Rewording the World: Poststructuralism, deconstruction and the 'real' in environmental education

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Abstract

In this paper we question the desirability of the near-schism between (on the one hand) environmental philosophers, advocates and educators who appear to be antagonistic to, and/or dismissive of, poststructuralism and deconstruction and (on the other hand) those that find these philosophies and methodologies generative in their inquiries. We examine the claims of writers who assert that poststructuralism and deconstruction are anti-realist positions and suggest alternative ways of thinking about these matters that might enable environmental educators who currently take opposing positions to work in more commensurable ways.

Poststructuralism, Deconstruction and the 'Real'

Many environmental philosophers, advocates and educators appear to be antagonistic to, and/or dismissive of, poststructuralism and deconstruction (or anything they associate with postmodernism). Some are downright vicious, including Ariel Salleh (1997) who sees postmodernism as a 'castrated academic philosophy' (p.xi). Others, like Carolyn Merchant (2003), are more politely suspicious: 'Although deconstruction is an important analytical tool, I argue that realism... is an important counter, or other, to deconstruction's focus on language' (p.201). Somewhere between these positions, Charlene Spretnak (1999) offers the following caricature of 'post' scholarship:

> The critical orientation known as 'deconstructive postmodernism,' 'constructionism', or 'constructivism' asserts that there is nothing but 'social construction' (of concepts such as language, knowledge systems, and culture) in human experience... The philosophical core of deconstructive postmodernism is the rejection of any sense of the 'Real' (pp.64–65).

Spretnak (1999) discusses 'postmodern developments' in academia during the 1980s and contrasts what she calls 'the deconstructionist variety (also called "constructionism", "constructivism", and "poststructuralism")' with another perspective that (she asserts) 'lacks a widely accepted umbrella term, but is sometimes called "constructive",

"reconstructive", or "restructive" postmodernism' (p.223). In these passages, Spretnak uses at least four rhetorical strategies that distort the views of those she discredits.

Firstly, by asserting that the 'deconstructionist' position is 'also called' 'constructionism', 'constructivism' and 'poststructuralism', she infers that all three of these terms are synonymous with each other and with 'deconstruction'. But we have not been able to find any scholars who identify themselves with these positions and agree that they could be conflated to this extent. The positions that these terms signify have very clear affinities with one another but they are certainly not coterminous.[1] Secondly, she compounds the problem of equating these different positions with one another by applying a single homogenising label to them all. But in our experience the critical orientation that she calls 'deconstructive postmodernism' is not widely 'known' by this name among a majority of scholars who identify themselves with poststructuralism and/or deconstruction. Thirdly, by setting up 'constructive' and 'reconstructive' postmodernism in opposition to poststructuralism and deconstruction she implies that the latter positions are not 'constructive'. The invented term 'restructive' clearly is intended to suggest that deconstruction is destructive. Fourthly, her insinuation that poststructuralism and deconstruction rejects any sense of the 'Real' distorts the positions of many philosophers – structuralists and poststructuralists, constructionists and deconstructionists – who share the view that the objects and meanings that constitute our existential 'reality' are social constructions. We do not interpret these philosophers to be questioning *belief* in the real but *confidence in its representation*. As Richard Rorty (1979) puts it, 'to deny the power to 'describe' reality is not to deny reality' (p.375) and 'the world is out there, but descriptions of the world are not' (Rorty, 1989:5). Representations of the world are products, artefacts or effects of particular sets of historical and linguistic practices.

Our concern is not so much that well-intentioned environmental philosophers have 'got it wrong' when it comes to poststructuralism and deconstruction, although we believe that many of them misrepresent and/or oversimplify the issues. Rather, we worry about the effects of these rhetorical positions circulating within the discourses of environmental education and environmental education research. We also worry that interminable arguments about the absence and/or presence of the 'real' in poststructuralism and deconstruction distract us from more important concerns.

