
COMMENTARY

Securing the future in the anthropocene: A critical analysis of the millennium ecosystem assessment scenarios

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This commentary analyzes the ontological character of the United Nations' Millennium Ecosystem Assessment (2005) and its attempt to imagine business-as-usual and transformative human-environmental futures. The Millennium Ecosystem Assessment (MA) constitutes the first and most significant attempt by an international political body to incorporate environmental concerns into the field of imaginative scenario building. In addition to its lengthy report on the threatened status of planetary ecosystems, the MA contains extensive "future scenarios" that imagine how human-environmental relations might unfold over the course of the twenty-first century. These scenarios arise out of the lineage of military scenarios generated during the Cold War, and continue to inform UN assessments in the present. This commentary explores how a politico-military concern for security informs the framework of the scenarios, and limits how the MA characterizes the fundamental human act of narration. In the process, the commentary explores alternative ontologies of narration and how these may lead to more transformative narratological interventions.

Keywords: Millennium Ecosystem Assessment; Future Scenarios; Ontology

In 2005 the United Nations published its Millennium Ecosystem Assessment (MA). The MA might be best characterized as a lesser-known sibling of the Intergovernmental Panel on Climate Change's (IPCC) assessment reports. While the IPCC assesses and synthesizes the scientific literature and current data on climate change, the MA assesses and synthesizes the literature and data on ecosystems—analyzing ecosystem services and their connection to human well-being and development. The MA is extremely important because it provides "a scientific basis for action needed to enhance the conservation and sustainable use of those systems" (Millennium Ecosystem Assessment, 2005a). While there have been five assessments of the IPCC by the time of this writing, there has only been one ecosystem assessment from the MA team. The report is thus the most comprehensive document addressing the state of planetary ecosystems produced by the UN. The MA is comprised of six "Synthesis Reports" targeting different audiences (scientists, business leaders, members of industry, policy makers, etc.), and the larger, main "Global Assessment Reports," which are divided into three volumes. In addition to its extensive compilation of scientific data on the state of the planet's ecosystems, Volume Two—*Ecosystems and Human Well-Being:*

Scenarios—contains extensively modeled and imagined narratives—"future scenarios"—that envision alternative forms of human-ecosystem interrelations unfolding throughout the twenty-first century. This detailed set of speculative human-ecosystem futures constitutes the first significant attempt by an international political body to incorporate environmental concerns into the field of imaginative scenario building. The kind of scenario narratives imagined in the MA continue to affect high-level work on ecosystem management in the UN. The work of MA future scenario assessment has since evolved and is now in the process of development by the UN Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). The IPBES is currently at work on expanding the MA scenarios and is set to publish their findings in 2019 (Netherlands EAA, 2016). The future scenarios of the MA thus stand as an inaugural exercise that combines scientific data compiled by more than 1,360 experts worldwide with the creative work of imagining and narrating potential human futures.

The importance of *Ecosystems and Human Well-Being: Scenarios, volume 2* and its scenarios

The product of four years of work by researchers from 95 countries, the MA spells out the seriously crippled state of planetary ecological existence. The *Biodiversity Synthesis* of the MA shows that from roughly the mid-twentieth century onwards, human agricultural practices (such as

the Green Revolution) and exponential encroachment on habitats have led to a global loss of biodiversity. Human demands for food, water, and fuel are rapidly increasing, and have transformed habitats more in the last 50 years than throughout all of human history. Water withdrawals from rivers and lakes have doubled since 1960, and the amount of water held behind dams has quadrupled. The current extinction rate of species is “up to one thousand times higher than the fossil record” (Millennium Ecosystem Assessment, 2005b). To put this in perspective, according to the fossil record for “every thousand mammal species, less than one went extinct every millennium” (Millennium Ecosystem Assessment, 2005b). It is projected that this rate will be “ten times higher” in the near future. The concern expressed in these 2005 figures have, of course, only intensified. The World Wildlife Fund for Nature’s (WWF) 2016 *Living Planet Report, 2016: Risk and Resilience in a New Era* reveals that between 1970 and 2012 planetary populations of amphibians, birds, fish, mammals, and reptiles declined by 58 percent (WWF, 2016). The WWF advises that unless we act now this could rise to a two-thirds in the half century between 1970 and 2020 (WWF, 2016). Along with the IPCC’s assessments on climate change, the WWF report, the United Nations Convention on Biological Diversity Conferences of the Parties (COPs) and the United Nations Framework Convention on Climate Change (UNFCCC) COPs, the MA stands as the most important call in modern human history to transform humanity’s relationship to the planet.

In addition to scientific data about the current state of the planet, the MA contains four future planetary “Scenarios”: “Global Orchestration,” “Order from Strength,” “Adapting Mosaic,” and “TechnoGarden.” The four scenarios are presented as “plausible...stories” derived from “real-world questions of system dynamics, policy choices, technical evolution, and consumption and production patterns” (Millennium Ecosystem Assessment, 2005c). As projections meant to offer “insight into uncertainties and the consequences of current and possible future actions,” the report’s scenarios can be described as taking on a serious ethical commitment to the planet and its future sustainability (Millennium Ecosystem Assessment, 2005c). The question of ethics is compounded in this situation by the MA’s own admission of the new political significance that must be given to ecological scenarios of this kind: “The quest for sustainable development has moved the task of making projections about the future to the center of policy and scientific agendas” (Millennium Ecosystem Assessment, 2005c). Lest there be any question, the MA’s *Ecosystems and Human Well-Being: Current States and Trends, Volume 1*—which comprehensively outlines the troubled status of coastal systems, marine fisheries, forest and woodland systems, dryland systems, mountain systems, and more—effectively justifies the importance of these scenarios. Their creation of speculative futures reveals in no uncertain terms how significantly we need to make the environment the single most important social and political challenge of our times. As I argue in this commentary, the imaginative nature of the speculative scenarios offers pragmatic alternatives to current,

unsustainable practices. At the same time the scenarios tacitly adopt forms of intelligibility that fail to consider the ontological and historical character of human rationality, human subjectivity, and human storytelling—each of which are factors important to the imaginative development of speculative futures.

The MA’s tempering of the future with the quantitative and the qualitative, and the importance of an ontological relation to imaginative ventures

Like all narratives that engage in the act of future speculation, the MA is a work of counterpoint. In its forays into the future, it necessarily takes a leap into the unknown, putting to work the free-flowing, dynamic nature of the imagination. At the same time, it tempers these leaps with the empirical data defining our present and recent historical moment, mathematically modelling the factual elements that delineate current trends impacting our potential for future development. In this juxtaposition of the known and the unknown it seeks to overcome, as much as possible, the unpredictable nature of the future. This is accomplished by synthesizing the imaginative with the empirical, which the Working Group (the lead authors) of MA Chapter Two—“Global Scenarios in Historical Perspective”—characterize as follows:

The development of methods to blend quantitative and qualitative insight effectively is at the frontier of scenario research today. The scenario narrative gives voice to important qualitative factors shaping development such as values, behaviors, and institutions, providing a broader perspective than is possible from mathematical modeling alone. Narrative offers texture, richness, and insight, while quantitative analysis offers structure, discipline, and rigor. (Millennium Ecosystem Assessment, 2005c)

As we see here two major categories define the scenarios: the “quantitative” and the “qualitative.” These two are defined variously elsewhere in the chapter as “numbers” and “words,” and as “quantitative simulation” and “qualitative narrative.” Extensions into the future are highly structured: both “narrative” and “modelling” are mechanisms of future extension, but the supposedly less-assiduous act of narrative composition is kept in check by the rigor of “mathematical modelling.” The quantitative simulation of modelling in scenario building thus reins in the narrative-imaginative mechanism of scenario building. The “future” is initially conceptualized in this calculative discourse as containing abundant uncertainty, and the modelling aspect keeps any kind of speculation about the future within the realm of the “plausible” (Millennium Ecosystem Assessment, 2005c). The combination of the two thus addresses what the scenario building team identify as being the key obstacle in the development of a rationally, scientifically composed forms of future speculation: “A central challenge of the contemporary global scenario exercises is to unify these two aspects by blending the

replicability and clarity of quantification with the richness of narrative" (Millennium Ecosystem Assessment, 2005c).

