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A Universe of Subjects: Process Cosmology and Deep Ecology

Wm. Andrew Schwartz

What sort of “things” are there, and how are these “things” related? Such questions are foundational for metaphysical cosmology. How we answer these questions has extensive ramifications for the way humans understand and relate to the world around us. In the history of Western thought, prominent pre-Socratic philosophers represented two distinct positions on the fundamental nature of reality. According to Parmenides, what is ultimately real is static Being. Change is an illusion.¹ Heraclitus, on the other hand, argued that change itself is fundamental, claiming that permanence is an illusion.² Both Parmenides and Heraclitus seem to have had an influence on Plato, who distinguished between material reality (which is complex, changing, particular, and flawed) and the Forms

¹ For a good intro into Parmenides, see Guthrie (1965).

² See Guthrie (1962).

W. A. Schwartz (✉)

The Center for Process Studies, Claremont School of Theology,
Willamette University, Salem, OR, USA

e-mail: andrew@ctr4process.org

(which are permanent, perfect, indivisible, and independent). But it was the latter that Plato considered most fundamental to the nature of reality. Since the time of Plato, “substances” (characterized as permanent, perfect, indivisible, and independent) have been widely considered the most fundamental building blocks of reality. Substance-based ontologies prioritize being over becoming, permanence over change, independence over interdependence. Such views on reality have dominated Western philosophy, since, as Alfred North Whitehead contends, “The safest general characterization of the European philosophical tradition is that it consists of a series of footnotes to Plato” (Whitehead, 1979, p. 39).

While this substance-based ontology may be grounded in Platonic insights, it was more fully articulated by modern philosophers like Rene Descartes. According to Descartes (the so-called “father of modern philosophy”) there are two types of “things” that make up reality, (1) physical things (extended matter) and (2) mental things (immaterial minds/souls). These two types of substances are different-in-kind, so it’s ultimately unclear how they can exert causal influence upon each other. This is the root of the mind-body problem. In a limited sense, Cartesian dualism is a bifurcation between minds and bodies. More fundamentally, however, this framework implies a metaphysical dualism that alienates humanity from the rest of nature, since humans alone possess mind. This metaphysical dualism entails a mechanistic orientation such that (apart from human minds) everything that exists is relegated to the status of machines. As Fritjof Capra and Pier Luigi Luisi explain, for Descartes “human beings were inhabited by a rational soul, but as far as the human body was concerned, it was indistinguishable from an animal-machine. Descartes explained at great length how the motions and various biological functions of the body could be reduced to mechanical operations, in order to show that living organisms were nothing but automata” (Capra & Luisi, 2014, p. 25). With the dualism of mind and body came the estrangement of humanity from nature. This was coupled with a commitment to anthropocentrism, such that the human self is placed at the center of the modern worldview—a commitment reflected in Descartes famous assertion, “*cogito, ergo sum*” (I think, therefore I am). In Descartes, we see the three-fold foundations of the modern worldview, and by

extension the modern world: (1) exaggerated anthropocentrism,³ (2) mechanistic conception of the natural world, and (3) metaphysical dualism between humanity and the rest of the physical world.⁴

From mechanistic reductionism came a stifling determinism. After all, if the physical world is just a big cosmic clock, all events are predictable and determined by biological programming and material conditions. Such a world is ultimately without purpose, creativity, or hope. Novelty and freewill are illusions resulting from the complex settings of organic machines. Though new advancements in science have challenged this seventeenth century mechanistic paradigm, the reductionistic and deterministic implications remain dominant still today.⁵

Descartes dualistic and mechanistic worldview rendered the more-than-human world inert—devoid of any intrinsic value, subjectivity, or purpose. This mechanistic paradigm set the stage for humanity's approach toward nature for centuries to come. As Capra and Luisi declare, "The Cartesian view of the universe as a mechanical system provided a 'scientific' sanction for the manipulation and exploitation of nature that became typical of modern civilization" (Capra & Luisi, 2014, p. 25). The roots of our present environmental crisis can be traced back to this modern paradigm. What happens when we think of trees, animals, soil, etc. as mechanical objects? From the objectification of nature emerges the commodification of nature, whereby more-than-human life functions as "resources," whose only purpose is to be used for the benefit of humanity and our economy. A society that fundamentally believes the purpose of the planet is to serve the economy, effectively measures economic success by how quickly we can destroy the ability of our planet to sustain life.

Our world is in peril, and the modern worldview bears much of the blame. As Fr. Joshstrom Kureethadam argues, "In order to overcome the ecological crisis, we will need nothing less than a rethinking of Modernity and its *Weltbild*. We need nothing short of a radical paradigm shift"

³ Or as Ecofeminists have rightly argued, "androcentrism" or male-centeredness.

⁴ See Kureethadam (2017).

⁵ For a good discussion of the history, impact, and limitation of the mechanistic view of life refer to Capra and Luisi (2014).

