p. 7). When Cabrera et al. state that it is continuing to evolve, they indicate that it (in evolved form) has not been replaced by the addition of further frameworks of systems or systemic thinking, as it still exists alongside newer approaches that have come to the fore. One of these approaches – explicitly drawing on the interpretivist paradigm for research in the general social scientific literature⁴ – started gaining ground in the late 70 s and 80 s. (Cabrera et al. prefer to use the term *wave* instead of word *paradigm* because for them the word *paradigm* implies that earlier frameworks become replaced.)

These interpretivist, or sometimes called “soft”, systems thinkers focused on the way in which humans construct meanings as they intersubjectively interact with one another and with what they take to be the external world. Cabrera et al. note again that this approach is still evolving. Flood for his part (2010, p. 270) chooses to call these thinkers *systemic* thinkers in order to highlight that the supposition here is “only that the *social construction* of the world is systemic”. Midgley explains further that the soft systems thinkers argue that any “system” as identified and explored by professional and lay researchers/people, is bounded *conceptually* because it is they who define “what to include and exclude in observation and analysis” (Midgley 2011, p. 5). These thinkers query the representational idiom which implies that modeling processes must strive to understand “objectively” some posited real systems.

Meanwhile, in the storying around the history of systems thinking, credit is then given to the contributions of “critical systems thinkers”, who drew on the work of critical theorists in the social-political literature through the ideas mainly of authors associated with the Frankfurt School.⁵ Or as Cabrera et al. indicate, it “started in reaction to identified weaknesses in the first and second waves [of systems thinking], and continues to evolve to this day” (2023, p. 7). These “third wave” systems thinkers – whose arguments can be

³ In his 2003 book, Jackson states that systems ideas can also be traced to early Greek philosophy, but he argues that thereafter holistic thinking was for a long time “pushed to the margins” (2023, p. ix). (He does not mention the holism of ancient Indigenous thinking.) In his 2019 book entitled *Critical systems thinking and the management of complexity*, Jackson admits that:

This book will restrict itself to the Western intellectual tradition. It is upon Western sources that systems practitioners have, probably to their detriment, almost exclusively drawn. As with so much in this tradition, we owe the first attempts to use systems ideas to the ancient Greeks. (2019, p. 3)

⁴ Further to the work of Guba and Lincoln (1994) and Lincoln and Guba (2003), the language of paradigms has been commonly used in the general research literature to express that there are different paradigmatic ways of defining the proper practice of social science. Interpretivism/constructivism is regarded as one such paradigm.

⁵ It should be noted here that various Indigenous scholars point to what they regard as problematic with the Frankfurt school of critical theorists and with Western-dominated critical theory more generally. For instance, Ndlovu-Gatsheni (2018) states that:

The epistemic limits of the Frankfurt School and the blindness of its critical theory to those key concerns affecting the “non-Western” world, haunts the entire Western thought and make the theorists fail to hear and comprehend the core aspects of struggles for epistemic freedom cascading from the Global South. (2018, p. 17).

Here again we can detect how the account of the history of systems thinking showing how the Frankfurt school theorists’ work was drawn upon, expresses a lacuna (according to those advocating the decolonial critical theorizing associated with “The South”).

traced to the late 80 s – drew attention to the need to explore power relations in the social fabric which restrict genuine dialogue in our (collective) striving to create a better world. Also included in these developments in systems thinking is the suggestion that researchers should be encouraged to reflect, with others, upon their ways of seeing (and indeed setting) systems boundaries – that is, the issues which are taken to be important and who/what should be considered part of the relevant system (Jackson 2006, p. 651; Midgley 2000, 2011). A proposal for methodological pluralism is also normally associated with this “wave”.

Some reference is also sometimes made (when storying the history of systems thinking) to post-modernist systems thinking, which Jackson (2003, p. 256, and 2006, p. 653) traces to the late 1990s and early 2000s. Jackson indicates that due to the influence of postmodernist thinkers in the general social-political literature, it became recognized by certain systems thinkers (especially in the soft and critical traditions) that any claimed improvements in addressing social and political issues can still be contested and are at best temporary. He indicates that he himself “continues to employ ideas from postmodernism when it seems helpful” (2019, p. xxi). Cabrera et al. (2023) do not give credence to this way of thinking, excepting in their referring to the idea that theories are always applied in specific contexts of use. Instead, they describe what they call a “fourth wave” of systems thinking which they state can also be identified. They outline what they take to be the contours of this wave, which they consider has broken on the shore of systems thinking (starting in the early 2000s). They deem this wave to be a way of “bridging physical/cognitive complexity and as facilitating approachability and maturation of the [systems thinking] field” (2023, p. 7).

As I indicated in my Introduction, the language they use when speaking about “the need for systems thinking to act as a bridge between both the physical and cognitive worlds” (p. 5) already invokes a distinction between matter and spirit (mind). However, as Ngara (2018) remarks:

With the indigenous worldview, there is no separation between matter and spirit; the individual and community; human and nature They are not absolute categories belonging to different categories (2018, p. 14).

Elucidating this view, Ngara suggests that in Indigenous understandings

we dance to animate the life force. We stimulate energy points through our rhythmic connections to the earth. We sing because sound is a creative force – we are persons – those of sound. We clap because in connecting self from one hand to another, we simultaneously re-organize the invisible wave-particles of nature around us We drum to arouse the common heartbeat ... in all of creation (2018, p. 13).

Through these instances, Ngara indicates how within this worldview it is impossible to distinguish a “physical world” existing outside of us as humans, as our “being” is intricately connected with the life forces of nature. (Ngara herself has a background, *inter alia*, in clinical engineering and is a transdisciplinary researcher).⁶

⁶ Ngara defines herself as an African Indigenous Knowledge Systems practitioner and transdisciplinary researcher who traverses clinical engineering, healthcare technology management, socio-economic development, mathematics, leadership and fashion design, to the interface between science, culture, cosmology and paradigms of healing (<https://www.dancingwithmountains.com/people/rutendo-lerato-ngara>).

What I wish to highlight in this article is that in the discussions above of the history of systems thinking, the systemic ideas – and experiences of involvement in a web of relations – displayed by many Indigenous scholars and sages across the globe, are not mentioned. Simon (2021) makes the point that university reading lists in her field (the field of systemic therapy) have for the most part neglected to make reference to the work of Black (or Indigenous) scholars. She urges us to become aware of this lacuna and to correct it. This article is written in this vein too.

I have purposefully above taken the narratives of authors known as influential in the field of systems thinking (and prolific writers) to offer a sense that the dominant storying around its history has not included the relational onto-epistemology of Indigenous sages and scholars hailing from countries that became colonized by Western powers. In other words, the lacuna in the systems literature in respect to affording credibility to Indigenous contributions again seems to echo the same process in the social scientific research literature: In the general literature, the major paradigms that are normally discussed are positivism/postpositivism, interpretivism/constructivism, emancipatory/transformational paradigm (expanding on the critical theoretical tradition), and dialectic pluralism (as a kind of pragmatic approach). Only recently what is called an Indigenous research paradigm (named by authors such as Chilisa 2012, 2020; Chilisa et al. 2017; Chilisa and Phatshwane 2022; Romm 2015, 2018; Smith 1999; Wilson 2008) is beginning to be recognized as a “major” paradigm alongside what Dillard (2006) calls the “Big Four”.

In a chapter entitled “philosophical underpinnings of mixed methods: decolonizing evaluation practice through decolonizing paradigms” (2023), Chilisa explains again what is meant by an Indigenous (postcolonial) paradigm. She indicates that elsewhere she has noted that Euro-Western paradigmatic thinking has been informed by the contexts in which they were developed, and this sense are also “Indigenous”. However, the terminology of Indigenous postcolonial paradigm, is meant to show up that the knowing (and being) processes that are “Indigenous to the majority of the formerly colonized people’s of Africa, the Indigenous people’s of Canada, Australia, and the USA, also referred to as First Nations” (2024, p. 55) have remained peripheral and/or devalued. That is, the relational (systemic) thinking of the sages and scholars hailing from these areas has hardly been given credit in the dominant discourses in the research literature. Nevertheless, she recognizes that it is beginning to gain some ground in research discourses as a fifth paradigm.