Risks of over-simplified rhetorical positions

If we merely 'counter' anti-realism with realism, as Merchant (2003) suggests, we risk becoming participants in dubious dialectics between naïve realism and equally naïve constructionism/ constructivism. We see traces of such dialectics in Merchant's (2003) assertion that: 'The real physical world and the constructed mental world... exist in dialectical relation to each other. Reality and narrative... interact with each other' (p.201). The word 'interact' infers that different components act on/with each other, like billiard balls. We prefer to imagine that reality and narrative are mutually constitutive (a concept to which we return below), because *constitution* (as both noun and verb) does not necessarily deny the singularity of *constituents*.[2]

Merchant's (2003) desire to 'counter' deconstruction with reality tacitly assumes that deconstruction is non-realist. We argue that the majority of 'post' scholars have *never denied* the

existence of a reality 'out there'. Debating this point might have hindered progress on more significant issues, such as how these authors' theorising of the real/constructed interrelationship as dialectical may have been underdeveloped. Like Merchant, these authors *agree* that there is a material reality but, also like Merchant, they merely *add it back* to constructed (or deconstructed) representations. As Lois McNay (2000) writes of Foucault's work:

> The lack of detail in Foucault's consideration of how the dialectic of freedom and constraint is realized in subject formation results, ultimately, in his thought vacillating between the moments of determinism and voluntarism...While Foucault's work does not foreclose an account of agency in so stark a manner as the Lacanian reification of the phallocentric order, it is seriously limited by its conceptual underdevelopment (p.9).

McNay is talking about a similar dialectic to Merchant. However, in talking about freedom and constraint, she has taken a step further in the argument (related to Salleh's assertion that postmodernism is castrated). Specifically she is referring to the way that naïve constructivism prevents agency by implying an antirealist voluntarism,[3] and the way that naïve realism also prevents (individual) agency by implying determinism.[4] To avoid oscillating between determinism and voluntarism, we need to ask *how* material reality conceptually fits into our theorising – a question to which we will return.

Finally, Merchant's suggestion that we 'counter' deconstruction with reality implies an acceptance of what Roy Bhaskar (1993) calls a 'performance contradiction': when we are being realist, we are being unfaithful to deconstruction; when we are being deconstructionists (her anti-realist version), we are being unfaithful to realism. This performance contradiction can lead to a questionable pragmatics. For example, it might suit us to be naively 'real women' if we are fighting for gender-targeted rights such as long, paid maternity leave, but if we are arguing against social practices that discriminate on the basis of gender it might suit us better to change tactics and claim that distinctions between men and women are 'socially constructed' rather than 'real'. We will argue for the defensibility of one position or the other depending on what is 'good for society' or 'good for the cause'[5] (Denise Riley, quoted in Lather, 1991:29–30).

Sandra Harding's call for 'politically adequate research and scholarship' (quoted in Haack, 1998:97) exemplifies this pragmatic approach to epistemology (what is true is what is good for society), but the difficulty remains: *who decides what is good for society?* Replacing the absolute of positivism with the fideistic absolute of 'what is good for society' seems dubious to us, not least because we recognise this replacement in the philosophies of some of the world's most notorious dictators. For example, Adolf Hitler asserted: 'There is no such thing as truth. Science is a social phenomenon and like every other social phenomenon is limited by the benefit or injury it confers on the community' (quoted in Sayer, 2000:47). Merchant deploys her interpretation of a reality/narrative dialectic to argue for social practices that we agree might improve environmental education, such as pursuing a partnership ethic and 'listening' to non-humans. However, in different hands, this dialectic could be used in a sinister, Machiavellian way.[6]

Conceptualising a narrative/reality interface

Figure 1 summarises three different approaches to conceptualising and representing a narrative/reality dichotomy (adapted from Bhaskar, 1989:77). The relationships depicted in Figure 1 have what Gilles Deleuze and Félix Guattari (1987) might call an *arborescent* logic. That is, Western knowledge is often represented as treelike (as in Linnaean taxonomies), with hierarchically articulated branches of a central stem or trunk rooted in firm foundations. Thus, in Figure 1, we could replace the arrow under naïve realism with a tree in which human narratives are rooted in 'reality'. Naïve constructivism could be represented as a tree in which nature and society are rooted in human narratives. Merchant's dialectic would thus be an orchard or grove of trees of both types, growing together in a mutualistic (or commensal) relationship. We could extend this metaphor by noting that naïve realism and naïve constructivism cannot 'survive' by themselves, because they are so easily understood as untenable. However, as mutuals or commensals they thrive because they apparently make up for their shortfalls by the addition of the other.