(Kureethadam, 2017, p. 337). If we want to change the world, we need to change our worldview. This insight is shared by deep ecologists Capra and Luisi who state,

When we look at the state of the world today, what is most evident is the fact that the major problems of our time – energy, the environment, climate change, food security, financial security – cannot be understood in isolation. They are systemic problems, meaning that they are all interconnected and interdependent. . . . all these problems, ultimately, must be seen as just different facets of one single crisis, which is largely a crisis of perception. It derives from the fact that most people in our society, and especially our large social institutions, subscribe to the concepts of an outdated worldview, a perception of reality inadequate for dealing with our overpopulated, globally interconnected world. (Capra & Luisi, 2014, pp. 362–363)

Worldviews matter. That's not to say that worldviews in and of themselves are enough to address our complex web of social-environmental challenges. As Alfred North Whitehead says, "Ideas won't keep. Something must be done about them" (Price, 2008, p. 100). Worldviews are like a map. They provide a framework for understanding the landscape. But a map alone won't bring about change. You also need an intended destination (your goal), and a compass (values) to orient you in the right direction. With those pieces in place, you can chart your course. But successfully reaching your destination will depend on having adequate roads to get from where you are to where you want to be. These roads are the systems (policies and structures) by which human communities are organized. Civilizational change requires all these elements—and more. Yet without a new worldview, a new map, our civilization is sure to remain lost in self-destruction. As Kureethadam explains, "The need of the hour is a new conceptual paradigm, a new worldview, that can radically reorient human dwelling in our common planetary home which appears to be on the verge of a possible collapse" (Kureethadam, 2017, p. 338). Both deep ecologists and process philosophers have attempted to provide an alternative conceptual paradigm for radically reorienting human civilization toward the long-term wellbeing of people and the planet. While the two groups agree on much, their differences are also important.

Deep Ecology

The term “deep ecology” was coined in 1973 by Norwegian philosopher Arne Naess and later spread to the English-speaking world by thinkers like George Sessions and Bill Devall (to name a few). Arne Naess contrasts his deep ecology perspective with what he calls “the shallow ecology movement” (Naess, 1973). A shallow ecology is one that fights against pollution and resource depletion without considering related environmental, social, political, and ethical matters. While the shallow ecology movement is more influential, the tendency to address individual symptoms of complex systemic problems will inevitably result in failure to provide lasting solutions. At best, shallow ecology offers short-term solutions that kick the can of collapse down the road. At worst, these short sighted “solutions” create more problems than they solve—a common feature of solutions born of ignorance. A deeper ecology is needed to get at the underlying causes of complex social-environmental problems. As Capra and Luisi explain, “Deep ecology does not separate humans—or anything else—from the natural environment. It sees the world not as a collection of isolated objects but as a network of phenomena that are fundamentally interconnected and interdependent. Deep ecology recognizes the intrinsic value of all living beings and views humans as just one particular strand in the web of life” (Capra & Luisi, 2014, p 12). In this way, deep ecology is not a set of solutions to environmental problems; but a paradigm shift whose ripples echo like a stone disrupting the status quo of a still pond. As a shift in values and worldviews, deep ecology is fundamentally applied philosophy. In fact, Naess argues that “in so far as ecology movements deserve our attention, they are *ecophilosophical* rather than ecological” (Naess, 1973, p. 99).

Naess introduced the concept of ecosophy as a framework for deep ecology. As a philosophy of ecological harmony and equilibrium, ecosophy (and by extension, deep ecology) promotes a shift in orientation that attempts to integrate the wisdom (*sofia*) of natural ecosystems into human consciousness and social systems. Simply speaking, what’s bad for nature is bad for humanity, since we are not separate from nature. Ecocide is suicide. We need to learn from nature and model human life accordingly.

Upon observation of natural ecosystems, the principles of symbiosis and equilibrium emerge as fundamental to the flourishing of life. Therefore, in describing the core commitments of deep ecology, Naess offers the following seven points as one unified framework for ecospherical systems:

1. Rejection of the man-in-environment image in favour of the relational, total-field image.
2. Biospherical egalitarianism—in principle.
3. Principles of diversity and of symbiosis.
4. Anti-class posture. (Extending the first three principles to the social-political realm)
5. Fight against pollution and resource depletion.
6. Complexity, not complication
7. Local autonomy and decentralization (Naess, 1973, p. 99)

Naess explains that “all seven points must be considered together” (Naess, 1973, p. 97), though the first two points act as the foundation for everything else. As Devall and Sessions argue, “From this most basic insight or characteristic of deep ecological consciousness, Arne Naess has developed two *ultimate norms* or intuitions which are themselves not derivable from other principles or intuitions...self-realization and bio-centric equality” (Devall & Sessions, 1984, p. 66). It is to those two principles I now turn.