In promoting an Indigenous paradigm as an important one to reckon Chilisa explains that:

Relational ontology, epistemology and axiology emphasizes connectedness and relationality as *Indigenous systems thinking* that promotes interaction of knowledge production structures and the importance of building relationships with and among participants and with the environment to improve the quality of data [generated via the research process] and provide pathways towards equitable and sustainable futures (2024, p. 55, my emphasis).

I outlined this kind of relational argument in my article in *Systemic Practice and Action Research* (Romm 2015), which has been favorably cited by Chilisa in several of her works. I suggested that we need to include an Indigenous systemic approach when considering how we conceive “systemic thinking” in the systems community. This article has been cited almost 200 times, but not by those writing in mainstream systems journals or handbooks. It has been cited by authors in various fields concerned with appreciating this way of thinking/being as part of their efforts at organizing processes of decolonization.

Although we have seen above, scholars in the “systems community” often paid attention to developments in the general social scientific/political field, it seems this has not for the most part been the case with the writings of Indigenous authors. This is despite Indigenous authors’ often self-identifying themselves as systemic thinkers better equipped to offer insights into how we can repair and regenerate the destructions in social relationships and relations with nature (regarded as kin/family) which they see as besetting the current era. The articles by Harris and Wasilewski published in *Systems Research and Behavioral Science* (2004a, b) together with the one written by Harris and Christakis in the same year offered an opportunity for recognizing the contributions of Indigenous systemic thinking, but these did not reach the shore of mainstream narratives around the history.

I suggest that the plenary invitation to speaker Andreotti (of German and Guarani Brazilian heritage) at the 2022 International Society of the Systems Sciences (ISSS) conference, and the plenaries of South African Indigenous speakers at the 2023 ISSS conference are indicative of some shift in thinking about who need to be recognized as (major) systemic thinkers. Furthermore, the fact that Culshaw is now connected to the Centre for Systems Studies at Hull University (and lauded by director Gregory in her editorial in the November 2023 newsletter as having alerted her to “regenerative relationships and place-based knowledge”) augur well for this style of systemic thinking. And hopefully in time the Indigenous systemic approach, whose contours I outline below, will be explained as important in the history and future of the “systems” community.

Some Entry Points into Indigenous Systemic Thinking

Evidently, due to space limitations all that I can provide in this section is some entry points to offer a flavor of Indigenous systemic thinking. I start with some of the ideas of Wilson in his book *Research is Ceremony* (2008). Wilson argues that within Indigenous circles, and elsewhere by those interested,

a growing awareness of the similarities of experiences of Indigenous peoples worldwide has reshaped the terminology used to define their own lives. No longer are tribally specific or local terms such as Indian, Metis, Inuit or Native (as used in Canada) or Aborigine or Aboriginal (as used in Australia) inclusive enough to encompass a growing resurgence of knowledge that encompasses the *underlying systemic knowledge bases* of the original peoples of the world (2008, p. 54, my emphasis).

He indicates that many authors, himself included, have tried to explain/articulate for themselves and their audiences (Indigenous, non-Indigenous, and bicultural ones), what might be meant by revitalizing the underlying systemic knowledge bases of Indigenous peoples. This entails (re)examining the onto-epistemology and attendant axiology and methodologies for engaging in/with the world as developed in precolonial times and refreshed over the years. Wilson goes on to note that Indigenous scholars are “in the process of shaping, redefining and explaining their positions” – which therefore are not to be taken as static, but as evolving as they are written about, shared and (re)interpreted for continued relevance for the current era (p. 54).

In explaining the Indigenous ontology now to readers, he points to the importance of relationship, which means that a (supposed) “object or thing is not as important as one’s relationships to it. This idea could be further expanded to say that reality *is* relationships or sets of relationships” (2008, p. 73). As far as knowing is concerned, “knowledge is relational. It goes beyond this [Western] idea of individual knowledge to the concept

of developing relational knowledge” (2008, p. 74). Epistemology is therefore “more than merely a way of knowing: It is a *way of relating*” (p. 74, my emphasis). In terms of this onto-epistemology, “the shared aspect of an Indigenous ontology and epistemology is relationality (relationships do not merely shape reality, they *are* reality)” (p. 7). Axiologically and methodologically, as we explore our involvement in networks of relationships, it means that we are accountable to our relations – trying to strengthen relationships of reciprocity. This applies to relationships of reciprocity with all that we encounter: “The shared aspect of an Indigenous axiology and methodology is accountability to relationships” (p. 7).

Harris and Wasilewski (2004a) explain the Indigenous concept of Relationships which they clarified via the ILIS™ forum to which I referred earlier, in an effort to consider what Indigeneity can contribute to discourses around “globalization”. This is in the face of what Christakis and Harris call “rapid and unchecked globalization trends” (2004, p. 251). In writing up the concept of “relationship”, Harris and Wasilewski indicate that:

Relationship is the kinship obligation, the profound sense that we human beings are related, not only to each other, but to all things, animals, plants, rocks – in fact, to the very stuff the stars are made of. This relationship is a kinship relationship. Everyone/everything is related to us as if they were our blood relatives. We, thus, live in a family that includes all creation, and everyone/everything in this extended family is valued and has a valued contribution to make (2004a, p. 492).

As far as reciprocity is concerned, they indicate that:

Once we have encountered another, we are in relationship with them. . . . The Indigenous idea of reciprocity is based on very long relational dynamics in which we are all seen as “kin” to each other (2004, p. 493).

Rosiek, Snyder, and Pratt likewise offer an account of how this notion applies to our establishing reciprocal relationships with more-than-human aspects of creation or life forces, instead of the kind of relationships enacted in the treatment of “natural resources” to be used/exploited for human benefit (2020, p. 340). They indicate how this latter treatment is linked to a continued colonial attitude. In this regard, they cite Simpson (2017) as lamenting that: “My [indigenous] land is seen as a resource. My relatives in the plant and animal worlds are seen as resources” (cited in Rosiek et al. 2020, p. 340). And considering our “knowing” processes, they highlight (citing various other Indigenous authors) that an ethic of reciprocity requires that we account for what we are giving back to the agents “co-constituted with us in the inquiry and the broader network of relations in which the encounter is nested” (2009, p. 340). Otherwise put,

in seeking knowledge, a person becomes involved in a co-constituting relation with another agent or group of agents [including more-than-human ones]. These actions alter the ontology of the subject engaged in inquiry in so far as that subject is no longer constituted as a spectator or critical observer, but as a participant in ethical relationship with other agents (2020, p. 340, my emphasis).

Expressing a similar idea, Mabunda and McKay explain that “most multispecies scholarship focuses on the connections to, and within, multiple ‘more-than-human-worlds’, while exploring ways in which education needs to be reconfigured to promote meaningful engagement” – recognizing our engagement in the “co-fabrication of the worlds” (2021, p. 376). Promoting meaningful engagement here means acknowledging the quest for reciprocity in the “co-fabrication” (which, they note, includes, for example, “animals, plants, social objects, and technological devices”).

Pinzon-Salcedo-Salcedo et al. also refer to the impulse for reciprocity when they speak about the non-anthropocentric features of an Amerindian systemic perspective springing from the Amazon:

Interaction with their environment led Amazonian communities to conceive particular worldviews and cosmologies, and to respond to the world they inhabit in specific ways. As it happens with other Amazonian communities, such as the Tanimuka and Yukuna of the Northwest Amazon in Colombia . . . , the Tukano worldview and cosmology are *grounded in a systemic perspective which is entwined with a nonanthropocentric ecological ethics*. It has strong practical implications in their relationship with nature (2023, p. 2, my emphasis).

