

Having an Ethical Discussion About the Objects of Natural Science: The Is and Ought Distinction

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1. Telos and anti-telos

For Aristotle the question of the nature of nature was given an answer through his *teleology*. Every being had its own *telos*, its own “inner end” to realise. The realisation of this inner end was regarded as a *natural movement*. (*Physics* 194 a 30, 199 a 30; *Metaphysics* Bk. VII (Zeta) Ch. 17). Nature had a direction that humans could cross. Galileo Galilei challenged this teleology by showing that the stone was “searching” to the ground not because of an inner want/shortage (*steresis*), but because of an *outside* force (Barrows 1991, p.18); a force that could be described through mathematics, and formulated as a law of nature. Beings of nature are on this view thought of as principally governed by laws of nature. Hence, natural beings could not be said to “have an inner end”. As there only exist states that either govern or *are governed* — beings of nature have to be called hetero-nomous. Successively, from Galileo on, the being of beings was thought of as *passive* (Ellis 2002, e.g. p.62; Szerszynski 2003, p.152). Consequently, after the acceptance of Galileo’s view, the idea that nature had a nature that could be crossed lost more and more ground. However, the mark of something having a nature was defined by

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Aristotle's teleology. After Galileo it is only humans that could possibly live up to that standard.

This ontology not only comprises the "law governed sciences" but also biology in the following way. Biology tells us that there is no "right nature", "wrong nature" etc.² The biologist has no criterion to claim that there should not be "a desert in the Amazon Jungle" and she will never find such a criterion under biology's present ontological commitments. So even though biology is not law governed or law-like in any respect, it is still committed to what we could call a "passivist view on nature", borrowing a notion from Brian Ellis.

This is the ontological 'superstructure' or background that I regard as relevant to the issues that I will discuss and present in this paper.

2. "The value of passivism"

As Hume noted, we cannot *logically* infer from an *is* to an *ought* (1978, p. 469). The big mistake however, is to take this as an argument against any "permission" to follow an 'is' with an 'ought', or to say that we are committing a fallacious act as such when doing so. The view I want to convey here is that the desirability of following an 'is' with an 'ought' depends on ontology, and accordingly the intuition "that you cannot at all argue for what ought to be from what is", depends on our ontological assumptions. If nature were totally deterministic or totally contingent the intuition would follow, but given that we grant the possibility of other ontologies, there is nothing left in Hume's formulation other than triviality: very few non-formal facts, if any, outside logic itself and mathematics, can be logically inferred from something else.

As I have indicated, the assumption here is that there is a strong relation between ethics and ontology. To assume this is controversial. It is, however, not more controversial than what was fundamentally assumed by

² However in some sub-departments of biology there has indirectly been a debate going on about the nature of Nature. In ecology: natural balance in the ecosystems; in geophysics/ecology/meteorology: the Gaia theory (Lovelock 1979); in discussions about evolution: is it going towards diversification (Brown 2001)? in systematics: could there be something called an ideal individual of some species (Williams 1996)? Normally however, the reasoning goes as Reiss and Straughan represent it: species [Nature] change over time. It is not possible to distinguish between natural and artificial changes (1996, p. 61).

the seventeenth century philosophers and which we still take for granted, although we take it the other way around.

Kant assumed that since nature was governed by laws (*Naturnotwendigkeit*) humans must be governed by something else (1998, p. 52/4:446). The starting point for Kant's idea about autonomy (and heteronomy), which in turn came to be a part of the framing of ethics (what it is and can allow itself to be about) is grounded in ontology, that is, in *a specific account* of what nature is. To say that ontology should not impinge on our ethics is therefore strange, unless we accept that the specific law-governed-nature account is *the* account of nature. In other words: the norm that claims something to be a naturalistic fallacy, that is, the fallacy of thinking that *is* and *ought* are connected, is by its own measure a (meta-)naturalistic fallacy since it has itself emerged from a particular ontological assumption about the world. This fallacious view is of course also well established within environmental ethics, although this type of ethics typically tries to overcome traditional ethics (e.g. Curry 2006). In *Environmental Values* O'Neill *et al* make the following claim an important presupposition for their discussion. "No specific meta-ethical position is required by any specific environmental ethic" (2008, p. 119). This leads to assertions such as: "expressivism has no claims about what has ethical value" (*ibid*, p. 117).

My claim here is that we cannot grasp or get outside the "traditional human centred ethics" (*ibid*, p. 92) without touching upon the ontological roots of this ethic. To take the strong is/ought distinction for granted is to take the "human centred ethics" for granted. And moreover it is to take the passivist ontology to be *the* ontology. To believe that we can avoid metaphysics is a part of this same metaphysics. This background, hopefully justifies why we have to take a broad and "ambitious" view as a starting point for our elaborations.

I hope that this clarification will establish a ground for the postulation that I will maintain throughout this text. If our ontology will allow no causal powers to the beings of nature it will have some impact on our relation to those beings. No conduct, much less any moral conduct, can be attributed to something which is viewed as in principle passive. If this is the ontology of modern science it makes it *a priori* impossible to ascribe any value to nature as such. Putting nature together in new ways or changing conditions for the beings of nature will mean nothing

ethically. If everything is disentangled and all identities are contingent, how can we possibly do any harm? Our ontology makes a difference to our ethics.