An Ecological Erasure of Self

The principle of “self-realization” is fundamental to the philosophy of deep ecology. It’s a principle that Naess ties to both ecological awareness and the metaphysical insights of Spinoza.⁶ As explained above, the centrality of self is a feature of the modern worldview exemplified by Descartes. This self-centered worldview is rooted in the ontology of independence whereby individual substances are the most basic elements of reality. As such, anthropocentrism (and androcentrism) are marks of

⁶ For a thoughtful critique of Naess’ ecological reading of Spinoza, see De Jonge (2004).

modern thought and practice. Deep ecologists (along with most environmental philosophers) seek to turn this paradigm on its head. As Devall and Sessions contend, “In contrast to the modern ‘self’ rooted in individualism (independence), the deep ecology sense of self involves ‘identification which goes beyond humanity to include the nonhuman world’” (Devall & Sessions, 1984, p. 67). Now, in the most benign sense, identification with the nonhuman world can be understood simply as solidarity with nature. It can be a way of describing a shift from humans conquering nature (modern worldview) to humans living in harmony with nature (ecological worldview). It is this type of identity extension I believe author Jeremy Lent has in mind when he argues that values are a function of identity. As Lent explains, when we identify simply as individuals, our values are expressed in terms of autonomy, hedonism, family orientation, exploitation of others, neoliberal politics, inherited wealth. When we identify as part of a community, our values are expressed in terms of solidarity, communal welfare, altruism, in-group favoritism, and parochialism. When we identify with an ideology, our values are expressed as religiosity, nationalism, political ideology, and fundamentalism. When we identify with all of humanity, we value human rights, justice, equity, dignity, and human flourishing. But if we extend our identity to all life, our life-affirming values are reflected in a reverence for life, concern for a healthy planet, and natural flourishing (Lent, 2020). This sort of identification with nature allows for true interrelation. It is for this reason that environmental philosopher Freya Matthews describes deep ecology as initially rooted in a relational ontology of interdependence (Matthews, 2001, p. 219). Identifying with a wider community of life does not mean that we cease to identify as individuals. Rather, to be an individual is understood as being an individual-in-community. In so far as this is the kind of identification with nature deep ecologists have in mind, it is echoed by Alfred North Whitehead’s philosophy of organism—an elaborate relational ontology of interdependence.⁷

Yet some deep ecologists seem to be claiming something more radical. As Devall and Sessions assert, “There are no boundaries and everything is interrelated” (Devall & Sessions, 1984, p. 68). This elimination of

⁷For an example of this see, Cobb (2007b).

boundaries is likely the result of a particular reading of Spinoza's monism, by which there is only one substance—God/Nature. As Spinoza declares, “Whatever is, is in God, and without God nothing can be or be conceived... Individual things are nothing but modifications of the attributes of God, or modes by which the attributes of God are expressed in a fixed and definite manner” (Spinoza, 1999, prop. 15, cor. 25). The elimination of boundaries is effectively the loss of individual identity for the sake of identifying with the whole. As such, the elimination of boundaries is not a move toward interrelation, but monistic identification that erases diversity. Boundaries emerge from difference, and difference is necessary for interrelation. Without boundaries, there is nothing “inter” about the relating. Whereas interrelation entails unity-in-difference, reductive identification is uniformity-without-difference. Such monism reduces individuality to pure illusion.

A sophisticated dealing with this dilemma is provided by Indian philosopher Śāṅkarācārya. Śāṅkarā, like deep ecologists via Spinoza, sought a way to affirm the unity of all things by overcoming the illusion of separateness. To do this he established a three-tiered cosmological system, distinguishing between (1) reality, (2) appearance, and (3) unreality. Reality is that which cannot be subrated (falsified and replaced) by any other experience. Appearance is that which can be subrated by other experiences, and therefore never ultimately real. While unreality is that which neither can, nor cannot, be subrated by other experiences.⁸ Accordingly, the only unsubratable reality is that in which subject/object distinctions are obliterated (Deutsch, 1969, p. 9). When Devall and Sessions talk about how there are “no boundaries,” it seems this is the sort of unification they have in mind. Humans are no different from nature because there is only one substance—whether we call it God, Brahman, or Nature. How then do we explain our experience of differentiation (our experience of boundaries)? Śāṅkarā explains this through the level of appearance. This is the level of the material world and our experience of multiplicity. It is at this level that we experience boundaries—where subjects and objects remain distinct. But, as Śāṅkarā explains, this

⁸ Subration (or Sublation) is the cognitive process by which a given thesis is replaced by a new thesis, in the mind of the knower.

appearance can never be ultimately real. Such appearances are sublated when we realize that our true selves are identical to the one substance. As Elliott Deutsch explains, “That which is One cannot in reality become Many, it can only appear to be Many—and this through superimposition grounded in our ignorance” (Deutsch, 1969, p. 40). According to Spinoza, the world of multiplicity is nothing but manifestations of the attributes of God/Nature. And as Naess writes, “The realization of union with the whole Nature is made through the understanding of the particular things as a manifold of expressions or manifestations of Nature (God). But Nature or God is nothing apart from the manifestations” (Naess, 1977b, p. 50). Therefore, a critical reading of early deep ecology literature may suggest a reductionistic monism whereby the individual is subsumed by the whole of Nature and multiplicity is an illusory manifestation of that singular reality. Rather than extending subjectivity to the more-than-human world, deep ecology unintentionally strips subjectivity from all except God—which is all there is.