Pinzon-Salcedo et al. suggest that Amazonian systemic thinking – along with other Indigenous onto-epistemologies and axiologies – might help us to “find answers to the planet’s ecological and sustainability problems, such as climate change and mass extinction of species” (p. 3). Nóbrega et al. (2023) clarify that the impetus for attention to this is *not built on anthropocentric views* of humans as separate from and as having more important rights to exist from the rest of the planet. It is grounded in a whole new way of finding answers by *being responsive to the voice/spirit of nature in a quest to strengthen life-giving forces all around*. Ngara, in offering her synthesis of African Indigenous onto-epistemology, expresses this idea when she states that:

The overriding focus of life is to be in harmony with the forces of life. Harmony implies living life – not fighting or controlling life. It means steering life [acting with some agency] while understanding that there are other forces that will, in part, determine the vehicle and the direction of travel [as they too have agency, which must be respected] (2017, p. 344).

In this process of encounter, we should recognize that the apparent *observer* “now becomes a *participator*” in that “s/he has an effect on the system she observes” (which Ngara indicates is now recognized in quantum physics – 2017, p. 349). Once we recognize that we are *participants* in world forming, we need to be accountable to the relations that we play a part in forming. (This is not merely an epistemological statement to the effect that there is no external vantage point from which to view the world: it includes an ontological statement about our involvement in the way realities become formed/enacted).

Rajagopalan, in a script that he produced for an ISSS virtual Gathering held on 1 February 2023, cites authors such Seth (<https://www.youtube.com/watch?v=39fDel3oXVg>); Akomolafe (<https://www.bayoakomolafe.net/>); and Somé (1993) to likewise make the point that the internal world [which itself is not bounded by some posited physical body] *plays an active role in shaping the emergent future reality*” (2023a, my emphasis). Rajagopalan states that:

Cultures outside the “modern” West⁷ usually revere and practise deep attention to the internal mindscape through various ritual forms of individual as well as community engagement. The purpose is to enlarge the perception of reality by embracing the mind of the community and that of the ecosystem (2023a).

When he speaks of the mind of the community and that of the ecosystem, he indicates that knowing is not seen as existing in individual “minds”, but is generated through our relationships, including through our (collective) participatory involvement in ecosystemic living (ideally in reciprocal relationship). He indicates that this is “seemingly paradoxical or difficult for the modern sensibility to understand” (2023). He states his understanding in strong political terms thus:

The notion of a separate self with a bounded consciousness located within the physical frame of the human body is a distorted perception that was fabricated within the epistemology of modernity, to support the projects of colonization and Western cultural hegemony. Contrarily, the idea of the interconnected mind is held as a simple, natural truth in all non-Western cultures across human civilization into the current time. Strangely, recent developments in neurosciences, and the scientific study of altered states of consciousness, quantum physics, symbiont biology – have begun to support this now (2023a).

As we have seen above, Ngara (2017, 2018) too states that Western science is now catching up with Indigenous wisdom in this regard. However, the implications hereof in terms of Indigenous-informed modes of knowing-and-being in the world have been drowned in the history of the field of “systems thinking” by those who purport to represent this field.

Rajagopalan (2003b, p. 1) states that in strengthening our capacity for an *epistemology of systemic knowing*, he finds two sources that may assist us. One source is “Action Research, which readily offers itself, being a field very much allied with Systems Thinking” (2023b, p. 1). It is allied to such thinking (which we can rather call *systemic* thinking) because it recognizes that knowing (as a collective enterprise) is tied to action possibilities *at the moment of knowing*, and not in a later “application” which proceeds the knowing process. The second source that Rajagopalan indicates can assist us, is “wisdom traditions across human cultures outside the modern West”: He urges that “we might carefully consider what they offer to systems [systemic] thinking” (2023b p. 1). Above I have indicated how in the ISSS gathering held on 1 February 2023 Rajagopalan expressed how authors such Seth, Akomolafe, and Somé can assist us in our quest for a more holistic approach (2023a).

Notably, some Western-schooled authors in the named “systems field” (Rajagopalan, 2023b, himself refers, for example, to Midgley) have made concerted efforts to engage with Indigenous authors, including by co-writing with them and/or by explicitly admitting in

⁷ This does not mean to say that no Western-schooled scholars and practitioners have appreciated this ontological (and epistemological) perspective. For example, Flood (2021) in discussing current global crises in McIntyre’s edited book on *Multispecies Relationships*, cites favorably Berry’s work (2015), where Berry himself shows his reverence for Indigenous thinking. Makaulule, who founded the organization called Dzomo la Mupo (DML) in Venda in South Africa, indicates that she regards Berry as one of Norma’s (my) ancestors, whose wisdom we can appreciate (Lethole et al. 2023, p. 236). Gergen, in his discussion of *Relational Being* (cf. 2009, 2022, 2003) too elaborates on the importance of promoting (and living) this idea of “being”. (He cites a number of metaphors within and outside of Western cultural heritages that support this notion.).

their systemic writing what they have learned from Indigenous sages and scholars. Some instances that I discuss in my next section are: Cordoba-Pachón & Midgley (2006); Midgley et al. (2007, which includes Māori authors in the list of authors); Rajagopalan and Midgley (2015); McIntyre-Mills et al. (2022, 2023); and McIntyre-Mills (2021). *But I also indicate that thus far such contributions have not been drawn out in mainstream write ups of the history of systems thinking (including that of Cabrera et al. 2023).*

Culshaw, who recently joined the Centre for Systems Studies at Hull University as a visiting fellow (Culshaw 2023), introduces herself by indicating that her approach to systemic thinking is “rooted in the cosmic intelligence of the seen and the unseen”. She also indicates that her thinking has been informed “by both an Indigenous and a more Western ‘scientific’ worldview”, and that she sees her strength as “dancing in the intersections”. She offers her perspective on the importance of recognizing (and extending) Indigenous legacies when she states in a TedxGEM presentation (2018) that there are lessons to be learned from our “pre-modern” selves (<https://www.youtube.com/watch?v=RXRWmUV-Gp4>). I now summarize (with some verbatim words of hers) her suggestions.

Culshaw suggests that in our move [who the *our* is, is left somewhat in abeyance in her presentation] to become a modern society, we may have left behind part of the legacies that connected us to each other as well the legacy of living more in harmony with nature in moving with the rhythms of life. She reminds us that the values we have learned from our legacies can and should be revitalized insofar as they guide us to connect with others in ways that uplifts them, and also in the ripples that we create through all the choices we make – including the words we use and the stories we tell. She notes that we all – whether in large or small ways – have an influence.

She reminds us to think carefully about the power of the words we use and to consider what is transmitted in how we speak, the stories we tell, and the songs we sing. These all have power to make the world through the influence that they make (large and small in terms of their ripples). She gives an example of the statements of Milton Friedman (which were disseminated in a story in the New York Times in 1970) that became powerful across the globe to the effect that “the business of business is business”. The only responsibility business people have, according to Friedman, is to follow the rules of the game of the free market economy, in order to maximize profits. This view became highly influential and informed policy-making across the globe.

This narrative continued to dominate for at least a quarter of a century and into the next. But Culshaw indicates that something is changing – creating alternative ripples. This is thanks to people who insisted on questioning the separateness mentality that separated business from a sense of responsibility to the communities in which they were making profit and a sense of responsibility to regenerate the natural ecosystem. She sees her task – also thanks to the lessons and wisdom she learned from her elders and from her heritage – to play a part in inspiring current and future leaders to reconnect with purpose, that is, to reconnect business to broader social and ecological purposes, so that business can make a “positive impact”. She refers to many initiatives that have been created across the globe to offer new visions (and stories) about what it means to do business. She refers, for example, to economic initiatives in the “consciousness economy” and “social or solidarity economies”. These are different ways of organizing economic life that are not premised on a view of business conducted for purposes of maximizing profits, but run in order to create a positive impact for a common good.