Figure 1. Three approaches to conceptualising and representing a narrative/reality dichotomy (after Bhaskar, 1989:77)

Naïve realism	Naïve constructivism	Foucault's (and Merchant's) dialectic
Narrative (human individuals)	**Narrative (human individuals)**	**Narrative (human individuals)**
↑	↓	↓ ↑
Reality (nature/society)	**Reality (nature/society)**	**Reality (nature/society)**
Reification (determinism)	*Voluntarism (methodological individualism)*	*Oscillation between reification and voluntarism*
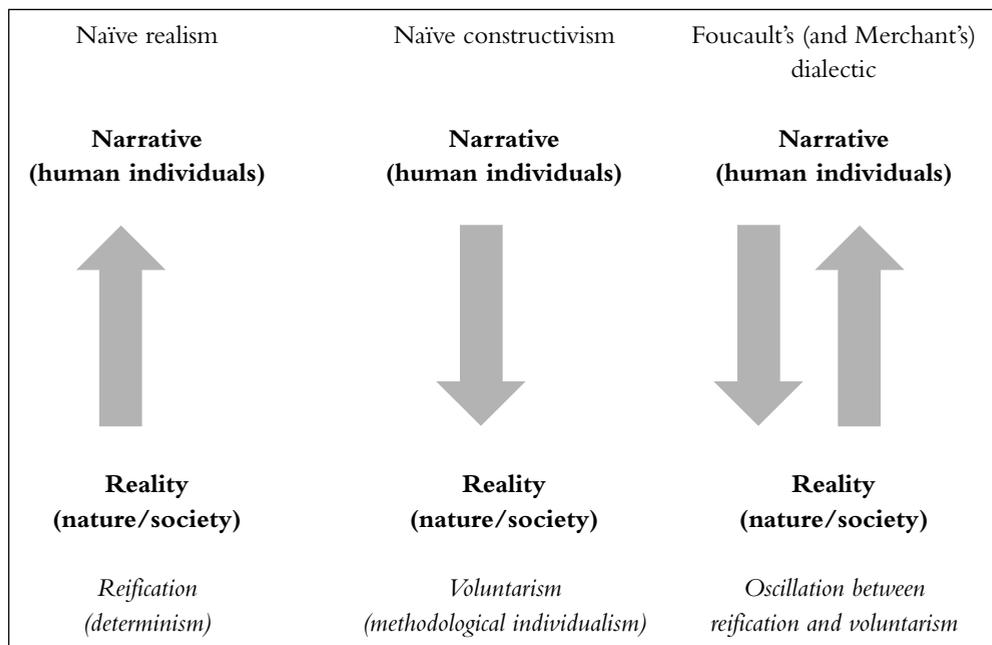
As an alternative to Merchant's 'dialectic', we suggest that it might be more defensible to understand reality (whether social reality or non-human, natural reality) and narrative as *mutually constitutive* (see Figure 2). To do this we abandon labels and arrows and treelike structures and imagine a multiplicity of realities and narratives mutually constituting themselves like a tangle of rhizomes.

Figure 2. Reality and narrative mutually constituted in a tangle of rhizomes (drawing by Warren Sellers)

Tangle of rhizomes
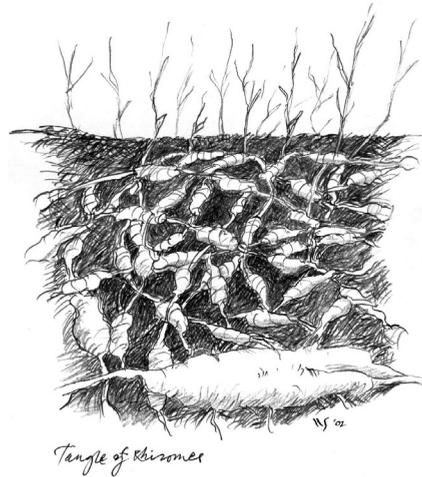
A mutually constitutive approach assumes that reality is 'stratified' (Star, 1991:30). This means that 'things' exist in a real sense but are neither the same as each other nor are they strongly separate, rather they are 'mutually' constituted, distinguishable but not strongly dichotomised. Despite its ontological realism, this approach also assumes epistemological relativism; how we come to know reality is fallible, always in process and dependent on who is looking and the spatio-temporal context (Bhaskar, 1993; 1989). Our stratified, realist ontology assumes a relational account of ontology: *relations precede ontology* (Bhaskar 1993; 1989; Sayer, 2000; Haraway, 1991; 1997; Bourdieu, 1998). A mutually constitutive approach discards the hitherto commonly held assumption that the social sciences require a different methodology from the natural sciences. The social sciences have tended to be associated with anti-realist methodologies[7] because it makes sense that narrative constructs what we mean by 'society' (i.e. there is no social reality beyond narrative), but it might be more difficult to see how narrative can construct all that we mean by 'nature' (a rock will still be there whether we call it a rock or not). Instead, we suggest the same basic methodology for both the social and natural sciences; society and humans mutually transform/reproduce each other, just as nature and humans mutually transform/reproduce each other. Nevertheless, we acknowledge that *how* they mutually constitute each other might be different, as might the techniques we choose to study them (Bhaskar, 1989:82–88).