The monism of deep ecology is also expressed in the principle of self-realization. Essentially, self-realization is an awakening to the truth of our existence—to realize that I am not different from Nature. Since there is only one, eternal, indivisible substance, namely Nature/God, and since we humans are mere manifestations of this one substance, self-realization in deep ecology is fundamentally about becoming aware of our identity with Nature.⁹ As Naess says, “. . .the self-realization we experience when we identify with the universe is heightened by an increase in the number of ways in which individuals, societies, and even species and life forms realize themselves. The greater the diversity, then, the greater the self-realization” (in Devall & Sessions, 1984, p. 76). Yet, if we truly identify with the universe, the diversity that Naess speaks so highly of is merely sham diversity—an illusion to be sublated by the monistic realization of ultimate identity beyond all subject/object distinctions (beyond all boundaries). Self-realization functions in deep ecology as a way to overcome the mechanistic anthropocentrism of modernity. By identifying as

⁹This is also paralleled by Śaṅkarā's attainment of liberation (*mokṣa*) in Advaita Vedānta, whereby one is liberated through realization of our identification with Brahman. The fundamental insight of the Upanishads, thou art that (*tat tvam asi*) is the recognition that Atman (self) is Brahman.

one with Nature, there is a great leveling—a breaking down of the subject/object dichotomy and anthropocentric hierarchy. Through the principle of self-realization, deep ecology dismantles the mechanistic narrative that objectifies the natural world and elevates human subjects above all else.

While an alternative to mechanism is essential, I believe the monistic metaphysics adopted by deep ecologists introduces unwanted complications. We need boundaries. Boundaries help to differentiate between “this” and “that.” At the conceptual level, boundaries are required for meaningful thought. At the physical level, boundaries provide the separation needed to distinguish between different objects. At the temporal level, boundaries allow distinction between one moment and the next. A world without boundaries is a world without differentiation, and a world without differentiation is unintelligible. Not only so, the dissolution of boundaries runs counter to our experience of a world of diversity. Real diversity is crucial for the flourishing of life. If the goal of deep ecology is unity rather than uniformity, harmony rather than unison, and diversity rather than sameness, then deep ecology needs a middle way between dualism and monism. Whitehead’s relational ontology of interdependence can provide such a foundation.

A Universe of Subjects (and Objects)

As Thomas Berry and Brian Swimme assert, “the universe is a communion of subjects rather than a collection of objects...Existence itself is derived from and sustained by this intimacy of each being with every other being of the universe” (Swimme & Berry, 1994, p. 243). This general perspective is affirmed by deep ecologists and process philosophers alike. It represents a radical shift from a mechanistic paradigm (the world as a collection of dead objects) to an ecological paradigm (the world as a communion of living subjects). As Whitehead declares, “apart from the experience of subjects there is nothing, nothing, nothing, bare nothingness” (Whitehead, 1979, p. 167).

Subjects are contrasted with objects. Subjects alone have agency and intrinsic value. As John Cobb explains, “it would be meaningless to speak

of a value apart from a subject. It is subjects that are intrinsically valuable. Only a subject can be something in and for itself. An object, qua object, exists for something else. It can have only instrumental value, and that value must be instrumental to the value of some subject. The question, then, is where subjectivity is to be found” (Cobb, 2002). According to the modern worldview, subjectivity requires minds/souls. Therefore, subjectivity is attributed to humans alone. The more-than-human world is relegated to the status of mere objects that exist for human subjects. As such, nature has only instrumental (not intrinsic) value. But we live in a universe of subjects. By extending subjectivity to all living entities, process philosophers advocate for the intrinsic value of all experiencing subjects.

Like process philosophers, deep ecologists also argue that “nonhuman organisms and environments have intrinsic value, and not merely value as objects for humans to use, study, and appreciate” (Mickey et al., 2017, p. 6). Both arrive at the same ecological conclusion, but through very different philosophical means. From the process perspective, extending subjectivity to all living entities does not entail the monistic dissolution of subject/object categories. In fact, in process thought, each subject is also an object. Whereas the modern worldview portrays subjects and objects as different types of being, process philosophy reframes them as distinct ways of relating. The world is not comprised of two types of things, some objects and some subjects. Each of us functions as both subjects and objects. This position is made possible by the fact that process philosophy replaces the substance ontology of modernity with an event ontology—a move that deep ecologists do not typically make.

As Alfred North Whitehead states, the “final real things of which the world is made up” are “drops of experience, complex and interdependent” (Whitehead, 1979, p. 27). Accordingly, the world is not constituted by independent enduring substances (modern worldview), but interdependent moments of experience called “actual occasions” (process worldview). Moments of experience, not enduring substances, are the fundamental building blocks of reality. As John Cobb explains,

Whitehead’s judgment was that the actual entities that make up the world are all ‘actual occasions.’ That means that they are happenings, occurrences,

or events rather than substantial entities that endure unchanged through time...an occasion of human experience is not to be understood as a person experiencing. *There is no person beneath or behind the experiencing.* The act of taking the past into account and constituting itself with a view to the future *is* the actual occasion. The person is constituted as a long series of such occasions growing out of one another and out of the body. (Cobb, 2008, pp. 16, 19)

To ground ontology in experience has a considerable impact on subject-object thinking. Experience entails subjectivity. A world made up of experience is a world fundamentally comprised of subjects. The experiencing subject is the center of values felt. As Philip Rose argues, “Because of the relational nature of his metaphysical scheme one can say, in effect, that for Whitehead ‘to be’ is *to be the source of values given and the center of values felt*” (Rose, 2001, p. 3, emphasis added). When we are the center of values felt, we are experiencing subjects. But when we are the source of values given to some other experiencing subject, we serve as objective datum to that subject’s value experience.