The narrative that Culshaw expresses and that she hopes will now impact on her listeners is that in modern living, “business” became disconnected from community, from wider society and from the sense of responsibility to play a stewardship role in caring for

(non-human) nature. She does not mention colonialism as having also been built on an understanding of economics as geared to profit-making at whatever cost to internal and external stakeholders – what Stein et al. (2020) identify as the hidden costs of the house modernity built. But we can consider it an undertone of her argument insofar as modernity went (and goes) hand in hand with attendant colonization of lands and (super)exploitation of Indigenous racialized labor (where race(d) labor becomes specifically cheap) and of nature as “cheap nature” (Moore 2019; Santos 2016; Stein et al. 2022). Stein et al. call this “our modern-colonial mode of existence” (2022, p. 274).

In her TEDx talk, Culshaw is expressing Indigenous conceptions of relationality while also pleading for their revitalization. At the same time, she is expressing that we contribute to shaping the world (including the more-than-human one) through the stories we tell and the theories we develop. She indicates, on another site where she expresses her membership of a “deep transformation” network, that she is “interested in flipping the current ‘sustainability’ narrative to encourage businesses and/or individuals to embrace a more holistic indigenous approach” (<https://deeptransformation.network/members/10944689>).

This would tally with the argument of Flood and Romm (2018) when we discussed how “learning processes” in organizations, societies, and across societies can fail to

explore in practice [enact] how power relations can be configured to create more relationality in our “being” with others and with the environment. Such ideas are advocated by many Indigenous authors who plead for a revitalization of Indigenous modes of relationality (Chilisa 2012; Chilisa et al. 2017; Cram 2009; Kovach 2009) (Flood & Romm 2018, p. 266).

Hence it is crucial to explore ways to strengthen the quality of our learning (and unlearning) processes, so that dominant/hegemonic narratives, which in effect exclude “other” ways of enacting worlds, can be challenged. As Inoue et al. (2023) argue, many of the struggles of Indigenous people and others involved in global environmental justice movements.

involve people(s) in their complex relations to land, sea, rivers, mountains, forests and plants, animals, and other beings. ... these conflicts and people involved in such struggles are also resisting attempts against their *ways of knowing and living* and against other-than-human beings ([e.g.] Blaser 2009; Escobar 2016; Inoue et al. 2023, p. 3, my emphasis).

They indicate that “these struggles also offer concrete ways to reimagine just relations” (2023, p. 3).

I offer another input into this discussion by providing an example of tying social enterprises to a quest to enact a relational understanding of “doing business” (as also mooted by Culshaw 2018). This example comes from a community in Venda, South Africa, inspired by the organization called Dzomo la Mupo (DLM) founded by Mphatheleni Makaulule in 2007 (<https://www.thedzomolamupo.org/>). I am involved with DLM through a University of South Africa (Unisa) community-engagement project, which includes connections with the University of Venda (Univen) as well as the University of Adelaide in Australia, and Universitas Padjadjaran, Indonesia (Wirawan et al. 2023). This example relates to the plenary discussion that Vho Netshandama from Univen presented at ISSS 2023. (In her plenary presentation she also referred to a panel discussion to be held later in the conference with some of the members of the network: Her plenary presentation, plus some pictures of this panel, which also embraced some dancing and singing in ceremony fashion, can be found at: <https://www.iss.org/2023-kruger-memories2/>.) What I also found significant

in her plenary presentation is that she made a point of mentioning that it was Janet McIntyre (whose argument I discuss in my section below entitled *A Drowned Wave of Systemic Thinking*), together with Roelien Goede, who made it possible for her to be offered the opportunity to present a plenary session at ISSS 2023).

To place Nethshandama's plenary in context, it is important to note that Univen has strong connections with DLM, which in turn has a wide membership in the Vhembe district (Limpopo Province) and has vast networks with organizations in and beyond South Africa committed to protecting sacred forests, rivers, and lands. DLM means: Voices from the Earth and her communities (<https://www.thedzomolamupo.org/who-we-are/>). The social enterprise initiatives taking place in the communities touched by DLM are consciously attuned to working with the spirit of Mupo and appreciating interdependencies and interrelations in which we (along with the rest of forces of creation) are enmeshed. Hence, the different enterprises are run to offer needed services in the community, while ensuring that the sacred life forces of nature are not degenerated in the process. These initiatives have been written up in several systems journals for readers to consult, as well as in McIntyre-Mills's edited book (2022) on *Education for Regeneration* as part of the *Contemporary Systems Thinking* series. All in all, the focus is on how our growing network encompasses systemic principles and a systemic approach to protecting multiple co-dependent species and a shared habitat that supports living systems (e.g., Lethole et al. 2022; McIntyre-Mills et al. 2022, 2023; Wirawan et al. 2023).

An article written by Netshandama and Nevhudoli (2021) points to how intergenerational learning is encouraged through Univen's connection with DLM and how this feeds into arguments advanced by authors such as Khotari et al. (2018) regarding a pluriverse of options for understanding "development processes" – where the term "development" itself becomes subverted because of its association with dominant narratives of globalization. Netshandama and Nevhudoli underline as an important point that this does not imply a return to some romanticized and reified version of traditional customs: The intergenerational learning between elders, university staff, students, and other members of the community is built on the premise that

the concept of pluriversity [of ways of knowing and living] and subversity [challenging hegemonic notions of "development"] are constructed not as a reified version of traditional customs, but rather as a continual process of critical dialogue and reflection that also renew and strengthen indigenous political and moral philosophies (2021, p. 42).

That is, they stress that we should not reify tradition as if it is a static set of knowledge content and practices – we must recognize the dynamic character of "tradition" as it grows through engagement with the biodiversity of the Earth and with cultural biodiversity that enables options for ways of knowing-and-living to become augmented.

Meanwhile in the intergenerational learning study, Netshandama and Nevhudoli note that during the study, "knowledge was shared on the impact of climate change on agricultural activities, the potential of the establishment of mining on people's livelihoods, and the significance of sacred sites" (2021, p. 43). This is a reference to the threat of a planned Musina-Makhado Special Economic Zone (MMSEZ) in Vhembe, which is a megaproject proposed to be implemented through investments by a large cluster of Chinese industrial conglomerates coming into the area, mainly for the mining of minerals, but also for industrialized agriculture. It has been planned in co-operation with the South African government, which is intent on pushing it through. (See Karim's update, 2023.) It is regarded as crucial by those concerned in the community to organize a process of community building

and awareness-raising around extractivism in an attempt to stop this project. In this regard DLM, Earthlife Africa, and the Centre for Environmental Rights have joined forces. As Rousell and Abdinor note, ideally the environmental impact assessment process (EIA) should be used in order to

imagine a situation where the process is led by the affected communities and is centred on the connected fates of a diversity of species, not only human, and how these would be affected should a particular project be given the go-ahead. Such an approach is unheard of as part of an official EIA and public participation process and yet, the eco-mapping process [facilitated through DLM] sparked the imagination for what alternative public participation could look like (Rousell and Abdinor 2021).

However, as in a myriad of contexts across the world, expropriation of Indigenous lands and sacred sites, means that Indigenous systemic understandings are swept aside in dominant narratives of “development” (cf. Stein et al. 2022). Indigenous people’s “*worlding spaces*, or territories where there are other subjects of rights, spirits, animals, lands and rivers, and entanglements between humans and non-humans” (Inoue et al. 2023. p. 12, my emphasis) become (violently) destroyed.⁸

A Drowned Wave of Systemic Thinking

My reading of the “mainstream” systems literature showed up for me certain articles in systems journals such as *Systemic Practice and Action Research* (SPAR) and *Systems Research and Behavioral Science* (SRBS) where authors who became well recognized in the field explicitly expressed that as “knowers” we can be considered as implicated in world-forming (in more or less destructive or regenerative fashion); but these did not hit the shore of historical recognition. Below I offer a few examples.

Midgley et al. (2007) constructed an article written by a range of authors including Māori ones, wherein they reflect upon the promotion of environmental health through Māori community development. The authors start their discussion by referring to the notion of boundary critique as having been highlighted in much of Midgley’s work (as I mentioned earlier). This, as Midgley et al. note, refers to “exploring the inclusion, exclusion and marginalization of both people and issues” (2007, p. 233). But they point out that:

What is often less visible during boundary critique is the personal and/or professional identity of the practitioner, and the *impact this may have on both relationships with others and the construction of people’s understanding of the issues they are grappling with* (2007, pp. 233-324, my emphasis).