Do Environmental Educators 'Need' Deconstruction?

Bruno Latour (2004) suggests that a critical analyst should be 'one for whom, if something is constructed, then it means it is fragile and thus in great need of care and caution' (p.246). Caution implies deliberation, an avoidance of rashness and precipitancy, of not judging things by first appearances, and of being alert to possible implications and alternatives. This caution is

evident in the work that Jacques Derrida (1972) calls 'deconstruction', which he insists should not be understood in a negative sense:

> Here and there I have used the word deconstruction, which has nothing to do with destruction. That is to say, it is simply a question of (and this is a necessity of criticism in the classical sense of the word) *being alert to the implications*, to the historical sedimentation of the language we use – and that is not destruction (p.231, our emphasis).

Deconstruction invites us to be suspicious of stipulative definitions and of attempts to claim that words and concepts have essential meanings. A deconstructive reader attends to suppressed tensions or conflicts within a text, and treats all 'natural' categories, essentialist oppositions and representational claims with suspicion. Environmental educators certainly need to be suspicious of 'natural' categories. Since the Earth Summit in Rio in 1991, the language of 'sustainable development' has become a language of power, global capitalism and government, and nature's 'laws' are often invoked as a basis for social and economic policy. Our generations of environmental educators tend to take a relatively benign view of ecopolitics and associate it with left leaning, socially critical thought and action. But during the century that preceded the rise of contemporary (Western) environmentalism in the 1970s, much ecological activism was distinctly right-wing, with many fascist groups and organisations exhorting the merits of nature conservation, small-scale living, energy efficiency, regulation of industry, and so on. For example, Anna Bramwell (1985; 1989) examines the relationship of green ideology to the Third Reich and to reactionary back-to-nature movements in Germany, Britain and North America, and finds that very similar arguments from 'natural' science were used to support nutritional purity and racial purity. The appeal to nature's 'laws' is particularly obvious among advocates of bioregionalism (see, e.g., Kirkpatrick Sale, 1985), an ideology that is championed by a number of environmental educators (e.g., C.A. Bowers, 1993; 1995; 2002; David Orr, 1992). Spretnak (1999) sees bioregions as viable alternatives to the modern nation-state:

> The land masses of Earth are organized into bioregions delineated by watersheds (drainage areas) of the river systems or other natural demarcations. Everyone lives in a bioregion and in the Earth's commons. Pollution and ecological degradation or breakdown occur in a bioregion or in the Earth's larger systems, not some vaguely theorized realm of 'externalities'. Nations inhabit, and evolve with, one or more bioregions... A new global system of coordination could begin with the realities of the Earth: Nation-states would be encouraged to redraw their internal regions to match the contours of their watersheds, as New Zealand has done, in order to help us recover from the modern error of thinking that we live on top of nature (pp.104–105).[8]

Although we see no categorical reason for *excluding* the invocation of nature as a ground for judgement, we remain deeply suspicious of arguments from the natural sciences being used to support social and cultural policies and practices. Descriptions of the physical world are not prescriptions for social life. As Andrew Ross (1994) writes, 'ideas that draw upon the authority

of nature nearly always have their origin in ideas about society' (p.15). Indeed, an extreme 'love' of that which is taken to be 'natural' may be dependent on an (unspoken but implied) opposition to that which is taken to be 'artifice' and, as Luc Ferry (1995) puts it, 'the hatred of *artifice… is also a hatred of humans as such*. For man [sic] is the anti-natural being par excellence' (p.xxviii).

Watersheds and landmasses do not delineate and organise themselves into bioregions; we do. Bioregionalism, in its current formulation, suggests that local 'laws' of nature should determine the social life of autonomous communities geared to a bounded biophysical economy. But there are no 'laws' in nature; humans make laws. We fear that bioregionalism might be another variant of biological determinism, and that the autonomous communities envisaged by bioregionalists might repeat the repressive histories of other such fundamentalist communities, with their parochialism, hostility to outsiders and persecution of minorities within them – indeed, the persecution of anyone who does not conform to their idea of what is 'natural'.