What is the ontological character of "future speculation" in this scenario building exercise? Here, I use the term "ontological" as developed by philosophers such as Martin Heidegger, Michel Foucault, Hans-Georg Gadamer, and Giorgio Agamben. Reality—in terms of empirical data about the physical state of existence, and in terms of past and present human ideas, values, behaviors, and the social systems these create—is considered by Heidegger to be the "ontic." The ontological, in contrast, names an act of inquiry into the ways of thinking and the structural forces *generating* the ideas and materiality of this reality. It involves the rethinking of thinking itself. To put it in Gadamerian terms, the difference between thinking within the space of the ontic and thinking within the realm of the ontological is the difference between "explanation" and "understanding" (Gadamer, 1960). A convincing explanation is always one that is logical according to an existing mode of thought. In this sense gathering data about the current state of ecological existence is a crucial ontic activity. The "causes" of the current state can also be found by accessing this ontic register—in the sense of measuring the effects of CO₂ emissions, changing weather patterns, increases in temperature, etc., on species and ecological interactions within specific ecosystem units. In such a way, one explains the state of existence—specifically through the logic of "cause and effect." However, this exercise does not exhaust the "causes" of the existing ecological dilemma. The concept of "causes" can also be expanded to include different kinds of factors that extend beyond the calculable logic of cause and effect. "Understanding" would take us to this different register of thought, where we can contemplate the discursive, ideological, and structural formations that bear down upon the ontic. In such a way we might come to learn the potentials—and limitations—of an established form of reasoning, its presuppositions, and its inherent, self-constituting logic. In my field of postcolonial ecocriticism, for instance, scholars explore the ontological variations between different cultural-environmental relations. To offer one example, Native American cultures were characterized by early European colonists as having an entirely inappropriate and wasteful relationship to the land (Cronon, 1983). Native American communal and subsistence agricultural relations kept them from "properly" transforming and improving the landscape (Pratt, 1992). This relation to the land kept them from increasing their agricultural yields, which meant that they could not turn a profit. This presumed "misuse" of the land was used in turn to justify the European conquest of native environments and resources. These two very different ontological systems of meaning produced two very ontically different political and environmental realities.

These ontological and epistemological variations between cultural-environmental systems of meaning leads me back to my original question: what is the ontological character of "future speculation" in the MA scenarios? We might also ask if the Working Group of authors even finds ontological inquiry to be of value in its development of speculative futures. One might guess that the "richness

of narrative" indicates something like an ontological consideration. However, this remains to be seen. One way to discover this is to consider more closely the explicitly developed interplay between the quantitative (which we can clearly identify as ontic) and the qualitative (which also has ontic features, since it addresses issues such as existing human "values" and "behaviors"). The interplay between these two is how the Working Group identified the specific developmental, creative mechanism of the MA narrative—that is to say, how the narrative is written, as we see explained above in the specific relationship established between "qualitative narrative" and "quantitative modelling." This mechanism of extending into the unknown future through the analysis of current conditions (the known) is what Heidegger and others have identified as the "hermeneutic circle" (Heidegger, 1962). The hermeneutic circle is a methodological problem necessarily cropping up in the processes of understanding and meaning-making that are part of all speculative fields of human inquiry—humanistic, social scientific, and natural scientific. Even the basic deductive formulation of a hypothesis in a scientific lab involves the act of speculation subject to circular hermeneutic thought—in which case the speculative hypothesis is either shown to be false, or shown to be workable until the results begin to show otherwise. The "circular" character of thought I describe here refers to the unavoidable factor of backgrounded ways of knowing, or presuppositions, that always impact the generative process of meaning-making. Speculation, in other words, doesn't fall out of thin air. One speculates based on the ideas arising from an existing context. If an inquirer overlooks the influence of these ideas and presuppositions, the circle is said to be a "vicious" one. The kind of thought that ignores its own presuppositions arises out of what Heidegger and contemporary "poststructuralist" philosophers after him have identified as the "metaphysical tradition" (Heidegger, 1962). The metaphysical tradition assumes that it is possible, and even the end-goal of thinking, to transform the temporality of existence (contingency, movement, flux, and change) into a stable, spatialized (motionless, and therefore easily categorized) grid or field that can be controlled "meta-ta-physically"—that is, from above, outside, beyond ("meta") motile context (ecological, cultural, historical). Metaphysics, in other words, is a mode of inquiry that attempts to replace temporality, and the transformations and uncertainty that characterize temporality, with a spatial representational matrix that is fixed. Metaphysics is a process of "spatializing temporality"—transforming fluidity and chance into a static object that can be mastered by looking down at the object being investigated from above. This position above is assumed to give one a superior advantage, because from this higher position an investigator can supposedly see everything-at-once (*meta-ta-physika*), and therefore obtain a complete and presuppositionless, objective, infinite, and not finite or limited, knowledge of a situation (Spanos, 1993).

Thus the metaphysical tradition, and the position "above temporal movement" it depends on, constitutes an attempt to deny the presuppositions inherent in any

act of inquiry. Put differently, it would be to proceed as if there were never any frameworks at work in the process of an investigation, never any “paradigms” to invoke Thomas Kuhn’s term (Kuhn, 1962). Such a standpoint (which is actually a form of rationality that assumes one can be thinking from a position that is *not* a standpoint), would make any kind of real or radical change impossible. In fact, Heidegger argues convincingly that such a non-standpoint would make thinking about an object or situation of inquiry impossible: “Any interpretation which is to contribute to understanding, must already have understood what is to be interpreted” (Heidegger, 1962). Moreover, “Inquiry, as a kind of seeking, must be guided beforehand by what is sought,” which means that the meaning of what’s being investigated must “already be available to us in some way” (Heidegger, 1962). The investigator therefore has some “fore-knowing” or “fore-sight” in the process of generating knowledge. The point, says Heidegger, is not to deny this fore-knowing, to deny the circularity of thought or to try to metaphysically transcend the circle, but to “come into the [circle] in the right way” (Heidegger, 1962). By acknowledging the contingency of thought, the inquirer can begin to explore the limitations of these ways of understanding, and subsequently how they might be transformed to engender more inclusive frameworks and modes of inquiry.

The question is whether or not the writing methodology of the MA scenarios—the coupling of “quantitative simulation” and “mathematical modelling” with “qualitative narrative” in order to provide “plausible” futures—consciously enters into the hermeneutic circle of thought, or whether it unthinkingly attempts to metaphysically transcend that existential context (Millennium Ecosystem Assessment, 2005c). If it attempts the latter, then it would necessarily be pushing forward business-as-usual solutions to our current ecological crises. As we’ve already seen, extensions into the future in the MA are highly structured: “narrative” composition is kept in check by the rigor of “mathematical modelling.” The way in which the Working Group regularly references the need to be “plausible”—that is, conceivable, which is another way of saying something that will already “make sense” from the start, from the standpoint of the present—would suggest that the type of speculation here is viciously circular. However, we cannot draw such a conclusion without first examining what is meant by “qualitative narrative.”

The ontological importance of narrative to imagination

Getting a genuine sense of what the Working Group means by “narrative” in the MA is difficult. The word is really never defined in the text, only associated with other signifiers like “richness,” “texture,” “insight,” which are also not really defined. Of course, one can say that these are common words that need no defining. But, as such signifiers indicate, the Working Group tends to view narrative as if it were a kind of embroidering tool, employed to enhance or supplement the more essential elements of data and modelling. However, “narrative” is a word that signifies a complex set of practices in disciplines

that deal directly with narratives—such as the humanities disciplines of literature, philosophy, history, sociology, and anthropology.

As Peter Brooks (1984) has shown, narrative constitutes one of the fundamental aspects of being human. As Brooks points out, humans have been characterized as the tool-using animal (*homo faber*), but they are also the symbol-making animal (*homo significans*) (Miller, 1995). Making symbols is a creative and imaginative process of constituting meaning, and in this way symbol-making is intimately related to the act of making sense of the world through *fictions*. “Fiction” originally referred to two things happening at once: the word comes from the Latin *fin-gere*, meaning both “to make” and “to make up.” In other words, language and fictive story-telling (creating and using symbols) operate on the same level as tools in terms of their power to bring new objects and ideas into existence. By extension, imagining fictions—that is, creating narratives—is the first step in bringing new realities into existence. The words and symbols found in narratives are therefore not simply descriptive, representative tools having a secondary status to a more empirically verifiable and pre-existing reality; in addition to their capacity to represent reality, words and symbols can also *constitute* reality and, as such, they are just as material as any carpenter’s or engineer’s tools. In terms of the creation of ideas, different narratives function like different tools for the imagination, making it possible for new thoughts to be formed. They are the life-blood and air of the imaginative mind.