Midgley et al. indicate that in this paper they now will be revealing.

⁸ In a further twist in the MMSEZ planned project in the Vhembe District of Limpopo, the United Nations Development Programme (UNDP) which had formerly agreed to help support the project has now recognized its likely destructive effect on the indigenous communities and on the environment – and has pulled out of supporting it, as noted by Carnie (2024). The UNDP has understood that its name would become tarnished if it had continued to support the project despite the extensive community protest. (See also the film created which expresses this resistance, where DLM vehemently announces opposition by referring to the entanglements between all forms of life. The film is called: MMSEZ Promise of Progress and the Peril—<https://www.youtube.com/watch?v=naEho-yFSdk>).

the importance of personal and professional identity to systemic intervention. It is argued that it is impossible for practitioners to set aside their identities and become “neutral” modellers or process facilitators (2007, p. 234).

That is, they indicate that they will be revealing what has often been rendered invisible in the write-ups of systems thinking and intervention that “systems practitioners *inevitably become part of the situation they are intervening in*: there is no possibility of intervention from a wholly external position” (pp. 234–235, my emphasis). As part of this revealing, they cite favorably the work of Cordoba-Pachón (2020), who offered a self-reflection on himself as participative practitioner in a Colombian intervention – and they note that he justified this to the stakeholders who were involved. They argue that this is important because “practitioner identity can have a significant impact on the trajectory of an intervention” (2007, p. 235). (Midgley and Cordoba-Pachón 2006, provide a summary account of how this panned out in practice in the setting in question.) In a later sole-authored piece by Cordoba-Pachón (2020), he ties his own argument to his concern with “securing a future for systems thinking that provides a wider understanding of the dynamics and intertwining of knowledge unfolding and ethics in society” – with attention to “continuous ethical vigilance in thinking and acting in our relations with ourselves and others” (2020, p. 2). Midgley et al. (2007), in their article discussing the promotion of environmental health in the Māori community, cite Midgley (2000) and Walker (2006) who both aver that “agents (including researchers and other types of systems practitioner) are *active parts of the world around them and are therefore incapable of avoiding intervention*” (2007, p. 239, my emphasis).

In other words, put in the words of the Indigenous authors whom I cited in my Introduction, researchers (knowers) are never merely observers. (As Ngara 2017, states, this is a tenet of Indigenous onto-epistemology that quantum physics has caught up with.) Although the article of Midgley and Māori writers as co-authors, expresses the notion of researcher/practitioner participation, they do not as such mention that this is an insight derived, *inter alia*, from Indigenous onto-epistemology. What they do mention is that:

As is the case with most colonized indigenous peoples (Geertz 1983), Māori have long been the subject of research interest by anthropologists and others, and many Māori are very wary of being treated by researchers as objects of inquiry (Midgley et al., p. 242).

When saying that colonized peoples are wary of being treated as objects of inquiry, they mean that they require being treated in the research process as agents (along with other agents who too have agency, including the more-than-human worlds⁹). This is the idea of reciprocity stressed by the authors I mentioned in discussing *Some Entry Points into Indigenous Systemic Thinking* above. But although Midgley et al. (2007) indicate the importance of considering likely impact of “knowing” on the worlds being shaped via the inquiry, and

⁹ Pickering (2008), in his expression of “new ontologies” (new in relation to conventional scientific understandings), elaborates on his argument developed in his 1995 book, where he indicates that he offered “an ontological vision of the world and our place in it, a vision in which both the human and the nonhuman are recognized as open-endedly becoming, taking on emergent forms in an intrinsically temporal ‘dance of agency’” (2008, p. 1). In that book (in which he spelled out what he called a performative idiom) he suggested that relative to Western conceptions, the “dance of agency” is a non-standard vision of agency. But he indicated that it tallies with anthropologist Carlos Castaneda’s being initiated by Yaqui Indian Don Juan into this worldview.

despite their oblique reference to Indigenous people's onto-epistemology, this does not appear in Cabrera et al.'s discussion of the four waves of systems thinking. When Cabrera et al. cite (via endnote 81) an article written by Maori author Foote and others, including Midgely (2021), it is to provide an example that systems thinking can aid processes of conflict resolution (2023, p. 7). But no further discussion is offered. Hence, I again suggest that Indigenous onto-epistemology has become drowned before reaching the mainstream shore.

In Midgely's article with Rajagopalan (2015), the two authors express that "the process of making boundary judgments always impinges on our understanding of both our 'knowledge of knowledge generating systems' and our 'knowledge of the world'" (2015, p. 547). What I feel is not sufficiently strongly brought out in this rendition of "knowledge of knowledge generating systems" is that according to Indigenous onto-epistemology knowledge-generating systems *are already implicated in world generating*. In the piece by Cabrera et al. (2023), they use the work of Midgely and Rajagopalan to make the point that certain ways of knowing (for example, through theatre and through experiential learning) are not to be considered irrational despite some people naming them as such when compared with Western-styled meanings of rationality (p. 5). But Cabrera et al. are not hereby calling for us to reflect upon how, for example, theatre is performative in the sense of *contributing to world-forming* (see Romm 2021, for a detailed discussion on performativity), or on how experiential learning in Indigenous terms means being oriented to *developing reciprocal relationships in the (co)constitution of worlds-in-becoming*. As Ngara poses the question: How do we name our experiences – be they individual or collective – and thus the possibilities for stagnation, regression, or transformation? (2018, p. 15).

Again, it is worth reminding ourselves that for Rajagopalan (citing also other Indigenous authors) "the internal world *plays an active role in shaping the emergent future reality*" (2023a, my emphasis). This is another way of suggesting that according to this onto-epistemology the "internal world" (which is not to be equated with individual or even collective human knowing activities seen as separate from the ecosystem) is *world shaping*. Rajagopalan indicates that a different way of being-in-the-world allows us to recognize that "our shenanigans with rational artefacts like carbon credits or the political courtship rituals at the IPCC will not see us through" (2023a). The sense of being-in-relation as described by a myriad of Indigenous sages and scholars is more likely to help us to create a path that involves developing reciprocal relationships as we engage with others in world shaping.

In short, Midgely has made concerted steps in the direction of acknowledging the contribution of Indigenous authors (by, *inter alia*, writing with authors such as the ones mentioned above, including with others whom I have not mentioned here due to space limitations). I believe that in future write ups of the waves of systems thinking, this onto-epistemology – as a systemic appreciation that we [with the rest of creation] live in a participatory universe – *needs to be better highlighted*. Just as certain systems thinkers have shown how in the "systems thinking" field many authors drew on the interpretivist paradigm in the social sciences (as part of the creation of soft systems thinking) and on aspects of critical social theory (as part of the creation of critical systems thinking), it is time to include ways in which Indigenous authors who thus far have not been cited as influential in the history of systems thinking, need to be made more influential.

Thus it is in performative vein (recognizing how readings and writings of history are themselves influential in the way the living history unfolds), that I write this article. I understand of course that this reading and interpretation of mine is not "neutral", but springs from a value-invested commitment to better credentialize Indigenous modes of systemic thinking-and-being so as to create more balance in the way the history is portrayed.

(Or as Rajagopalan states, 2023b, p. 1, we need to “carefully consider” what is being offered by such sages and scholars.) Notably, in an Indigenous onto-epistemological position, striving for “neutrality” (e.g., in write ups of history) makes no sense. Rather, striving for balance is what is sought. While Cabrera et al. argue that we must not make the dubious assumption that, for instance, “thinking (cognition) always involves a tremendous amount of bias” (2023, p. 5), in an Indigenous onto-epistemology “bias” would be redefined as that we fail to take into consideration the thinking/being of those affected by constructions being put forward, and fail to realize that thinking is a *world-making enterprise* that can be more or less destructive of balance in relationships.