Deconstruction allows us to ask questions about how our words, among other things,[9] are transforming and reproducing our reality in ways that we might not perceive at a first reading. Deconstructing Spretnak's text, and finding the shadows of fascist ideology in her words, has helped us decide how to respond to her suggestions. We have little doubt that Spretnak had no intention of reproducing fascist ideology. As we word and reword our worlds, deconstruction is indispensable to our project, not only in helping us think about the words of others, but also in helping us self-reflexively assess our own words.

An alternative to Spretnak's bioregionalism: mutually constitutive bioregions and humans
Being non-naïve realists means accepting that the referent to which we attach the term 'bioregion' has some sort of existence beyond humanity, but it also means troubling the naturalness of our words about that referent. As in Merchant's (2003) 'partnership ethic', we agree that we need to 'listen' to the information we might be given by these bioregions (remembering that *we* call them bioregions; *they* don't). But we suggest that 'listening' can be interpreted as the collection of evidence of the functioning relationship between us and the bioregions in order to produce an always-incomplete explanation of it, never forgetting that it is *humans* who are wording/rewording this evidence.

In this way we will give them a social countenance; as Latour (1999) suggests, we will have mobilised knowledge about them, in order for that knowledge to be useful to us and to allow us to act. Giving the bioregions a social countenance is not necessarily an act of anthropomorphism, but acknowledges that when we describe them, they become equivalents to Donna Haraway's (1991; 1997) cyborgs and thus carry with them *both* our humanness *and* their materiality. As Ferry (1995) explains:

> … the ambiguity of the enigmatic nature of certain (non-human) beings cannot leave those of us who care about the ideas they incarnate indifferent. The word ambiguity is apt here: these *mixed* beings, *syntheses of raw material and cultivated ideas*, participate equally in nature and in humanity (p.141).

Giving bioregions a social countenance means acknowledging that bioregions and humans have been, and will continue to be, *mutually constitutive*. Our human settlements have been partially constituted by bioregions. For example, the shape of Zimbabwe is constituted in part by the Zambezi River, which demarcates a section of the nation's border. The hydroelectric dam, Lake Kariba, was deliberately situated according to the structural features of the Zambezi River. Both pre- and postcolonial settlements were positioned to have access to water from the Zambezi River Basin. We argue that it might have been wise for the colonisers to listen even more carefully to these bioregions before they imposed their borders. As a result of their poor listening skills, eight southern African countries now share the Zambezi River Basin; it thus requires a complicated joint management agreement culminating in the Southern African Development Community (SADC) protocol on Shared Watercourse Systems (Communicating the Environment Programme, 1995).

But bioregions have not only constituted our nations, our settlements and ourselves; we also have modified (i.e. partially constituted) bioregions through our activities, not least because of the ways we have chosen to describe them. For example, city planners use models of bioregions that were produced according to the geographical conventions of a particular time. In southern Africa, Lake Kariba, one of the largest human-made lakes in the world, is a testament to the ways in which humans have transformed or 'constructed' bioregions, a construction that can only be understood within the discourses of the time, which privileged linear development and (white) man's[10] control over nature.

Nevertheless, the ways we choose to describe/construct the bioregions are not without limit and the bioregions themselves provide that limit. As Umberto Eco (2000) writes: 'being places limits on the discourse through which we establish ourselves in its horizon' (p.51). The way we 'word' bioregions transforms them in ways that allow them to take their place in the social world, which also has implications for how we transform them (as they simultaneously transform us) in the material world. However, our models and words are imperfectable representations, and we cannot assume that because we are attempting to mirror 'nature' – assuming that nature is our safe measure of what is absolutely right – then we too are absolutely right. We know that we must doubt our words, but we must continue to reword the world in order to gain the confidence to act. As Latour (1999) puts it: 'why burden this solitary mind with the impossible task of finding absolute certainty instead of plugging into the connections that would provide it with all the relative certainties it needed to know and act?' (p.122).

Making Rhizomes: Becoming Nomadic Textworkers

Latour (1999) asks us to plug 'into the connections' (p.12) and Pierre Bourdieu (1998) asserts that 'the real is relational' (p.3); Merchant (2003) privileges 'partnerships' and Haraway (1994) argues that we should imagine our work as playing 'a game of cat's cradle'. All of these authors (and many others) evoke methodologies of relationships and connections, of ways of rewording a world in which humans and non-humans are intimately connected in a 'real' without firm foundations or fixity, a 'reality' that is in constant movement, stratified but not polarised.