In addition to being the practice of representing or revealing reality, narrative can thus name the very different practices of both *making* (creating a reality) and *making up* (imagining a different reality from the one that currently exists). If you abide by Aristotle’s historically influential characterization of narrative—a linear tale ordered by a beginning, middle, and end—then your narrative politics, so to speak, fall on the side of finding in life, or giving to life, a dependable social structure that’s well regulated and rhythmically reliable. In this sense narratives are essential to humans because they function as a necessary component for developing a psychologically sound existence. In addition to Aristotle and many other philosophers that inform literary theory, contemporary neuroscientists and psychologists have shown that the capacity to learn how to provide structure in one’s life through the act of composing a narrative with an identifiable beginning and end is a necessary component in the development of healthy human memories, and thus a healthy human mind (Van der Kolk, 2015). The ability to represent events in one’s memory through narrative is crucial, for instance, to trauma survivors who need to develop (*fin-gere*—make and make up) successful narrative mechanisms for overcoming traumatic injuries (Van der Kolk, 2015).

However, the repetitive rhythms of narrative can take an asphyxiating turn for the worse if they are adopted for different ends. As J. Hillis Miller points out, narratives have been deployed for purposes of policing cultures and their citizenry, and can be used towards the opposite of creating new potentials: “Fictions keep us in line and tend to make

us more like our neighbors,” and in addition to being the “makers of...culture,” narratives can be the “policemen of that culture,” and all the more effective because they are “unostentatious” (Miller, 1995). Narratives repeated without question become internalized, and their manipulative power thereby less visible. The task of humanistic inquiry, particularly in my discipline of literary and cultural studies, is to analyze how and why different narratives rise and fall in popularity over time, and how those narratives that come to dominance shape culture. Different stories and their different characters produce different forms of human subjectivity, different human patterns of behavior, and different ways of thinking. Narratives thus, as Miller shows, “have an incalculable importance for the shape of [a] culture” (Miller, 1995). In the field of postcolonial ecocriticism, scholars explore the instrumental relationship that narratives have on the brutal imperial aggrandizement of colonial territories and environments. Defining cultural narratives such as *Robinson Crusoe* can inform the justification of colonial acts of social subjugation and the appropriation of environmental resources. The description in narrative of far-flung cultures as inherently savage and inferior went a long way to justify, in the mind of Western imperial authorities, the colonization of foreign lands, peoples, and their resources. Edward W. Said has revealed the great extent to which narrative significantly informs this imperial conquest of territories: “The main battle in imperialism is over land, of course; but when it came to who owned the land, who had the right to settle and work on it, who kept it going, who won it back, and who now plans its future—these issues were reflected, contested, and even for a time decided in narrative.... The power to narrate, or to block other narratives from forming and emerging, is very important to culture and imperialism” (Said, 1993). At the same time, colonized peoples find power in imagining new possibilities in and through new narratives, and these in turn can then become the supporting structure for postcolonial formations of freedom. Over the course of the second half of the twentieth century “grand narratives of emancipation and enlightenment mobilized people in the colonial world to rise up and throw off imperial subjection” (Said, 1993). These narratives from the margins of predominant cultures and political formations of power can in turn have an impact on the very centers of power: “many Europeans and Americans were also stirred by these stories and their protagonists, and they too fought for new narratives of equality and human community” (Said, 1993). Narratives can thus reinforce business-as-usual power dynamics but also bring more emancipatory potentials into existence.

The point to draw from all this is that the liberatory potential of imagined narratives (for as should be clear by now, just because a narrative is imaginative does not mean that it automatically offers emancipation from the limitations currently holding sway over reality) depends on the fact that there is no fundamental, obligatory, or necessary order that pre-exists any narrativized reality. So, if narrative is indeed a significant element in the development of MA scenarios (and the Working Group certainly tells us this is so), then it’s worth considering how the Working

Group that developed the scenarios might understand that term ontologically.

The four MA scenarios and their relation to narrative

In the MA, “narrative” takes on the status of a tool for “providing broader perspective,” and as a vehicle for “shaping [the] development [of] values, behaviors, and institutions” (Millennium Ecosystem Assessment, 2005c). As such we can conclude that within the text and context of the MA, narrative is conceptualized, in addition to its imaginative aspect, as a disciplinary instrument, designed—at least for the kind of scenarios that offer a more sustainable future—for the development and government of a new sociopolitical community of people. This is quite different from simply saying something like “narrative is the act of telling a compelling story for purposes of entertainment.” We are talking instead about the purposeful formation of a different sociopolitical human future—no inconsiderable task! “Narrative,” therefore, signifies a purposeful formation designed to *change* values, to make them, in this case, ecologically centered: the goal is “to explore scenarios that include more fundamental transformations of the underlying values and institutions of development...toward a form of global development based on ‘sustainability first’... This will require the enhancement of the role of ecosystems in both scenario narrative and quantification” (Millennium Ecosystem Assessment, 2005c). “Narrative” therefore names the creative act of transformation. In and through narrative, the authors are attempting to introduce an element within the framework of human existence that is not a central part of the current polity.

This may be an obvious point to make of the MA, but the specific ontological status of speculation, imagination, and narrative technique is still unclear. On the one hand, we can say, given the above analysis, that the MA’s conception of narrative as *a transformative tool that brings new elements within the human imaginative and social framework* is indicative of the anti-metaphysical attempt to break patterns of thought that are viciously circular. Pushing ecological concerns outside the framework of civil and political existence has been a defining characteristic of modern human conceptual frameworks that chain us to the god of economic expansion, which makes a nation’s GDP the *only* human value worth the effort. Changing that framework by substantially considering the “quantitative” context of the circle would certainly constitute an ontological, hermeneutic engagement, as defined by Heidegger. Yet the “qualitative” process of building a human social and political architecture genuinely heterogeneous to the present is more difficult to identify. To do this, we need to look closely at the scenarios themselves.

Though the four scenarios themselves never openly consider the ontological status of the act of speculation and its artistry, they can nonetheless be read symptomatically in terms of their essential nature. Two of the scenarios—“Order from Strength” and “Global Orchestration”—are developed around “reactive” environmental policies, and two—“TechnoGarden” and “Adapting

Mosaic”—around “proactive environmental management policies” (Millennium Ecosystem Assessment, 2005c). The former two are heavily influenced by a business as usual schema. Both emphasize the dominating demands of a neoliberal economy, which is itself a form of vicious circularity that places, as I indicated above, capitalism and economic development metaphysically above all other human concerns. Global Orchestration offers more hope for the environment. In this scenario cooperative mechanisms are built between nations, which means that a planetary event such as climate change can be addressed by a global body more successfully than a future in which nations turn inward and take up their own selfish concerns. Order from Strength is built precisely on that isolationist assumption, representing a “regionalized and fragmented world concerned with security and protection,” with regional markets within civil and political society “paying little attention to common goods,” and taking an “individualistic attitude toward ecosystem management” (Millennium Ecosystem Assessment, 2005c). Ecosystems are consequently secondary to private, economic, and social issues, and if they are addressed at all, it is out of a reactive need to negative ecological feedbacks. Both Adapting Mosaic and TechnoGarden place ecological concerns at the center of civil and political existence, though it appears that Adapting Mosaic would have the most effect on ontologically transforming civil society (as we’ll see shortly). TechnoGarden is more global in its orientation. Societies act together, forming a strong international community. Ecosystems are “highly managed” by large-scale engineering and manufactured schemes, but the chance for large-scale risks due to unforeseen circumstances not considered by these schemes also haunt the system.