I now turn to the work of McIntyre-Mills, who has co-authored with Indigenous authors (along with others as part of the co-authorship, including myself) and who in her sole-authored pieces acknowledges explicitly what she has learned from her involvement over the years with Indigenous sages, scholars, and practitioners. I offer as one example the article by McIntyre-Mills et al. (2022, including Makaulule, Wirawan, Lethole, Arko-Achemfuor, Widianingsih and Romm). This article was published in the proceedings of the 66th ISSS conference held in 2022 (where we also had offered a panel presentation arranged through Janet McIntyre-Mills and Roelien Goede).

In the article, we state that we, as a community of practice (COP) are involved in exploring ways to “address governance and re-generative living to protect the commons with Indigenous communities in Africa and Indonesia” (McIntyre-Mills et al. 2022, p. 1). We explain that:

Ontologically our perspective is shaped by recognizing kinship with nature, as expressed by Indigenous custodians. Epistemologically we explore ways to enhance education based on working across cultures and disciplines using a cross-cultural approach and mixed methodology. Our team includes members with social, cultural and policy knowledge as well a team member with high level computing skills. Axiologically we support the notion of transformative research that promotes balancing non-anthropocentrism with an approach that draws on Indigenous wisdom whilst addressing patriarchal notions through gender mainstreaming (2022, p. 1).

As a pointer to how we elucidate the gist of our case studies, we indicate that:

The two case studies are of forest communities in Venda in South Africa and Ciptagelar, West Java, respectively. They are discussed in terms their social, environmental and economic approaches. The research is conducted together with local leaders who contribute to praxis and writing up the results. . . . In both cases the communities see themselves as related to nature, in the case of Venda, they express this as a totemic relationship and have been inspired to apply an ecological calendar which was taught to them during the time Mphatheleni Makaulule (second author) spent time learning from Amazonian leaders. In the case of Ciptagelar, the nomadic way of life is based on a sense of being stewards who do not commodify rice, a sacred source of life, which is in turn dependent upon all the co-existent creatures and ultimately the forest which is their home (p. 1).

We go on to indicate how our COP, as a growing network of those concerned with these issues, involves us being open to learn from one another as well as from “nature’s classroom” (p. 5). Overall, the intention of our COP is to “explore the extent to which social enterprise can help to re-generate social, economic and environmental wellbeing” (p. 12). That is, we explore together ways of “working with nature in such a way that production, marketing, distribution and consumption choices re-generate living systems” (p. 7). We

also hope that by showcasing how these social enterprises constitute viable ways of living for people and planet, it helps the advocacy initiatives undertaken by DLM in Venda in the face of the threats to introduce an industrial hub along the lines of the Musina-Makhado Special Economic Zone (that I discussed above).

In McIntyre-Mills's (sole-authored) chapter in Metcalf et al.'s *Handbook of systems sciences* (2021), she makes a point of expressing what she has learned over the years from indigenous sages and scholars. Her chapter is structured partly through a conversation with Mary Edson. Under a heading in her chapter entitled *Approach to Educational Praxis* where they are discussing McIntyre-Mills's work with higher degree students, McIntyre-Mills indicates that from her experiences, which she shares with her students:

The wisdom of Xhosa, Swazi, Arrernte, and Ngarrindjeri mentors was very important to me and ... I learned from them that we exist through our relationships and interdependency. Being open to these different learning experiences is very important for the development of worthwhile research (2021, p. 1298).

McIntyre-Mills also creates a heading in her chapter called *Spirituality, Axiological Assumptions, and Values*. She poses the question: "Can spirituality be regarded as a way of knowing?" (2021, p. 1298). She provides an answer to this question (for readers) as follows:

We can make prosaic meaning out of our experiences through realizing perhaps that we come into the world with nothing and we return to the earth when we die and return to the elements of life. Alternatively, if we prefer to make sense of it in more spiritual and poetic terms of my African mentor, Adelaide Dlamini, then "we return to our ancestors." Indigenous mentor, Olive Veverbrants – who won an award for her conservation work in Alice Springs – helped me to learn that we need to see ourselves as part of a continuous cycle of life. We need to conserve not consume resources. We can make sense of life in terms of an appreciation that we are part of an eternal living system and that our energy flows from one life form to another. Axiologically, first nation philosophy stresses that while on earth, we have the right and responsibility to protect it for future generations of life. We can amass possessions at the expense of others and the next generation or we can strive to act as stewards through our everyday thinking and practice. *Design needs to be understood systemically and we need to recognize that thinking shapes the conceptual pathways we create in our neighborhoods, workplaces, and wider environment* (2021, p. 1299, my emphasis).

Here she indicates that making sense of life experiences through a spiritual lens has been taught to her, *inter alia*, through her learning from Indigenous mentors; and she also indicates that these mentors have helped her to appreciate that *our thinking shapes the conceptual pathways we create* – and are not neutral in consequence.

Further down in the chapter McIntyre-Mills provides a Table (Table 2, p. 1301) entitled *Critical systemic approach to research based on "if then heuristics"*. In this table she offers five paradigmatic positions. She notes that the table has been informed by various sources, including by McIntyre-Mills and Romm (2019), Romm (2018), as well as others. In the paragraph below, I isolate the *Indigenous critical systemic approach* as set out in her Table, with some additional remarks that I make.

To begin with, she notes that regarding Ontology and Axiology (which are not separable in this paradigm), "nature is vitally important and human beings are part of the natural world and return to it. History is written into the landscape as a result of choices made".

That is, history is created through the myriads of our choices, including whether we recognize the vital importance of “nature”. Once we realize we are part of nature, “we need to listen and learn as interdependent parts of a living system”. Epistemologically, she refers to: “narrative and oral history, science based on and informed by a respect for sacredness of country”. Here she makes the point that (Indigenous) science informed through appreciating the sacredness of nature should not be called non-science. Chilisa (2024) makes the same point when she states that even the phrase Indigenous Knowledge System should rather include the term Indigenous Science as a gentle approach to doing science in cooperation with nature (seen as sacred). Also, under the heading of Epistemology McIntyre-Mills remarks that “thinking is translated into practice in the everyday” (2021, p. 1301). As she states elsewhere in her chapter “the more we appreciate that thinking matters, the more likely we are to live in ways that regenerate life and creativity (p. 1317). I shall return to this point in my Conclusion. It relates to whether we can “prove” that we live in a participatory universe or whether it is not something that can be proven, but an appeal to live in consciousness that, in short, thinking *matters*.

I suggest that McIntyre-Mills has expressed well the importance of taking seriously an Indigenous paradigm to inform a critical systemic approach to research and has weaved the argument into her text as well as her Table 2. This, along with other texts I have mentioned above, should be put on reading lists for students and colleagues in the field of “systems thinking” – to counteract the current neglect of Indigenous (and Indigenous oriented) critical systemic thinking. Incidentally, I have not here tried to detail my work co-authored with Indigenous scholars, or elaborating on their onto-epistemology. But Adyanga and Romm (2022); Akena et al. (2022); and Romm and Lethole (2021) offer good examples that readers may wish to consult. (My 2015 article in SPAR to which I referred above, outlining a systemic, relational onto-epistemology from an Indigenous point of view is also very relevant to the discussion.) I point to these few examples to again broaden the scope of what are for the most part presented as making up the history of systemic thinking, so that Indigenous understandings can “reach the shore” of attention.

A Note on the Significance of SDD translated into ILIS™

In my Introduction I referred to the methodology of SDD and the closely-related methodology called ILIS™ used by groups of Indigenous Native Americans and Māoris as a mode of collective knowing that suits their understanding of relational knowing processes. Harris and Wasilewski indicate that the ILIS™ approach

has played a big role in assisting Indigenous people to “re-cognize” their ancestral knowledge and to articulate Indigenous systems thinking to the members of contemporary society, both inside and outside Indigenous communities (2004b, p. 505).