We are finding it increasingly useful to imagine (and perform to the best of our abilities) modes of educational inquiry informed by Deleuze and Guattari's (1987) figurations of *rhizomatics* and *nomadology* (see, e.g., Gough, 2004a; 2004b). Rhizomatic inquiry destabilises arborescent conceptions of environmental studies and environmental education as hierarchically articulated branches of knowledge rooted in firm foundations and questions the monocultural understandings of knowledge reproduced by the education systems of most Western industrialised nations. Arborescent thinking and writing begins from a fixed or grounded position from which the inquirer/author produces and expresses ideas in orderly directions. Abandoning arborescent thinking means becoming nomadic, allowing thoughts to wander beyond familiar territories and to produce new texts/terrains.

Although it is beyond the scope of this paper to explain how Deleuzean nomadology and rhizomatics offer transformative possibilities for environmental education research, we can provide an example of how they invite us to do things differently. In earlier work, one of us (Gough, 1993) suggested that science and environmental educators should adapt to the natural sciences a proposal that Rorty (1979) makes in respect of the social sciences: 'If we get rid of traditional notions of 'objectivity' and 'scientific method' we shall be able to see the social sciences as continuous with literature – as interpreting other people to us, and thus enlarging and deepening our sense of community' (p.203).

Seeing the natural sciences also as 'continuous with literature' means, to paraphrase Rorty, seeing both science and literature as interpreting the earth to us and thus 'enlarging and deepening our sense of community' with the earth. Thus, Gough (1993) argued that:

> The consequences for science teaching and environmental education are perhaps best understood in terms of storytelling: we must abandon the conceit of trying to tell 'one true story' and, instead, deliberately treat our stories as metafictions – self-conscious artefacts which invite deconstruction and scepticism (p.622).

Gough drew support for this argument from scholars who work at the intersections of literary criticism and science studies. For example, David Porush (1991) argues persuasively that in the world of complex systems revealed to us by postmodernist science – protein folding in cell nuclei, task switching in ant colonies, the nonlinear dynamics of the earth's atmosphere, far-from-equilibrium chemical reactions and ecological perturbations – we must accept that 'reality exists at a level of human experience that literary tools are best, and historically most practiced, at describing... by science's own terms, literary discourse must be understood as a superior form of describing what we know' (p.77).

Although we agree that literary and artistic modes of representation might be more defensible for many purposes in science and environmental education than the supposedly more 'objective' accounts of professional scientists and textbook authors, we would now prefer to go beyond debating the merits and demerits of competing representationalist philosophies. Gough (1993) might have moved away from the fixity and centeredness of a conventional scientist's (or mainstream literary scholar's) point of view, but he could still be read as working within the limits of a grounded position, albeit moving (in Rorty's terms) along a continuum

between literature and science. Becoming nomadic means stepping away from such well-trodden paths, encouraging random, proliferating and decentered connections to produce rhizomatic 'lines of flight' that mesh, transform and overlay one another. Becoming nomadic in environmental education research means liberating our thinking from fixed points of view and judgemental positions on the 'real physical world' and the 'constructed mental world' or any other nodal points of environmental education discourse. As Pat O'Riley (2003) writes:

> Rhizomes affirm what is excluded from western thought and reintroduce reality as dynamic, heterogeneous, and nondichotomous; they implicate rather than replicate; they propagate, displace, join, circle back, fold. Emphasizing the materiality of desire, rhizomes like crabgrass, ants, wolf packs, and children, de- and reterritorialize space (p.27).

We hope that we have planted a little crabgrass in the manicured lawns of philosophical realism, encouraged a few trails of ants to invade the polite picnic of dialectical reasoning, and set some wolves to prey on naïve bioregionalism. We will encourage our children to play in the abstract debates about realism versus representation and delight in their incredulous laughter.