Both Order from Strength and Global Orchestration are the closest to our own current historical occasion. In uncanny way, the events described in Order from Strength are coming to match more and more the current political stance of the U.S. (as I write this in 2017 we are nearing the end of the first year of the isolationist Trump Administration). In Order from Strength, the narrative unfolds with one, several, or all nations turning their backs on one another, “in response to global terrorism and the breakdown...of global cooperation” (Millennium Ecosystem Assessment, 2005c). Militaries are strengthened and the economy maintains its central position in wealthy nations. People become suspicious of trade liberalization, and begin to support a domestic-oriented, regionalized economy. The Working Group, referencing previous future scenario building initiatives, refer to this as “barbarization,” where the world is increasingly divided into rich and poor, where the rich create a “fortress world,” and social systems and ecosystems eventually breakdown. In the early stages of the scenario, there is indication that the building of walls around nations has some positive effect on ecosystems, in terms of invasive species: there is “less expansion of invasive pests, weeds, and diseases as borders and trade are controlled” (Millennium Ecosystem Assessment, 2005c). Considering, however, that invasive species are already quite extensive around the planet, and

that even border controls do not end transfers of species around the world, this would appear to be a moot and even odd point for the authors to make.

Despite this curious lapse, the Order from Strength scenario convincingly focalizes one of the key threats that today’s human rationality poses to ecosystems; that is, the idea that humans themselves can always and ultimately control the environment. Such a belief, the Working Group argues, leads to a “fragmented approach” to environmental problems, which are only addressed when ecosystem services begin to collapse. The belief in humanity’s ability to control ecosystems also leads to the belief that natural environments themselves are not, in the final instance, necessary for human survival. During the early years of the scenario “everyone knew that water ultimately came from nature,” but eventually people developed “the widespread belief...that water cleansing could be done better by human-powered technology than by...preserved ecosystems” (Millennium Ecosystem Assessment, 2005c). (Curiously, this same kind of “technofix” attitude does not develop in the TechnoGarden scenario—which may indicate that the idea of “technology” tacitly put forward by the authors remains unchallenged, and subject to the anthropocentric view that humans are superior to nature, and intelligent enough to manipulate its services sustainably.) This transformed view of water—an essential need for all life—constitutes a significant awareness of how the human experience of physical reality can be utterly transformed for the worst. In addition, in Order from Strength rich nations begin to solely protect their own farmers. Farmers in poorer countries no longer have a market for selling their products. They turn to harvesting nonagricultural raw materials (forest products, minerals, fish, and other wildlife) for export to rich countries, which heavily erodes the biodiversity of their biomes. In the “Story of India” section of Order from Strength, we learn that international support for poor communities from NGOs disappears. As poor communities become poorer, basic educational skills such as reading and writing became a rare commodity. Joblessness, food and water scarcity, and disease become rampant. The “Story of India” segment is one of the few moments in the entire narrative where we read a first-person account of the situation. The unnamed character in this story loses all the basic necessities for survival, and can only find refuge—in terms of food, clothing, and shelter—in a terrorist camp (Millennium Ecosystem Assessment, 2005c).

Unlike the environmentally dystopian world of Order from Strength, the Adapting Mosaic scenario is environmentally proactive. As indicated in the background history for the scenarios, Adapting Mosaic is heavily influenced by the narrative of “Eco-Communalism” developed previously by the Global Scenario Group overseen by Paul Raskin in the 2002 publication *Great Transition: The Promise and Lure of Times Ahead* (Raskin, et al., 2002). It is characterized primarily by the shift in human sensibilities towards the “need to work with rather than against nature” (Millennium Ecosystem Assessment, 2005c). The precise origin of the idea of “eco-Communalism” is never explained in either text, but one can venture to guess

that it stems from two historical sources: the anti-capital communalism that appears in many forms prior to and in the wake of the rise of capitalism (Thompson, 1993), and the understanding that ecosystems are constituted not along artificially constructed national borders, but in self-constituting, regional biomes. Regardless, one key ontological issue with this scenario stems from its lack of any real definition given for the term “adaptive.” Is the Working Group referring to the general ecological term “adaptation”—as used in the current discourse about climate change? Does it mean that humans are primarily the ones to “adapt” in order to transform sociopolitical values and institutions into socioecological ones? Is it referring to humans adapting ecosystems themselves to anthropocentric needs? Are we talking about adaptation in the Darwinian, biological sense? In the military sense (more on this below)? Or is it some combination of all of these?

At times in the scenario, the essence of adapting appears to stem from jingoistically-formed opinions we see arising today in certain national communities. For instance, the kind of conservative suspicions surrounding the mythical monster of “Big Government” that characterizes today’s neoliberalism seems to be a key factor in the development of regional communities in *Adapting Mosaic*: people become “disillusioned with the abilities of national governments to govern” (Millennium Ecosystem Assessment, 2005c). This is the same dynamic that manifests itself in the *Order from Strength* scenario, except in this case it is more local than national. However, because of this local forcing, management of regional ecological units increases, but localities vary in terms of the approaches they take to the environment. The growth in attention and knowledge about ecological boundaries leads to communities developing a high capacity to cope with issues that arise in specific biomes. At first this attention to the local leads to risks in terms of managing the global commons (since the commons are larger in scale and demand international cooperation). But eventually these larger scale issues, interestingly combined with the bottom-up orientation of *Adapting Mosaic*, generate international cooperative networks (Millennium Ecosystem Assessment, 2005c). In this sense *Adapting Mosaic* is the opposite of *Global Orchestration*, which operates according to a top-down structure. The risks of *Global Orchestration* are therefore the opposite: local communities are given no buy-in and local communities and ecosystems suffer because of it. Despite these pluses, the Working Team finds a key drawback in this scenario to be its lack of focus on economic development, since a regional focus results in less interest in international trading. Most promising, however, under the *Adapting Mosaic* scenario the loss of biodiversity is given the greatest chance of being combated. The rate of biodiversity loss begins to stabilize as attitudes towards biodiversity change: “Whereas at the beginning of the century people responded most to the loss of single, highly symbolic species, awareness now had switched to perceiving biodiversity not only as an essential supporting ecosystem service, but as a goal in and of itself” (Millennium Ecosystem Assessment, 2005c).

This is the closest the scenarios come to opening an ontological reconsideration of human subjectivity and its indissoluble relation to ecosystems (a point I will come back to below). But the question of human subjectivity ultimately remains beyond the framework of even *Adapting Mosaic*, which is the most attune to local human existence. One key symptom of this aporia appears in one of the scenario’s side stories: “The Midwest Organic Agricultural Project.” In this side story, the Midwest farming scheme is launched “in October 2014...with the goal” in mind “of meeting the increasing domestic demand for organic food” (Millennium Ecosystem Assessment, 2005c). The project brings together a “national network of scientists and food co-ops” that bolster their efforts by gaining “support from major corporations in the food sector” (Millennium Ecosystem Assessment, 2005c). The scheme introduces a “detailed strategy of land use” throughout the Midwest region. Science specialists design “training courses for farmers,” and corporations “give market guarantees for a range of products” (Millennium Ecosystem Assessment, 2005c). One would think that this project would be a win-win situation for all involved—humans and nonhumans alike. But the lack of consideration of human subjectivity appears symptomatically in the contradictory manner in which the project is implemented: the project ultimately fails four years later and comes to end because individual farmers eventually return to their previous farming methods. Why? Because for some reason in this particular attempt to generate sound regionally-based ecosystem management the lifestyles of local farmers were not given any serious attention: “Unfortunately, the traditional networks of farming and marketing were overlooked, and the farmer’s traditional decision-making with respect to what to cultivate and where to sell turned out to be much stronger than anticipated” (Millennium Ecosystem Assessment, 2005c). The new techniques were only applied “for a limited time.” Why would this essential contradiction exist in the scenario? I would suggest that it’s more than a lapse in the Working Group’s focus on the essential “bottom-up” nature of *Adapting Mosaic* (for if this were truly a bottom-up approach, then the farmers would have been consulted about the project from the beginning). If we consider this at some length we begin to notice that the project as designed *does* involve a respectful amount of local buy-in. Training courses are devised, and the incentives to gain economically are given. Yet the case appears to be that local farmers are somehow creatures who are more “set in their ways” than the scientists capable of generating new ecological schemes. Are we to understand this to be indicative of today’s existing relations between scientists and farmers? Perhaps. But if so, then how is the reluctance to change understood by scientists and those authorized to generate scenarios like the ones we find in the MA?