They indicate (p. 505) that one outcome of the reflective articulations undertaken by using ILIS™ has been the creation of the international Indigenous peoples’ organization, Advancement of Global Indigeneity (AGI). The task of the Indigenous Wisdom of the People Forum (WOPF) held in July 2003 (at the 47th conference of ISSS as I mentioned earlier) was to “identify strategies for AGI’s further outreach to other Indigenous groups in the world beyond the Native North American and Maori founders of AGI”. They state that:

One of the major reasons that the forum was a success was the ability of ILIS to authentically engage a very diverse set of participants, Indigenous and non-Indigenous, ranging from people who had had much experience with Indigenous issues as

well as those who had had no previous experience, and to enable them to effectively articulate their ideas for AGI's further development and outreach (p. 505).

From their point of view, then, the WOPF at ISSS in 2023 was successful in that it helped them to share their ideas (and their Indigeneity) with an international forum of systemic science practitioners in the context of exploring the contribution that Indigenous people's systemic thinking can make to "contemporary discourses on globalization" (2004b, p. 506). However, I indicated in my section above regarding the structuring of my article that although they hoped to make an impact at ISSS via this forum (and their subsequent write ups), this arguably did not take effect. Nevertheless, it helped them to articulate, with others (Indigenous and non-indigenous participants alike), what the contribution could be, and they wrote this up in subsequent articles in SRBS. They hoped in this way to plant a seed for nurturing (which is partly what this article of mine is attempting to do, by resuscitating their arguments).

What I find noteworthy is how the WOPF at ISSS 2003 seemed to be treated by them as a ceremonious activity, which echoes Wilson's account of ceremony (2008). Wilson explains research as ceremony as follows:

Something that has become apparent to me is that for Indigenous people, research is a ceremony. In our cultures an integral part of any ceremony is setting the stage properly. When ceremonies take place, everyone who is participating needs to be ready to step beyond the everyday and to accept a raised state of consciousness. You could say that the specific rituals that make up the ceremony are designed to get the participants into a state of mind that will allow for the extraordinary to take place (2008, p. 69).

Before stating this, Wilson has earlier indicated to us as readers of his book that: "The purpose of any ceremony [of any kind] is to build stronger relationships, including with 'the cosmos'" (2008, p. 11).¹⁰

In the Abstract written by Christakis and Harris (2004), they explain how the WOPF at ISSS in 2003 was constituted:

Forty Indigenous leaders from the Americas and New Zealand and several non-Indigenous participants sitting in the traditional Comanche Tribe circle began the forum by sharing their "medicine" – inner strength or personal power [power to transform relations in the face of unchecked globalization]. They evoked in various ways a common deep spirituality based on a respect for the earth, ancestors, family, and peaceful coexistence (p. 251).

Christakis and Harris state that through the forum, what the participants were striving for "is to integrate the intangible of traditional core cultural values into a contemporary

¹⁰ In considering the question of whether ceremony can include a literature review, Wilson makes an interesting connection. He suggests that:

One of the great strengths that Indigenous scholars bring with them is the ability to see and work within both the Indigenous and dominant worldviews. This becomes of great importance when working with dominant system academics, who are usually not bicultural. Oftentimes then, ideas coming from a different worldview are outside of their entire mindset and way of thinking. The ability to bridge this gap becomes important in order to ease the tension that it creates. (2008, p. 44).

Writing a literature review which tries to articulate and display Indigenous conceptions can thus be read as pleading for the invocation of a "raised state of consciousness", which is the purpose of "ceremony" (2008, p. 11).

reality. In the forum, the group identified effective, practical means that embody Indigeneity” (p. 251).

Harris and Wasilewski (2004b) for their part explain that what they find important about ILIS™ is that it enables people to regenerate collectively-oriented knowing and living processes that they argue have been present in many Indigenous people’s systemic approaches before European contact. As they note:

AIO has come to recognize that Native Americans and many other Indigenous peoples are systems thinkers. Before European contact, Native Americans employed traditional forms of systems science, democratic processes, protocols, social structures, and value systems that were extremely effective in consensus-oriented decision-making. Original Indigenous political structures – those values and processes that made up decision-making systems – have been, for the most part, corrupted by European education, religion, and other outside pressures (2004b, p. 506).

In short, their way of practising systemic thinking and the connection with democratic processes (including ceremonies which invoke the “extraordinary” in Wilson’s terms), need to be revived in terms of their contribution to contemporary global discourse. Harris and Wasilewski are concerned that contemporary globalization processes are led by discourses and practices of Profit and Power instead of by the R’s of Indigenous systemic thinking: Relationship, Responsibility, Reciprocity, and Redistribution (2004a, p. 489).

A final point I wish to make relates to the way of treating the insights/wisdom created in the systemic thinking encouraged through SDD or ILIS™. Over the years different proponents of SDD have explained differently the status of the “influence maps” that emerge through the SDD process. (See endnote i.) In Laouris and Romm (2022b) we take the line, as in “third phase science” (De Zeeuw, 1996), that we can treat any “observations” which are collectively constructed during the SDD process and the emergent trees of influence displayed in maps of influence relations between observations/ideas, as *already action-imbued* from the start. In other words, with the advent of “third phase science”, objects are defined as being “high quality” insofar as they become constructed to “enable new activities on the part of (public) users” (De Zeeuw 1996, p. 20), and insofar as they invite the participation of users. As far as the status of the SDD/ILIS™ constructed maps of influence go, participants in different SDD contexts may define this differently, but this is the reading that would resonate strongly with an Indigenous onto-epistemology. As Harris, Sachs and Broome indicate, when discussing dialogical interactive processes in the context of recreating traditional Indigenous (Comanche) ways of building consensus, the understandings created are intended to lead to a “clearer vision of the tribe’s direction for the future” (2001, p. 20). The interactive design sessions in this case were intended to signal and at the same time foster what could be considered as “traditional values about discourse and governance” (2001, p. 127). And as Harris and Wasilewski later articulated (2004a, b) the interactive and future-oriented epistemology that can be drawn out/activated by revitalizing Comanche and other Indigenous traditions, offer the potential for designing relationally-directed healing processes across the globe. This can be regarded as somewhat similar to the cartography reported upon by Andreotti et al. (2016), where they indicate how the maps of which they speak are to be construed as routes to enriched discourses and new imagined actions. They suggest that in terms of a performative view of social cartography (as not purporting to offer some “idealized *representation* of truth”), “social cartographies can open up the possibility of the emergence of new and different discursive assemblages” (2016, p. 85).

Conclusion

Cabrera et al. (2023) present the(ir) DSRP theory as a “fourth wave” proposal for seeking maturity in the field of systems thinking by explaining what they take to be the “common underlying properties of diverse systems approaches” (2023, p. 3). However, I have argued in this article that a lacuna not catered for in their account – along with other prominent proponents of systems thinking in the named field – is the systemic thinking which highlights our *involvement in a participatory universe*, where we (as individual and collective agents alongside more-than-human-agents) are *participants in world shaping* at the moment of our “knowing”. That is, an Indigenous onto-epistemology as I have drawn out and explored in this article, which is grounded in the understanding that knowledge generating activities are at the same time *world generating processes*, has become drowned in the portrayals of the history of systems/systemic thinking. I have tried to indicate how the ways of knowing and living to which Indigenous sages and scholars appeal, are not presented as simply “finding” these “in” past Indigenous traditions, but are presented as accounts which help to “make more real” their relevance, also in the current era. This is in a context in which the contributions of non-Anglo-Saxon or Indigenous authors are frequently disregarded in international literature, including in the so-named “systems thinking community”.

I gave examples of how various Indigenous authors (and Indigenous-oriented allies/supporters) suggest that ontology, epistemology, axiology and methodology are inseparable in this mode of systemic thinking. These authors also point to how the worlding of Indigenous people and traditional communities worldwide is threatened by modern-colonial thinking and being (Stein et al. 2022). They point to the interrelated superwicked problems experienced by marginalized groupings of people and by nature, which include: land expropriation (of Indigenous lands); super-exploitation of racialized labor (across the globe); ecocide (based on anthropocentric outlooks); and epistemicide (failing to credentialize Indigenous onto-epistemology and its political implications). The pluriverse advocated by authors expressing concerns emanating from the Global South (e.g., Inoue et al. 2023; Khotari et al. 2019; Nethsandama and Nevhudoli 2021; Stein et al. 2020, 2022) prompt us to (further) experiment with the enactment of “beyond reform” modes of being, as a radical political agenda.