Notes on the Contributors

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Endnotes

1   For readers new to these concepts, we offer a very brief introduction to them here. As Christopher Norris (1996) notes, in linguistics *structuralism* initially referred to the claim that 'truth and reality were constructed entirely in and through language, or by way of those signifying codes and conventions that language imposed upon the raw data of experience' (p.130). Linguistic structuralists such as Ferdinand de Saussure made such methodological decisions strictly as a matter of intradisciplinary technique, but theorists in other fields – notably literary criticism – also adopted their ideas. For example, according to Norris (1996), Roland Barthes equated the 'arbitrary' nature of the sign (a structuralist concept) with an open-ended textual free play: 'So it was that the structuralist dream of method gave way to a heady *post-structuralist* ethos in which systematic 'theory' lost its erstwhile appeal' (p.130). *Deconstruction* is a term coined by Jacques Derrida (1972) to name a process of laying bare the structure of a discourse – of showing how a discursive system works and what it includes and excludes. Deconstructing a text may mean looking for evidence that reveals more than what the author purposely wanted to share

(sometimes referred to as 'surplus meaning'), or revealing a difference between the 'obvious' function of the text and a potentially different function (which often sheds light on the socio-historical positioning of the author). *Postmodernist* perspectives in social inquiry are not a uniform set of shared assumptions but, rather, a loose collection of ways of thinking about how to go beyond modernist perspectives without producing alternative metanarratives. Postmodernist philosophers throw a number of Enlightenment beliefs into radical doubt, including the transparency of language and that claims to authority grounded in reason can overcome conflicts between 'truth', knowledge and power. This skepticism is variously imputed to postmodernism or poststructuralism, which may be conflated with each other and sometimes conflated with deconstruction. Patti Lather (1991) offers a way of distinguishing between postmodernism and poststructuralism that resists 'fixing' the meanings of either concept: postmodernism is 'the code name for the crisis of confidence in western conceptual systems... borne out of our sense of the limits of Enlightenment rationality', whereas poststructuralism is 'the working out of academic theory within the culture of postmodernism' (p.4), although she also admits to using these terms interchangeably (see also Cheek & Gough, 2005). The word 'constructivism' is used in a variety of ways, including the assumption that mathematical concepts are 'real' only if a mathematical proof can be given (see Antony Flew, 1984) and the view, relevant to education, that learning is an active process of constructing rather than acquiring knowledge (see Piaget, 1977). The latter view has expanded to include the idea that people do not construct knowledge in a vacuum but, rather, that construction of meaning is a socio-cultural process (see, e.g., Vygotsky, 1978). *Social constructionism*, a concept credited to Berger and Luckman (1966), was an attempt to move beyond a sociological version of the chicken-and-egg question: does society construct humans, or do humans construct society? *Social constructionism* tries to resolve this conundrum by suggesting that society and humans are just different moments of the same thing, and that they constantly create each other in a continuing 'dialectic'.

2   On the concept of singularity see Derrida (1987).

3   Voluntarism is the belief that the 'true' nature of reality is *will*, in this case effected through narrative. Voluntarism refuses agency because it assumes that we simply need to change our way of speaking about the world to change the world; there is no need for material action.

4   Determinism is the idea that subjectivity and human actions are determined by socio-cultural surroundings; everything we think or do is predetermined by society. Thus, autonomous agency is impossible.

5   An alternative way of seeing men and women is that at any point the category 'woman' has both real and constructed components; it is neither naturally given, nor entirely made up.

6   See Price (2004) for an exploration of how this illicit dialectic has been used by Zimbabwe's government, with devastating effect.

7   One exception is particle physics, in which anti-realist philosophies abound, although mainstream physicists, taking the cue of Niels Bohr, tend to be agnostic with regard to the reality/constructed debate. Significantly, Merchant (2003) draws inspiration from David Bohm, who takes a stand towards realism, despite this being unpopular with the mainstream physicists. Einstein preferred to see particle physics as still incomplete rather than accept its anti-realist tendencies.

8   Spretnak oversimplifies the relationship between New Zealand's internal regions and watersheds. We assume that she is referring to New Zealand's Regional Authorities, which evolved in the 1980/90s

from the former Water or Catchment Boards that were formed in the late 19th century to manage flood and erosion control. These Regions are controlled by Regional Councils and are concerned mainly with macro environmental and transportation matters. They are thus distinct from City/District Councils, which are concerned with wider ranging local area matters. Bioregions, boards, catchments and councils are all human inventions. We thank a New Zealand colleague, Warren Sellers, for drawing our attention to Spretnak's oversimplification.

9   The addition 'among other things' is important as it avoid voluntarism: it is not just our words that reproduce and transform reality.

10 Our use of non-inclusive terms here is deliberate.

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