To be is to experience. What we experience we feel. What we feel are values. The source of these values are objects (or more accurately, past subjects).¹⁰ Each moment of subjectivity is informed by previous moments of subjectivity. In this way, process philosophers can say that everything is interrelated, since the whole history of the world is (in a sense) alive in each particular moment of subjective immediacy. Within this Whiteheadian framework, the ecological self is not realized by identifying with the universe to the exclusion of particularity. Rather, the process ontology of interdependence reveals a unity-in-difference, whereby each subject retains her subjectivity through relation. Rather than erasing the individual person, process philosophy reveals the person to be a society—a person-in-community (Cobb 2007a).

What makes process cosmology an ecological worldview is not the elimination of subject/object distinctions, but the extension of

¹⁰ Though technically, Whitehead further distinguishes types of prehension (internally relating) to extend not only to past subjects, but also ideas. He calls these “conceptual feelings,” distinct from the physical feelings of past actual occasions. See Cobb (2008) for a somewhat accessible introduction to these distinctions.

subjectivity to all actual occasions (not just human ones). In this sense, dissolving the boundaries that would allow for subject/object distinctions is an unnecessary move for deep ecologists who merely wish to embrace the intrinsic worth of all life. According to process thought, all existing entities are experiencing entities. And all experiencing entities are subjects. The oscillation between subject and object relations is captured by David Ray Griffin who writes,

...all enduring individuals are serially ordered societies of momentary ‘occasions of experience.’ This doctrine, according to which enduring individuals, such as molecules and minds, are analyzable into momentary events, is fundamental to process philosophy’s reconciliation of final and efficient causation and, therefore, of freedom and determinism. The salient point is that each enduring individual, such as a living cell or a human mind, oscillates between two modes of existence: the *subjective* mode, in which it exerts final causation or self-determination, and the *objective* mode, in which it exerts efficient causation upon subsequent events. (Griffin, 2001, p. 6)

Subjectivity is something that happens in the active moment of experiencing. Consider a wave in the ocean. There is a particular moment when that wave reaches its peak. The same is true for all of us. At the peak of concrescence (when what was possible, becomes actual) that actual entity enjoys subjective immediacy. We are, in that moment, subjects at the center of an experience that is intrinsically valuable to us. But this subjectivity is fleeting. Like the wave crashing to the shore and receding back into the ocean, our moments of subjectivity perpetually perish—each moment of immediacy folding back into the ocean of the past. The ecological self is not an enduring subject, as portrayed by substance thinking. The ecological self is a temporally ordered interdependent web of relations. As Cobb articulates,

Each actual occasion comes into being against the background of the whole past of the world. That past is composed of innumerable actual occasions that have had their moment of subjective immediacy...and have “perished” (PR 126). As perished, they have not become simply nothing. Rather, they have their own mode of being, which Whitehead calls “objective immortality” (PR 89, 94). That means that they are effective as objects to

be prehended by new occasions. They are the efficient causes explaining why the new occasions embody the characteristics they do in fact have. (Cobb, 2007b)

These relations aren't simply external, but internal, since we are actually constituted by our relations. Like the swelling of a wave preparing to peak, in the process of concrescence (the process of becoming a concrete actual occasion) we internalize the past through something Whitehead calls "prehension" (a means of internally relating). In doing so, past occasions play a causal role in the internal character of a contemporary occasion. This focus on internal relations is something process philosophers and deep ecologists share. As Arne Naess contends, "Intimate interconnectedness in the sense of internal rather than external relations characterizes ecological ontology" (Naess, 1977b, p. 47).

According to process-relational cosmology in the tradition of Whitehead, the real actual things that endure are not independent substances but interdependent societies. David Ray Griffin explains Whitehead's worldview as follows:

For Whitehead, however, the most fully actual things are not enduring individuals but momentary events. He calls them "actual occasions" or "occasions of experience." These occasions have a more-or-less brief existence, lasting anywhere from less than a billionth of a second, in the case of electronic or photonic occasions, to perhaps a tenth of a second, in the case of an occasion of human experience. This doctrine means that things that endure, such as electrons, molecules, and minds, already exemplify a type of social existence. Whitehead, accordingly, calls them "societies." (Griffin, 1994, p. 196)

As Whitehead argues, "The real actual things that endure are all societies. They are not actual occasions. It is a mistake...to confuse societies with the completely real things which are the actual occasions" (Whitehead, 1967, p. 262). According to Griffin, Whitehead's worldview entails that, "Enduring individuals are "temporally ordered societies": the social relations are purely temporal, because only one member exists at a time. Any given occasion of experience belongs to that temporal society that consists of all those members that came before it and all those that will come

after it. This doctrine makes social relations fundamental, while making “enduring substances” derivative” (Griffin, 1994, p. 196).