It would appear that the authors here have fallen into the ideological belief identified by Jacques Rancière (2011) as the “inequality of intelligence” (Rancière, 11), or what Paulo Freire (1968) identifies in his *Pedagogy of the Oppressed* as the “banking model of education” (Freire, 2005). In short, banking education names a pedagogical

paradigm that treats students as empty vessels who lack intelligence. In the banking model, knowledge can only be given by the knowing educator who fills students as if they were empty banks. Rancière expands this critique by revealing how it normalizes a general belief in the inequality of intelligence, which leads to the inequity of authorities speaking for and on the behalf of others. Both theorists challenge the ontological ground that essentializes the student-subject as ignorant and irrational, and in turn the teacher-subject as all-knowing and rational. Instead, a more equitable pedagogical encounter demands a rethinking of this normalized student/scholar dynamic. As Rancière articulates it, the path is not from ignorance to knowledge, but from “what [the student] already knows to what she does not yet know, which she can learn just as she has learnt the rest” (Rancière, 2011). The student engages actively in knowledge expansion not to ultimately learn the presumed superior or correct knowledge of the scholar, but “to better practice the art of translating, of putting her experience into words, and her words to the test” (Rancière, 2011). In this way, the educational encounter is transformed from being a condescending war of intelligence vs. stupidity, and into “a translation of intellectual adventures” from one intellectually-endowed subject to the next. As such Freire and Rancière offer two new kinds of subjectivity in this reconceptualized model of education: both student and teacher have knowledge, and the two interact with one another through the translation and exchange of knowledge from one to the other. The imagined Midwest Organic Agriculture Project might possibly have benefited from a consideration of such ontological recastings of naturalized educational processes.

The last scenario—TechnoGarden—is also proactive in terms of environmental concerns. It is based on the central idea that technology can transform our destructive environmental relations. It couples that idea with a belief in market-oriented institutional reform. The economic element of this scenario differs from Global Orchestration in that capitalism evolves into a concept called “natural capitalism” (Hawken, et al., 1999). Unlike traditional capitalism, which fails to see natural resources and ecosystems as capital, natural capitalism organizes itself around the biological realities of nature. Traditional capitalism liquidates nature and considers it income—thinking that nature is free and inexhaustible. Natural capitalism emphasizes the restoration and conservation of ecological resources. This is certainly a positive development, but it’s disappointing that the Working Group does not consider anything but a capitalist economy when attempting to imagine sustainable futures. There are many pre-capitalist economic social formations that existed in tandem with nature throughout the roughly 11,700-year length of human history, of which capitalism is little more than a strike of lightning in that temporal scale. Certainly, many indigenous people’s sustainable relations operative today, relations that have very little to do with the late development in human history of privatization, would offer some functional alternatives. Consider, for instance, the following statement characterizing some of the specific decisions made in the wake of natural capitalism’s rise in TechnoGarden:

Generally, ecological markets are established and *property rights are assigned to ecosystem services following the identification of ecological problems*. Because of investment in ecological understanding and natural capital, problems often are identified before they become severe. Ecological markets are established at local, national, regional, and global scales. Depending on the social and ecological context, property rights are granted to different actors. (Millennium Ecosystem Assessment, 2005c; emphasis added)

One could imagine a new imbalance of power developing as property rights undergoes an enhancement based on ecosystem services. In a similar manner to the inequality of intelligence identified by Rancière and Freire in the educational system, natural capitalism’s environmentally-centered and therefore seemingly friendly alternative to industrial capitalism could easily result in the rise of a new privileged elite. The “different actors” “granted” property rights would appear in the form of a combination of “knowledgeable engineers” and technoscientists and bureaucrats acquiring rights to ecosystem services, in tandem with corporate interests capable of supplying the necessary funding for development.

If we seriously consider this discourse of enclosing the ecological commons based on individual property rights, we will soon discover that it’s no different from the rise of privatized, intellectual property rights (IPRs) as developed by the World Trade Organization in its Agreement on Trade-Related Intellectual Property Rights (TRIPs). As the Indian physicist, philosopher, and environmental activist Vandana Shiva (1993) argues, IPRs are ontologically connected to colonial history and the expansion of empires, which established their power through the plunder of natural resources in colonies around the planet. Modern day property rights operate along the same lines. Transnational corporations comprise the new colonial actors, pirating local, indigenous ecosystem knowledge that has evolved collectively throughout the history of villages and communities (Shiva, 1993). Knowledge is patented by corporations, who then legally gain rights to that knowledge, putting indigenous communities in the untenable position of no longer having legal rights to their own environments: “The TRIPs treaty...is based on a highly restricted notion of innovation. By definition it is weighted in favor of transnational corporations, and against citizens in general and Third World peasants and forest dwellers in particular” (Shiva, 1993). Furthermore, IPRs also stifle our very conceptions of creativity, limiting it exclusively to commodification and profit: “Central to the ideology of IPRs is the fallacy that people are creative only if they can make profits and guarantee them through IPR protection. This negates the scientific creativity of those not spurred by the search for profits. It negates the creativity of traditional societies and the modern scientific community, in which the free exchange of ideas is the very condition for creativity, not its antithesis” (Shiva, 1993). Patents in this context can thus skew research towards the restrictive goal of capital accumulation, which limits

open communication among scientists and communities. Ultimately, this undermines collective creativity and pure scientific research. Indigenous communities find themselves, in the wake of an IPR act, in the odd position of having to pay for knowledge they themselves have developed.¹ As indigenous postcolonial scholar Linda Tuhiwai Smith argues, the “new global political entities being established under such arrangements as the General Agreement on Tariffs and Trade (GATT) and other regional market zones make participation within these zones dependent on certain sorts of compliances such as doing away with any protections of local [indigenous] economies and cultures” (Smith, 2012). In opposition to this, argues Shiva, Smith, and others we might consider the idea of open, collective, public rights and the potentials they offer, as opposed to private rights.²

Despite its orientation towards a speculative future, this narrative of property rights is shaped by the familiar historical forces of Western imperial expansion and colonial possession. The privatization-for-protection and development system it tacitly proposes mirrors the kind of early economic judiciary “developed to facilitate colonial patterns promoted by European states and their offspring, to the detriment of indigenous peoples” (Anaya, 2000). As S. James Anaya argues, Western legal and political systems, which were legitimated in and through the form of the modern nation-state, viewed “tribal societies as not qualifying as nations or states and hence as without full rights to group autonomy or ancestral lands” (Anaya, 2000). “Discovery alone” by a nation-state authority constituted the legal right to claim territory and resources (Anaya, 2000). But as Anaya also points out, international law has increasingly extended to include Indigenous actors, galvanized in part by international human rights struggles and reflected in bodies like the UN (Anaya, 2000). Even as early as 1957 the International Labor Organization (ILO—now an affiliate of the UN) recognized the need to address indigenous rights, and the ILO Convention No. 169 on Indigenous and Tribal Peoples (1989) was the first international law guaranteeing the rights of Indigenous Peoples. 1995–2004 was named the International Decade of the World’s Indigenous Peoples, and the UN Permanent Forum on Indigenous Issues was established in 2000.

Although it is beyond the scope of this commentary, it is important to recognize the growing presence of Indigenous Peoples in the international arena since the publication of the scenarios. Indigenous Peoples work directly with the UN on matters of climate change adaptation and mitigation, and are seen as important stewards of biological diversity (IFAD, 2016; ILO, 2016; UNDP, 2015). The UN now directly integrates indigenous sustainability practices in its Convention on Biological Diversity’s Strategic Plan for Biodiversity (Palmer, 2017). Indigenous Peoples also have a long history of working actively with, and being part of, international NGOs, such as Survival International (founded 1969), International Rivers (founded 1985), and the International Working Group for Indigenous Affairs (founded 1968) (Keck and Sikkink, 1998; International Rivers, 2017; Dahl, 2009). Most importantly, Indigenous Peoples often ground their

communities along ecologically sustainable lines, and many are impressively resilient in the face of growing resource scarcity. The social-ecological histories of many Indigenous Peoples can thus serve as exemplary case studies for authors attempting to construct ecologically viable future scenarios. The Sami communities of the Norwegian Arctic, the Kayapo of the Brazilian Amazon, the Yoruba of Nigeria, and the Inuit in the Arctic are just four that come to mind (Broderstad and Eythorsson, 2014; Zanotti, 2016; Berkes and Folk, 1998; Sejerson, 2004).