This onto-epistemology is not presented as “right” in terms of an idea that it has been tested in relation to some posited “outside” reality, outside of our involvement in its unfolding. As Inoue et al. (2023, p. 5) emphasize, citing Blaser (2013), it is a “*political ontology*, [which] suggests that ‘reality’ is done and enacted rather than observed” (my emphasis). I have tried to spell out the implications of adopting this systemic approach. And I have argued that we need to be careful of subsuming this onto-epistemology and attendant relational axiology (and thereby drowning it) under any of the waves thus far identified by Cabrera et al. (2023).

We may attempt, as Pinzon-Salcedo (2023, p. 11) proposes, to conceptualize “a fourth wave of systems thinking, that surpasses the achievements of the previous three waves”. However, I would emphasize that we need to carefully consider whether Cabrera et al.’s named fourth wave has provided for a way of dancing on the dance floor that enables those subscribing to this onto-epistemology to “dance their own steps” (to use a metaphor provided by Chilisa 2020, p. 21). I have tried to show why I believe that Cabrera et al.’s explanation of the “common underlying properties of systems thinking” (2023, p. 3) does not provide for an outlook which considers that *thinking is willy-nilly implicated in world*

shaping. I have submitted that full attention to the quality of an Indigenous systemic onto-epistemology as a *way of worlding (with political implications)*, indicates that it offers a contribution not subsumable under the so-called common properties of systems thinking to which Cabrera et al. refer.

This does not imply that learning/communication across various dancers on the systemic dance floor is excluded as we try to find a way to join the dance together. Dancing in rhythm does not require that we seek universals in the form of common underlying steps (to continue the metaphor of the dance). Nor does it imply that we, as researchers and practitioners, are unable to share reflections with different (and increasing) networks in the “systems community” regarding the meanings and practices of systemic thinking, for further discussion and engagement.

Pinzon-Salcedo (2023) also suggests that one way of moving forward for the future of systems thinking would be to expand upon “different conceptions of CST [Critical Systems Thinking] and develop new CST approaches” (p. 10). In terms of this suggestion of Pinzon-Salcedo, I would say we need, as Ndlovu-Gatsheni (2018) advocates, to develop a critical theoretical position that does not rely mainly on Euro-American critical theorizing. It is this theorizing that is drawn on by the critical systems thinking identified by Cabrera et al. (2023, p. 7), which they note “has been influenced by critical social theory”. The problem is that it is/was a kind of critical social theory in which Ndlovu-Gatsheni states that the theorists “failed to hear and comprehend the core aspects of struggle for epistemic freedom cascading from the Global South” (2018, p. 17).

The concept of the Global South as defined by Santos (2015) is not a geographical position, but encompasses the concerns/struggles of marginalized groupings of people and of marginalized/commodified nature everywhere. When Klein et al. (2021, p. 719) indicate that besides the global north versus global south, we need to include Russian or Chinese actors’ perspectives, we need to also bear in mind that insofar as Russian and Chinese capital is involved in extractive activities across the globe, these countries are implicated in what Stein et al. (2020, p. 50) call global capital as part of the house that modernity built (See Fig. 1 and also Pereira & Tsikata 2021). The example I gave of the megaproject being planned in Venda, South Africa, which involves Chinese investment in mining and Industrial agriculture, is an example of community concerns springing from the Global South. Another example can be found in Adyanga and Romm’s (2022) account of their using an Indigenous paradigm to explore with participants their resistance to felt injustices attendant upon Indian and Chinese foreign investment in Uganda. The participants articulated through the focus group dialogues the threats to their understandings of relational existence.

The concept of *Anthropocene* used by Klein et al. (2021, p. 720), echoing many others, may be too mild a word to encapsulate the ontological and epistemological violence referred to by authors such as Ndlovu-Gatsheni (2018), Pereira and Tsikata (2021), and Stein et al. (2020). Authors such as Moore (2015, 2019), along with other concerned authors, therefore suggest the term *Capitalocene* to draw attention to the invasiveness of global capital across the globe and its costs, particularly to those most marginalized (including Mother Nature). As he states, “the politics of the present conjuncture demand a new vocabulary” (2015, p. 5). Terminology (words used) is all important, as stressed, *inter alia*, by Indigenous scholars.

In this regard I would also like to refer to Klein et al.’s account (2023) of the current polycrisis, which they suggest we need to “navigate” (p. 973). In their list of crises in the polycrisis, they mention issues such as the “climate crisis, the loss of biodiversity, the ebb and flow of economic crises and inflation, the energy crisis, inequality, poverty, hunger,

armed conflict, and outright war” (p. 974). They do not mention the (other) interrelated costs of the house of modernity identified by Stein et al. (2020), including, for instance, displacement of Indigenous people from land to make way for transnational corporations, exploitation (of cheap labor and of cheap nature which is not regarded as kin/family), destitution (which surpasses poverty), etc. This is not a matter of trying to address, for instance, ebbs and flows of economic crises and inflation, nor a matter of protecting biodiversity to limit the effects of the economic activity on the environment, *but a matter of the way “economics” is envisioned and practiced (performed) through conventional economic thinking* (see, for example, Martinez-Alier 2003: https://en.wikipedia.org/wiki/Environmentalism_of_the_poor).

In Klein et al.’s way of speaking about the polycrisis, which they invite the “systems community” to help navigate, I would argue that the words they use distract attention from the *proposed and enacted ways of worlding* which Indigenous scholars and communities offer as manifesting *radically alternative relational co-existence*. In short, more attention needs to be given to the very way in which the polycrisis is envisaged, which itself is socially and ecologically consequential in its agenda. In terms of an Indigenous onto-epistemology, this is not about striving to “understand the world in its being and becoming” (Klein et al. 2023, p. 975), but about appreciating how we *participate in world-shaping (including through our modeling)*. Also of note in Klein et al.’s (2023) agenda-setting proposals, is that they refer primarily to non-Indigenous authors when constructing their argument regarding the need to explore the “generative interplay between ontology and epistemology” (p. 975). Their reference to Fuenmayor (1991) is an exception, but he is referred to only in a bracket in which Barad (2007) and Biggs et al. (2021) also appear. Pertinently, while Barad became famous for her posthumanist performative argument, many Indigenous authors take issue with her for not citing the Indigenous sages and scholars who have proposed a very similar onto-epistemology, pre-dating her position. (In Romm 2021, I explore in detail Barad’s argument in relation to various such authors.) While Klein et al. clearly hope to “include the excluded”, in their agenda, including what they term “ancient and Indigenous wisdom traditions” (2021, p. 719), the language they use and their list of the issues to be addressed in their understanding of the polycrisis is already arguably exclusive in its consequences. Could this be because they have hardly included in their texts the contributions of Indigenous scholars and Indigenous-oriented supporters?

Some progress seems to have been made through ISSS inviting authors forwarding Indigenous understandings to deliver plenaries in recent years. But in writing the history of systemic thinking far more attention needs to be given to arguments that have been put forward over the years (in the general research literature and in systems journals and handbooks) regarding the contribution of Indigenous systemic thinking to the named “systems community” (as named, for instance, by Klein et al. 2021, p. 720; and 2023, p. 973).

As a direction for future research, I would therefore suggest that further work needs to be done in the “systems community” to explore/draw out Indigenous onto-epistemologies and axiologies in terms of how these may help us (as a community) to better explore critical issues of human and more-than-human co-existence from a relational point of view, to counteract, *inter alia*, disablement/destruction of Indigenous ways of worlding, devastating climate change, and mass extinction of species. Varied perspectives as articulated in Indigenous systems literature, arising from different locations and concerns, need to be highlighted. In this way an exposition of the history of systems thinking which incorporates the contributions of Indigenous systemic approaches (as drawn out and discussed on a more inclusive “dance floor”) can become (co)constructed.

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