So, where is subjectivity to be found? In that brief moment of existence. This is the moment where an actual occasion (an occasion of experience) experiences subjective immediacy. But once the moment passes, the occasion perishes and, in that transition, goes from being the center of values felt (as an experiencing subject) to the source of values given, becoming objective datum for the next occasion of experience. What endures from moment to moment is not the experiencing subject itself. What endures is a network, a society, a collection of moments of experience that are temporally ordered and interrelated. Process philosophy extends this model of enduring individuals to all living things. Reality is, after all, drops of experiences all the way down. By extending experience and subjectivity to all living things, process philosophy adopts a panexperientialist orientation toward nature.¹¹ Since intrinsic value is a product of subjectivity, and subjectivity is extended to all life, intrinsic value is also extended to all life. David Ray Griffin contrasts Whitehead’s view of nature from Cartesian dualism, contending that “Descartes’s dualism is based on the assumption that the ultimate units of the world are tiny things that are more like stones than like squirrels. Whitehead avoids this dualism by making the opposite assumption, that molecules are more analogous to squirrels and humans than to stones. Through this analogy, what we call nature is viewed as permeated by value...” (Griffin, 1994, pp. 195–196). The process articulation of a universe of subjects is fundamentally an ecological worldview. This brings me to the second core principle of deep ecology, biocentric equality.

¹¹ Panexperientialism was coined by David Ray Griffin in contrast to panpsychism. Griffin believes that experience is more fundamental than consciousness. Only the most complex creatures enjoy conscious experiences. Simple but animate creatures and inanimate objects do not experience consciousness. The capacity for consciousness emerged in evolutionary history smoothly from less complex species with mentality but not consciousness (i.e. “smooth emergence”). Complex creatures capable of conscious experience represent a minuscule percentage of entities known to exist, and conscious experience represents a minuscule percentage of the experiences of conscious beings. For more on this, see Oord and Schwartz (2020).

Beyond Biocentric Equality

The notion of biocentric equality (or biospheric egalitarianism) is the view that “all organisms and entities in the ecosphere, are parts of the interrelated whole, are equal in intrinsic worth” (Devall & Sessions, 1984, p. 67). The egalitarian orientation of deep ecology is often demonstrated by two contrasting images (Fig. 6.1):

The hierarchical pyramid (left) represents the modern paradigm. The non-hierarchical circle (right) represents the deep ecology paradigm. Deep ecology’s rejection of hierarchical frames is also grounded in Spinoza’s metaphysics. As Naess argues, “[For Spinoza] all particular things are expressions of God; through all of them God acts. There is no hierarchy. There is no purpose, no final causes, such that one can say that the ‘lower’ exist for the sake of the ‘higher’” (Naess, 1975, pp. 118–119; 1977). Capra and Luisi describe the deep ecology paradigm similarly, calling hierarchical schemes a human projection. Like Naess, à la Spinoza, they argue that “In nature, there is no ‘above’ or ‘below,’ and there are no hierarchies. There are only networks nesting within other networks” (Capra & Luisi, 2014, p. 68).

The deep ecology rejection of hierarchy is not born of experience. In fact, the power dynamics that permeate all life suggest that hierarchies are functionally natural. Initially, Arne Naess was careful to qualify his notion of biospheric egalitarianism, adding the clause “in principle” to the egalitarian commitment in his portrayal of deep ecology. As Naess admits,

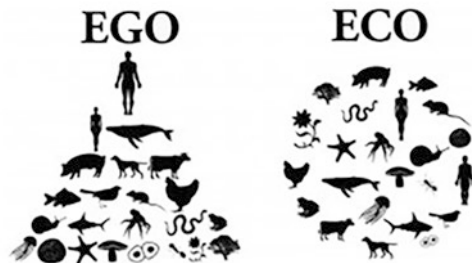


Fig. 6.1 Ego vs. Eco orientations toward nature

“any realistic praxis necessitates some killing, exploitation, and suppression” (Naess, 1973, p. 95). This is not unlike Whitehead’s acknowledgment that “all societies require interplay with their environment; and in the case of living societies this interplay takes the form of robbery...life is robbery. It is at this point that with life morals become acute. The robber requires justification” (Whitehead, 1979, p. 105). But why adhere to an impractical egalitarianism? Perhaps Naess saw no other viable option. Whitehead, however, provides a coherent alternative.

The problem that deep ecologists have with hierarchy isn’t hierarchy as such, it’s the devaluing of the natural world that results in an anthropocentric scheme that puts humans (and men) on the top of the pyramid. Process philosophers share in this critique of the modern paradigm. But rather than advocating for an impractical equalization, Whiteheadians suggest a more nuanced middle ground.