Given that a number of these integrative developments occurred prior to the publication of the MA, the absence of any real substantive consideration of Indigenous Peoples efforts in the MA scenarios is surprising, but only somewhat.³ As Svein Jentoft argues, “national governments have mostly been reluctant supporters, if not vociferous antagonists to these developments” (Jentoft, et al., 2003). In some cases Indigenous Peoples have successfully invoked the Convention on Biological Diversity (1993) to maintain sovereignty of resources (Jentoft, et al., 2003), but most often state management regimes negatively affect Indigenous Peoples sustainable development and conservation of natural resources (Jentoft et al., 2003). Moreover, even “science-based resource management systems designed to save wildlife...have, for the most part, ignored indigenous perspectives” (Nuttall, 1998). Too often the bottom line was a form of “material improvement” of the environment based on the “expectation of large profits from large projects” like mining, oil and gas development, hydro-electric power, or the physical incorporation of geographical spaces inhabited by Indigenous Peoples “into the nation-state through road, rail, and port building” (Jull, 2002).

These profit-based forcings impact the Global Orchestration scenario as well. From the beginning to the end, the presumably imaginative structure of Global Orchestration succumbs to the same deity-like invisible-market-hand logic that forms neoliberalism and its evangelical devotion to privatization and decentralization. The key symptom of this is the market-based belief that the wealthier you are, the more likely you’ll be able to confront and address all the world’s ills. The “trickle down” feature of Reaganomics and Thatcherism—the beginnings of neoliberalism—that gives tax breaks to the wealthy under the pretense that more economic activity by the rich will benefit the poor is one infamous example. The faith in “the wealthier you are the more likely you’ll be concerned about environmental issues like climate change” is a similarly noxiously conceived argument (and an unscientific one as well, for that matter) (Dauvergne, 2016; Tamny, 2010). If the assessments by the IPCC, NOAA, NASA, and similar organizations are correct, we know very well the that wealthy have a much larger ecological footprint than the poor—both in terms of poorer nations, and the poorer living within rich nations.

Despite the emphasis put on the modelling that supposedly takes into account the empirical reality of 21st-century civil and political society, all four scenarios lack a surprising amount of features central to today’s world. The lack of these features is symptomatic of the equal lack

of attention paid to the massive amount of scholarship available in the humanities and social sciences. There's absolutely no mention, for instance, of racism in any of the scenarios. Instead the world is divided between rich and poor nations, and the distribution of wealth and resources is made more equitable in most situations, except for Order from Strength. There's also absolutely no mention made of the global disparity of gender relations, barring a minor mention of someone having to do "women's work" in a sub-story embedded in Global Orchestration entitled "A Story of India." The India story relates how Global Orchestration's emphasis on addressing economic and social inequalities through trade liberalization and free markets leads to greater financial equality. Somehow this is achieved by magically "moving beyond philosophies such as the Washington consensus"—in other words, neoliberalism's ultimate uber-privatization and deregulation fulfillment. Essentially, as with Reagan and Thatcher, the Washington consensus elevated market fundamentalism to a metaphysical state—beyond any real criticism of its human-produced logic. As history now shows us, this raising of neoliberalism above and beyond any potential for fundamental reconsideration resulted in the evacuation of the State's political power to address corporate control and to provide support for healthcare, education, the arts, (and now the sciences)—all of which are mechanisms that address economic, intellectual, and creative inequalities.

This elevation of the market has increased income disparity both globally and within the borders of nations, and formed the background for greater racial violence and gender discrimination. It is also never explained in the MA scenarios how this emphasis on the market can ever transform human values in any way to make them more attuned to ecological concerns. The Global Orchestration scenario places secondary importance on the environment, as I mentioned earlier. Yet, the scenario appears to adopt the same kind of faith we see given to the "invisible hand of the market": its reactive stance towards ecosystem services, and its belief that "human ingenuity" will always save the day, keeps it from engendering any kind of real transformation to human behavior and values. One would think too that we would see a number of references to racial and gender injustice in the Order from Strength scenario. Yet here as well, those sizable features of 21st-century existence are nowhere to be found. The lack of any ontological consideration of these empirical facts of existence indicate that future scenario building could benefit from work found in fields of the humanities and social sciences, if future building is to escape from the vicious forms of circularity that deny the relevance of rethinking both human subjectivity and the influence of neoliberalism on contemporary human-environmental culture.

Imagination and human subjectivity

The details I explore above lead me to what I would argue to be the most important feature lacking in the scenarios, and that is an ontological consideration of what it means to be human. The question of what it means to be human is one of the most central concerns of the humanities

and social sciences. In a certain sense this absence of an attention to subjectivity formation is not surprising in a text that takes a primarily mechanistic orientation towards humanity's future. As a number of scholars have argued (Chakrabarty, 2012; Eagleton, 1996; Foucault, 1980; Heidegger, 1962; Spanos, 1993), this lack of any ontological consideration of human subjectivity (and the lack of ontological considerations at large) is a symptom of late capitalism's economic emphasis, and its global expansion in the human polity since the end of the Cold War. It is an ideological idea perhaps best summed up by one of its advocates, Francis Fukuyama, who identifies our political age as "the end of history" (Fukuyama, 1992). Fukuyama argues that human political systems have been evolving, and that the current Western, liberal democratic capitalist order is the ultimate goal of human sociopolitical development. In his neo-Hegelian-informed view that "history" is the battle over human forms of government, he argues that we have finally reached the end of that battle, and thus history proper.⁴

When such a mode of thinking (which was highly influential in the building of the Washington Consensus) becomes predominant, the need for ontological inquiry, of course, vanishes—for having reached such a point of perfection would suggest that the substantive critique of the foundations and structures of human existence is no longer necessary. While the MA certainly does not suggest that such an end has been reached, it is nonetheless tainted by this kind of ontological lack, or *aporia*. The MA mentions repeatedly that human "values" and "behavior" need to change, but there's no real concrete sense of precisely what values and behaviors need to be created and adopted, and no sense of how the very idea of "the human" has changed throughout history. We're left with only a vague sense that we need to adopt a more ecological sensibility. Here the long list of literary, historical, philosophical and anthropological scholars who write about the nature of human subjectivity and its transformation through the ages would be instructive (Braidotti, 2013; Chakrabarty, 2012; Foucault, 1977; Haraway, 2008; Hayles, 1996; Heidegger, 1962; Merchant, 1980; Spivak, 1987; Wolfe, 2010). The development of the cult of individualism, which founds itself on the ontological separation of the human from ecological concerns would be central to any truly transformative change in "values" and "behaviors." This absence of attention to the potential for different forms of human subjectivity no doubt explains the equally telling absence of any mention of indigenous peoples in the MA. This marginalization of the indigenous is a concern that haunts not only future scenario building, but also other UN efforts to address environmental issues such as climate change. Despite UN efforts at recent UNFCCC COP conferences (especially at COP21, where indigenous peoples were given prominence in the "civil society" space of the conference), there's a serious lack of attention paid to the very different environmental "values" and "behaviors" of indigenous peoples—from which the ecologically delinked Western end-of-history Individual could learn a lot.⁵

The MA does stand as one of the single-most important calls to attend to our ecological occasion, as I mentioned in my opening remarks. The Scenarios Working Group came to the “unanimous” conclusion that the Order from Strength scenario is “unsustainable and ultimately disastrous” (Millennium Ecosystem Assessment, 2005c). As I mentioned above, we’re seeing strong elements of that scenario unfolding more and more today. And the Working Group does conclude the scenarios with the suggestion that a “very large number of scenarios would be necessary to address all possible combinations of drivers” (Millennium Ecosystem Assessment, 2005c). But under the “Gaps in Our Understanding” section of the conclusion, the Working Group only identifies a lack in knowledge concerning ecosystem resilience in relation to human impacts, and ecosystem processes across space and time (Millennium Ecosystem Assessment, 2005c). This gap is certainly a crucial one to fill, and the Working Group makes a powerful case in the scenarios for institutions—which currently focus solely on economic and social issues—to incorporate ecological concerns, across multiple regional and global scales of space and time.

Given the fact that ecosystems are the very reason the Working Group generated the scenarios in the first place, it is equally odd that we see no mention made of any particular species, or any particularly substantive discussion about any specific biome in terms of its nonhuman elements. When a particular ecosystem *is* mentioned, it is narrated exclusively in terms of human concerns. The inclusion of Sub-Saharan Africa is one such example. Inserted into the Global Orchestration scenario, we learn how the decision-makers primarily governing the orchestration of this international community overlook local and rural human populations and their livelihoods. The government of forest reserves “in Ghana’s Upper Guinea Forest effectively displace[s] tens of thousands Akan farmers reliant on swidden agriculture for their subsistence” (Millennium Ecosystem Assessment, 2005c). This displacement, in turn, leads to increased agricultural pressure on areas of the forest not protected, and to frustration on the part of rural poor communities who subsequently disconnect from national bodies and leadership because they are not asked to be part of the decision-making process. This is certainly an important potential development that could unfold in a world where global bodies rule at the expense of local regions, but it nonetheless fails to factor in the specific nature of flora and fauna interactions in the ecosystem itself. Again, it is odd that a report seeking to make ecosystems central to human existence consistently marginalizes those systems in order to concentrate solely on anthropocentric needs. Are we to assume that only the human species has the capacity to develop differently—that is, that only humans have a future, in the sense of change embodied in that word?

For reasons of security: Why narrative lacks ontological thought in the MA

This absence of a concern for imagining different forms of human subjectivity brings me around to the problematic relation the MA takes to the (very) human activity

of storytelling, and back to the qualitative/quantitative counterpoint I focalized in my opening. The Working Group clearly believes in a fundamental difference between the qualitative/narrative/words and the quantitative mathematical modelling/numbers registers of future scenario building. Like any good novelist—who does extensive research on the history of her topic, who looks into mounds of “data” in preparing to imagine a world for her characters, who rigorously considers how her characters will confront and hopefully overcome these very real contextual barriers of existence—the Working Group authors diligently incorporate the mountainous amounts of numbers, graphs, data, and modelling results that are crucial for telling a story worthy of our consideration. Yet the characterization of “narrative,” as we saw above, would appear to be limited in terms of its relation to the human potential for creativity. As mentioned above, we’re reminded in the “background” section of the MA that narrative is seen as a force that needs to be tempered by empirical data. I would like to trouble this seemingly logical representation of storytelling.

Narrative in the humanities and social sciences is no easily defined concept. As the literary critic J. Hillis Miller argues, narrative is ubiquitous, and appears in multiple forms: “As adults, we hear, read, see, and tell stories all day long—for example, in the newspaper, on television, in encounters with co-workers or family members. In a continuous silent internal activity, we tell stories to ourselves all day long. Jokes are a form of narration. Advertising is another: ‘Use this product, and then you will feel *much* better.’ At night we sleep, and our unconscious minds tell us more stories in our dreams, often exceedingly strange ones” (Miller, 1995). Storytelling may be ongoing, and active in multiple venues, but *why* storytelling appears to be so ontologically essential is not an easy question to answer: “what psychological or social functions do stories serve? Just why do we need stories?” (Miller, 1995). As Miller points out, there is an incredibly diverse set of theories about narrative, and that very salient fact stands as evidence that narrative cannot be taken lightly. Unfortunately, the pressures of contemporary existence tend to push our awareness of narrative outside the framework of our daily, complex lives. Social inequalities, economic demands, political violence, and now ecological destruction and climate change would seem to demand that “reality,” not storytelling, should be our focus. The MA’s imperative to focus more heavily on generating pragmatic, plausible future *realities* rather than unhinged speculations is thus a symptom of our ecologically troubled times. Such a demand is a forcing that must surely impact the ontological essence of the creative narrative event, steering the imagination towards more utilitarian ends.

These pressures are no doubt what informs the Working Group’s understanding of “narrative.” The MA narrative of potential future scenarios seeks to situate a secure and stable (sustainable) human cultural and technological architecture on top of the fluidity of (political and ecological) life. This is a noble cause. But herein also lies one of the central ontological and ethical dilemmas peculiar

to the Anthropocene.⁶ As has been widely and extensively documented over the course of more than three decades, the anthropogenic geological forcing of the planet's ecosystems is in the process of introducing increased ecological and human insecurity—in terms of food and water security, habitat degradation, species decline and extinction, biome resiliency weakening, increased precipitation and flooding, increased drought—the list continues to lengthen (Millennium Ecosystem Assessment, 2005; IPCC, 2007; IPCC, 2014). The scale of these insecurities is unprecedented, raising issues of human and ecological security to the level of an existential threat. However, during almost the same period of time, the concept of “security” has become not only one of the essential practices of contemporary politics, but also an “increasingly dominant paradigm of government in contemporary politics” (Agamben, 2005). Features that previously characterized totalitarian forms of government—the centralization of power within executive branches, the declarations of “states of emergency” and martial law, the suspension of citizen rights, and the military measures necessary for imposing continual GDP growth on finite ecosystems—have begun to appear increasingly in democratic societies and become a defining element of civil society (Agamben, 2005; Pease 2009). This growth of security-oriented cultural narratives and political paradigms risks overpowering the kind of alternative narrative potentials of sustainability and human subjectivity I referenced above.

For instance, since the publication of the MA and the IPCC's Fourth Assessment Report the United States Department of Defense and security institutions such as The Center for a New American Security have been more vocal about climate change and other environmental problems—organizing conferences, producing colloquium briefs, issuing extensive reports and strategic communication plans, and publishing volumes in order to coordinate “public awareness” of Anthropocene threats (Marzec, 2015). National and international defense departments and security councils have begun to explicitly characterize climate change as a “threat multiplier” capable of generating a more expansive war on terror (Burke and Parthemore, 2009), and military and security institutions have staged climate change war games (Tollefson, 2008; Aton, 2017). These efforts certainly make the case for Anthropocene threats, but they also attempt to steer civil society towards a particular militarized understanding of “adaptation” (which is defined as the preparation for inevitable ecological disasters to come) rather than “mitigation” (reducing or preventing ecological destruction). For instance, during the Center for a New American Security's 2008 Climate Change War Game, players initially focused their efforts on sustainability challenges. However, players eventually found sustainability efforts to be a tactically troublesome distraction from national and international security: “A focus on cutting greenhouse gas emissions runs the risk of crowding out full consideration of adaptation challenges” (Burke and Parthemore, 2009). In the wake of this concern, game players refocused their attention on security measures rather than sustainability. This concentration on national and international security

is certainly not surprising, given the source. Nonetheless, this focalization on a militarized conception of security is now part of a larger cultural momentum, one that has become a central and defining existential component of human life (Bonneuil and Fressoz, 2016). If efforts centered on imagining new forms of sustainability pose a threat to security demands, one can imagine how the imaginative work of generating speculative sustainable futures may eventually be deemed a potential security risk. Security is, of course, of paramount importance if we are to confront the growing loss of habitats and biodiversity, and address the equally serious issues of food and water security. Yet, as with narrative, there are different forms of security and different ontological reasons for imagining how security systems will unfold and be deployed.

These larger ontological features of security form part of the background of the MA scenarios. This is especially noticeable in the Order from Strength scenario, with its focus on tribalism and regional conflict. But as the Working Group also informs us in its background explanatory sections, the kind of scenario building influencing conceptions of security in the MA have their history in the discipline of “future studies” as conceived during the first decades of the Cold War by the U.S. Department of Defense and defense contractors such as the RAND corporation: “Scenario analysis has its roots in the strategic planning exercises and war games devised in the early years of the cold war” (Raskin, 2005). We are told too that the “direct antecedent” of the scenarios is the “second wave” in scenario development, which began with corporate scenario planning in the 1970s (Raskin, 2005). The fact that a military and a corporate genealogy form the declared lineage of the scenarios is by no means a tributary matter. The corporate “second wave” of future studies as established in this politico-scientific genealogy is presented as a major development, a new epistemological direction. However, corporate and military fields have been intertwined since the beginning of capitalism, as Manuel De Landa reveals at great length in his *War in the Age of Intelligent Machines* (1991). That is, ontologically speaking, they are of the same essence. In fact, as Frederick Taylor himself pointed out over a hundred years ago in his seminal *Principles of Scientific Management* (1911) the impetus for his great assembly line idea came from observing military camps and their maneuvers and drills. This general diffusion of a militarized focus on security across a larger cultural spectrum—what I have termed elsewhere “environmentality”—has been gradually developing over the course of the nineteenth and twentieth centuries (Marzec, 2015).⁷ We must ask ourselves what might happen if security becomes the fundamental basis of narrative, or even the reigning feature of imagination itself.