Consider the human body. We shed skin cells, we lose hair, and for all intents and purposes remain no worse for wear. I have a brother who lost a finger, a cousin who lost an arm, and two dogs that lost...well, something else. All remain alive and well today. People donate kidneys, get wisdom teeth pulled, and continue to live long healthy lives. Yet, there are some organs we just can’t live without. Hearts and brains are examples of critical parts of the body that play such central functions, without them we would die. While every part of the body is important (i.e., has value) the relative importance for human health is certainly not equal. Whitehead similarly argues for a gradation of value. As John Cobb explains,

Among those who attribute value to all things, some insist that all things have equal value or, at least, that we have no business trying to make distinctions. Whitehead does not agree. He speaks of gradations of value.... Can we as human beings rightly judge that human experience is of greater value than that of sardines? Whitehead thinks we can. Obviously, we cannot prove such things, but it is clear that our brains are designed to receive far more messages from various parts of the body than are those of simple fish. Our brains are also designed to process these data in more complex ways. We know that we have very complex feelings and thoughts. There is no evidence that anything of this sort occurs in sardines. (Cobb, 2002)

While Descartes elevates humanity above the rest of nature as fundamentally different-in-kind, Whitehead speaks only of difference-in-degree. It's not that humans are subjects and non-humans are objects. It's not that humans possess intrinsic value and the rest of nature only instrumental value. On the contrary, Whitehead argues that "Everything has some value for itself....By reason of this character, constituting reality, the conception of morals arises. We have no right to deface the value experience which is the very essence of the universe" (Whitehead, 1968, p. 110). What Whitehead resists, however, is the impractical commitment to unfounded egalitarianism. His argument stems from his metaphysics of experience. Since reality is fundamentally comprised of interrelated experiences (rather than independent substances), and since all experiences are value experiences, value permeates the fundamental nature of reality. This is why Griffin describes the world as a "throbbing multiplicity of energetic, passionate, appetitive events striving for, and realizing, values" (Griffin, 1994, p. 198). But our experiences of value vary in intensity. Some events are felt much more acutely than others. Getting hit on the head with a feather is an experience. Getting hit on the head with an anvil is an experience that will certainly have a greater degree of influence on how you feel the next morning. Just as the relative influence of past events vary, so does the intensity of felt values. From a Whiteheadian perspective, the greater the complexity of an entity, the higher the capacity for experiencing value more intensely.

George Sessions portrays the Whiteheadian position as asserting that because "humans have the greatest degree and highest quality of sentience, or consciousness, hence humans have the highest value and the most rights in Nature....This attempt to apply Whiteheadian panpsychism, while positing various degrees of intrinsic value to the rest of Nature, nonetheless merely reinforces existing Western anthropocentrism, and thus fails to meet the deep ecology norm of 'ecological egalitarianism in principle'" (Sessions, 1984, p. 236). While he's right to say that Whiteheadians reject ecological egalitarianism, this doesn't reinforce anthropocentrism. Whiteheadians agree with Spiderman's Uncle Ben, "With great power comes great responsibility." The result of Whitehead's gradation of value is an increased moral responsibility. The ecological ethics of process philosophy does not demand that lions stop eating gazelles.

It does, however, require we humans to justify our robbery of life. As Leeman McHenry explains, “It is also clear that human beings are not the source of all value; the nonhuman world is not merely of instrumental value to the human world, but human beings are ‘higher’ in moral consideration in virtue of the intensity of experience in which they are capable. This is certainly not the anthropocentrism of Immanuel Kant, according to which only rational agents gain membership in the moral community, but neither is it the equalitarianism of all sentient life espoused by deep ecologists. In this regard, Whitehead’s position is a philosophy of the middle way” (McHenry, 2019, p. 247).

Value does not occur in a vacuum. Value is always a relation. The Whiteheadian gradation of value, rooted in degrees of complexity, does not mean that the most complex entities are the most valuable. It simply means that the most complex entities are capable of experiencing intrinsic value (value for oneself) more intensely. This does not mean that humans are more valuable to the flourishing of the cosmos. In fact, just the opposite appears to be the case. As David Ray Griffin argues, when we compare intrinsic value with ecological value there appears to be an inverse relationship. He writes,

That is, those species whose (individual) members have the *least intrinsic* value, such as bacteria, worms, trees, and the plankton, have the *greatest ecological* value: without them, the whole ecosystem would collapse. By contrast, those species whose members have the *greatest intrinsic* value (meaning the richest experience and thereby the most value for themselves), such as whales, dolphins, and primates, have the *least ecological* value. In the case of human primates, in fact, the ecological value is negative: most of the other forms of life would be better off, and the ecosystem as a whole would not be threatened, if we did not exist. In any case, assuming that this inverse correlation generally obtains throughout the ecological pyramid, we can say that all forms of life have, roughly, the same inherent value, which is the distinctive point of egalitarian deep ecology. (Griffin, 1994, pp. 202–203)

The inverse relationship between ecological and intrinsic value from a Whiteheadian framework actually reinforces the underlying

commitment of deep ecology: that all creatures have relatively equal value.¹² Whereas intrinsic value refers to value in and for oneself, ecological value refers to the relative value for the entire ecosystem. Plankton do not have to experience the same intensity of intrinsic value as a human to be relatively equal in overall value. If we truly thought that blades of grass experienced value to the same degree that humans do, then mowing the lawn would be a most atrocious act of genocide. The panexperientialism of process philosophy locates intrinsic value in all living things. And Griffin's inversion of intrinsic and ecological value entails a relative equilibrium of value for all life. Therefore, process metaphysics can provide a comparable environmental ethic to that of deep ecology, without an egalitarianism "in principle" that is impossible in practice.