Elements of this kind of militarized security appear most heavily in the MA's Order from Strength scenario, but the other scenarios also place similar emphases on security in one form or another. In TechnoGarden the forcing of a global economy around sustainable technologies sees a number of “unelected technocrats” affiliated with corporations and NGOs come to power (Millennium Ecosystem Assessment, 2005c). The “increased enforcement of global

environmental and civil regulations by technocrats lead to an intense series of ‘police and national building’ wars” (Millennium Ecosystem Assessment, 2005c). Ecological projects are “backed by military force,” and in order for the entire global system to function properly, these kinds of security measures are emphasized as a basic necessity of human existence (Millennium Ecosystem Assessment, 2005c). “Global Orchestration” places similar emphases on national and international security when the solutions imposed by large-scale technological solutions and global economic orders generate unforeseen “ecological surprises” in the form of infectious diseases, fisheries collapse, aquifer depletion, etc. (Millennium Ecosystem Assessment, 2005c). The heavyhanded control necessary for Global Orchestration cannot handle the kind of “cross-scale ecological feedbacks” that arise from such a rigidly securitized system (Millennium Ecosystem Assessment, 2005c). Even the Adapting Mosaic scenario—the most flexible system—sees military conflict unavoidable in certain regions of the world.

Narrative and transformation

As we have seen, the MA Working Group grounds “future studies” as a discipline in the militarized mentality of the Cold War (the “first wave”) and early neoliberal development (the “second wave”). But there is a much culturally broader and historically extensive literary canon of future-oriented works that is worrisomely absent from this disciplinary framework. There is, for instance, no mention of the field of utopian studies, a discipline comprised by works that attempt to construct sustainable and egalitarian forms of existence. These works are part of a lengthy literary canon of future studies: Plato’s *Republic*, Euhemerus’s paradise island in *Sacred History*, Christine de Pizan’s women’s utopian city in *The Book of the City of Ladies*, Thomas More’s *Utopia*, Tommaso Campanella’s *The City of the Sun*, Francis Bacon’s *New Atlantis*, Rabelais’s *Gargantua and Pantagruel*, W. H. Hudson’s *A Crystal Age*, Edward Bellamy’s *Looking Backward*, William Morris’s *News from Nowhere*, B. F. Skinner’s *Walden Two*, Ernest Callenbach’s *Ecotopia*, and dozens more. Instead the authors establish a framework of narratives that place more importance on national security and the economy.

As I mentioned briefly above, narrative in the humanities is understood to involve acts of both order-making and order-giving (Miller, 1995). As Terry Eagleton has argued, narrative—and literature in general—is part of the political “way we organize our social life together, and the power-relations which this involves” (Eagleton, 1996). In this sense, storytelling helps address the need to provide sometimes lengthy, sometimes momentary forms of stability. We can also understand these forms of stability in terms of maintaining a healthy and productive sense of security. There are certainly many narratives that make this kind of healthy securitizing their prime directive. Other types of narratives, however, warn us of what can happen when security becomes a predominant political paradigm, and an essential rationale for existence in all its rebellious variety. Almost all the works I listed just above would fall into this category. They reveal the limitations

and oftentimes violence of human manufactured systems of security. As such they serve as a doorway to the ontological—to, that is, an awareness and subsequent critique of the distinguishing way things are. This enables us to rethink the concepts humans have created, the values they hold, and the behaviors they have adopted (the ontic). In the speculative fictions of narrative, humans learn, to return to Miller, to “experiment with possible selves” (Miller, 1995). We learn what places have been made available for humans to occupy—what humanist theorists refer to as “subject positions” (Hall, 1997). A human subject is never a metaphysically free-floating, disinterestedly-thinking, context-less being (despite the fact that some through history have attempted to constitute humans in precisely this fashion—the colonial landlord presenting himself as innately superior to his colonized subject is one example). Cultural and historical contexts create subject positions for us. These positions are not merely secondary constructs hiding a more fundamental Self. They are the positions in and from which we come to live, think, hope, and dream. This means that these positions influence and sometimes even govern how we think and act, and how we develop our individualized (and frequently mass-produced) identifications with the world. Because these positions *are* constructs, this means that they are not, as with any manufactured entity, absolutely and unquestionably binding. In these positions humans come to be what they are, but the essence of what it means to be human changes from one historical epoch to the next, from one culture to the next. The most insightful speculative narratives open the potential to fundamentally rethink the nature of the world and the subject positions given to humans. Such insight requires that we let go of those things that make us feel most secure.

We should not be surprised that environmental concerns were beyond the horizon of these first two waves of scenario building as defined by the MA Working Group. For introducing the environment into modern cultural and political systems of human power is a rebellious act, one that calls for a fundamental transformation in how humans constitute their sense of human existence in the world. The philosopher and political and literary critic Jacques Rancière offers us a felicitous description of the kind of rebellious narratives that refuse to reproduce the subject positions we’ve been naturalized to accept out of hand. He characterizes a truly ethical and political act as a narrative that makes “the part of no part” appear (Rancière, 1999). The “part of no part” is not simply a marginalized constituency that already exists. The phrase names a potential form of subjectivity that has *yet* to exist—precisely because of an imbalance of power in the sociopolitical system. Furthermore, the part of no part begins to make its appearance *in and through the speculative space of narrative*—which can be an act of speech, or an act of writing. In this sense, the potential for transformation is *first made possible in the realm of narrative*. The part of no part, according to Rancière, “names a fundamental wrong” in its act of drawing attention to the imbalances of power. The significant point to draw from this is that narrative—fiction—names the space in and through which we can

begin the process of creating a different empirical reality. The MA scenarios, in part, offer this kind of ontological critique of current systems, and they in turn offer future systems that have the potential for reorganizing the state of human and nonhuman existence. But in neglecting the nature of human subjectivity, and in foregrounding the need for security without ontologically thinking the very essence of security in the Anthropocene era, they end up reinforcing current neoliberal subject formations and structures. Only through the creation of new forms of subjectivity can we generate new conceptions of politics, sociality, and ethics. Such new forms would, in turn, bring with them new contexts for recreating behaviors and values that speak to that immense but increasingly impoverished ecological element of existence that globally dominant human societies and their many apparatuses of economic and political development have thus far given little or no part.

Notes

- ¹ For details see Josephine Axt, M. L. Corn, M. Lee, and D.M. Ackerman, *Biotechnology, Indigenous Peoples, and Intellectual Property Rights*. Congressional Research Service, Library of Congress, Washington DC, 1993; Dinah Shelton, "Fair Play, Fair Pay: Laws to Preserve Traditional Knowledge and Biological Resources." WWF Research Report, May 1995; *Our Land is Our Life: Land Rights, Past, Present, and Future*. Galarrwuy Yunupingu, ed. Brisbane: University of Queensland press, 1997.
- ² See also Yashar and Coates.
- ³ Indigenous Peoples are invoked only 5 times in the course of the scenarios, and in each case they are introduced not for reasons of exploring alternative narratives of sustainability, but to serve as an example of a negative effect of a scenario's systemic pressures. Three of these references occur in the TechnoGarden scenario, which sees the elimination of "huge numbers" of Indigenous Peoples. The fourth reference occurs in Adapting Mosaic, which sees an Indigenous effort turn to "tragedy" because of a lack of large-scale, national influence. The last is a minor reference to a loss of legal power for Indigenous Peoples in Order from Strength.
- ⁴ There is some indication that Fukuyama may be having second thoughts about his about his original thesis as articulated in *The End of History and the Last Man*. An Washington Post interview from 2017 suggests something of this sort. See Ishaan Tharoor, "The man who declared the 'end of history' fears for democracy's future." *The Washington Post*, February 9, 2017. I am indebted to Manjana Milkoreit for bringing this article to my attention.
- ⁵ For an ontological consideration of indigenous stories, see Watts, 2013.
- ⁶ I use the term "anthropocene" here simply as a proposed epoch, in the sense initiated by Paul Crutzen, and developed by Dipesh Chakrabarty, to characterize the transformation of the human species into a "geological force" affecting environments on a planetary scale. See Crutzen 2002 and Chakrabarty 2012.

The term itself has been criticized by a number of scholars, most notably by Eileen Crist, Donna Haraway, Jason Moore, and Christian Parenti. See Moore, 2016.

- ⁷ I use the term very differently from the way in which Arun Agrawal has developed the concept of "environmentality." See Agrawal, 2005.

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The author has no competing interests to declare.

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