A Deeper Ecology

Deep ecologists and process philosophers agree on far more than not. In fact, some deep ecologists might identify as Whiteheadian process thinkers, and vice versa. This is especially true for later expressions of deep ecology. In Freya Matthew's account of the historical development of deep ecology, she explains how the metaphysical foundations of deep ecology were largely abandoned in the 1980s as deep ecology transitioned from a philosophy of relational identity and metaphysical egalitarianism to a popular movement committed to generic non-anthropocentrism (Matthews, 2001). Rather than an ecosophy grounded in Spinozan metaphysics, the popularized deep ecology platform was built on the generic principle of the intrinsic value of nature. As Matthews explains,

...a new set of principles was drawn up by Naess and George Sessions in 1984, and published in a book entitled *Deep Ecology: Living as if Nature*

¹² Griffin points out that in deep ecology literature, the terms "intrinsic value" and "inherent value" are used more or less interchangeably. He suggests that intrinsic value should be reserved for the kind of value experienced by an individual in the moment of subjective immediacy, and that inherent value could refer more broadly to relative value of a society of occasions, or even a species. In this way, the inverse relation between intrinsic and ecological value can yield a relatively equal inherent value.

Mattered, co-authored by Sessions and Bill Devall. In this new set of principles—now described as the platform of the deep ecology movement—all reference to a metaphysic of interconnectedness and to an ethos of biocentric egalitarianism was dropped, and these original philosophical premises of deep ecology were replaced with a statement of the ‘intrinsic value’ of the non-human world.” (Matthews, 2001, p. 222)

Affirming the intrinsic value of the non-human world is indeed an important approach for developing a deep ecology. But grounding intrinsic value in a comprehensive metaphysical scheme would yield a far deeper ecology. This is what process philosophers can offer the deep ecology movement.

According to Whitehead, “That ‘all things flow’ is ... one ultimate generalization around which we must weave our philosophical system” (Whitehead, 1979, p. 317). It is this insight for which process philosophy is so named. While the principle of process is not directly reflected in the deep ecology platform, I expect the omission is not a sign of rejection. After all, the deep ecology movement favors a shift away from the “dead matter” model of mechanistic modernism toward a “living Earth” framework. And to live is to be characterized by an organic dynamism that requires process. But process philosophy is also described as a relational philosophy (Mesle, 2008). The relational aspect of process-relational metaphysics is adequately described by Freya Mathews’ portrayal of deep ecology when she writes, “the identity of each individual, at whatever ontological level, is not logically independent of the rest of reality, but is a function of the relations of the individual in question with other individuals. Reality is thus viewed as fundamentally relational (ecological), rather than as aggregative, in its structure” (Matthews, 2001, p. 218). As Mathew’s asserts, “‘Deep ecology’ could thus be read as signifying that our world was ecological, or relational, to its ontological depths, and that our relationship with nature had to be reinterpreted in light of this” (Matthews, 2001, p. 219).

Both deep ecologists and process philosophers share in their criticisms against the mechanistic modern paradigm. Both criticize humanity’s alienation from, and objectification of, nature. Both deep ecologists and process philosophers affirm an organic view of life, the interconnection of

everything, and the need for a comprehensive paradigm shift grounded in a life-affirming worldview. As Leeman McHenry argues, “Deep ecologists and Whitehead’s philosophy of organism share the rejection of substance dualism. Instead of treating mind and matter as two irreducible and radically different kinds, subjectivity is omnipresent in nature. Deep ecologists and Whitehead also affirm the interdependence in nature rather than seeing in nature separation and independence” (McHenry, 2019, pp. 246–247).

No doubt, Descartes’ mechanistic dualism is an inadequate basis for an ecological worldview. An alternative paradigm is required. Yet Spinoza’s monism doesn’t seem up to the task. The identification of self with Nature undermines our experience of real diversity as well as the ecological principles of symbiosis and interdependence. If the goal of deep ecology is unity rather than uniformity, harmony rather than unison, and diversity rather than sameness, then deep ecology needs a middle way between dualism and monism.

An ecological worldview is a relational worldview. Arguably no philosophy is more relational than Whitehead’s process-relational cosmology. When experience (rather than substance) is understood to be the final real things of which the world is made, value permeates the cosmos. Whitehead’s cosmology extends subjectivity to all. Extending intrinsic value to the more-than-human world is a hallmark of deep ecology, and Whitehead’s universe of subjects can help sow the seeds of a deeper ecology.

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