To science everything is natural except the supernatural. For a molecular biologist it is “against reality” and the very essence of science to regard genetic engineering as problematic in itself. The difference between a hen that has two wings, two legs, a head with a beak, living in an hierarchy with a rooster on top, and a “hen” that is just a growing and egg-laying “meatball”, without legs, head and wings, is totally without significance to *science*. *In vivo* the argument is then: “of course, science is not a part of the ethical discourse. That is exactly the point. It is the ethicist (or the lay-person) that is granted that role”. The response to this is to say that we think like this because we already take the ontology for granted. It is the ontology (that we say should not impinge on ethics) that instructs us to say “it is the ethicist (or the lay-person) that is granted that role”. That is, it is the scientist who instructs ethics. Taking the ontology for granted has a double edge: you cannot ascribe any naturalness or intrinsic value without being constructivist in some sense and you cannot engage in ontology to defend views that could ascribe naturalness or intrinsic value to something, without being accused of committing “a naturalistic fallacy”.

The normative feature of the metaphysics of natural science which describes nature as morally irrelevant (*sic*) is partly based in some epistemological values. What is here called “neutral knowledge” (and the authority that accompanies such knowledge) is only ideally realised through a strict division between subject and object. This is predicated on the presupposition that the object is passive. An “active object” would blur the whole “agreement” between subject and object.³ If the object were active (in a way that made the observation relative to it), it would be less obvious to call the knowledge objective or neutral in the prescribed sense.

The epistemological authority of science is thus grounded in the same passivist view on nature.⁴ Epistemology is ontologically determined and

³ Cf. the paradigmatic example of Heisenberg’s uncertainty principle.

⁴ Within the same argument: the authority of social sciences are placed lower and the natural sciences higher or *vice versa* in the hierarchy of sciences, since the social scientist has to interpret and understand an “object that is active” in the strong mode of interpreting itself. (Double hermeneutics: cf. Heidegger on “Existenz” in *Sein und Zeit* at §25 and §9).

therefore also on this account normative. The normativity of epistemology is widely acknowledged but the normal reaction to it is to take for granted the assumption that we can never escape our epistemological boundaries. A critique of the scientific enterprise therefore often ends in a relativistic view on knowledge — leaving the passivist view on nature beyond the purview of criticism. We then fail to understand that this relativism is based in the passivist view on nature because it only gains purchase in the light of the “knowledge-requirements” of the passivist view on nature. Relativism and constructivism depend on the passivist ontology and this configuration, in turn, underpins expressivism and similar positions within ethics.⁵

Other (realist) ontologies could under a certain reasoning lead us into different lines of analysis both when it comes to the role of ethics and to epistemology. Disposition ontology exemplifies such an ontology (See e.g. Crane 1996; Mumford 1998, 2004; Molnar 2003; Martin 2007; Bird 2007). Here however, I will not elaborate that but rather try to deepen the points I have already made by taking a look at how the view worked out here would interpret the public debates that are going on in the field between ontology and ethics.

3. The debate in praxis

a. Post-normal Science

Silvio Funtowicz and Jerome Ravetz, coiners of the notion “post-normal science”, also suggest that the strong is/ought distinction should be revised. Their argument however is made in terms of the external consequences that science through technology has co-created.

Their argument may be reproduced in the following way. As long as “science seemed overwhelmingly and essentially beneficial” it could also get away with very loosely founded conceptions of its role as “providing our ethical minds with facts” (Ravetz and Funtowicz 1999, p. 642). But now science has become a co-creator of a post-normal situation — a situation resulting in vast numbers of crises and basic uncertainty — it cannot still claim neutrality (Funtowicz and Ravetz 1992). Neutrality today would

⁵ This is of course not what the expressivist would say, since he already takes it for granted that his positions have nothing to do with metaphysics.

mean something broader and something that also admits some space for ethical considerations.

Their strategy is to bring (particular parts of) science into a process of extended peer-reviews where “all possible views” (that is, the views of all possible stakeholders), should be represented and where quality “rather than abstract truth” is the governing value (Funtowicz and Ravetz 1994b).

I do agree with their description of our post-normal situation, but I don’t agree on their solution to it. The disagreement is most easily illustrated by highlighting the communication aspect of their solution. As I believe I have shown, the passivist view on nature can not, by definition, ascribe any independent value to nature. What I now argue is that Funtowicz’ and Ravetz’ strategy ends up allowing only an ethical debate that has utilitarian or consequentialist frames. It is not possible to communicate other positions within a passivist regime and it is my contention that this regime remains a given of their approach. For this (ontological) problem it does not help to give endless descriptions of nature’s complexity (Funtowicz and Ravetz 1994), since that only amounts to saying that “the consequences are complex”. What could help is rather a theoretical (ontological) foundation that allows a possible space for ascribing a nature to nature. The following example will maybe demonstrate why this seemingly “anachronistic” move is needed.

Norman Levitt, a professor of mathematics, suggests that the European resistance to genetically modified organisms (GMOs) can be deconstructed through looking at “their particular cultural *dogmas of purity and danger*”. Levitt uses the anthropologist Mary Douglas to analyse the situation.⁶ In my view the disagreement between the “Americans” and the “Europeans” could have been a plain disagreement between two different “cultural interpretations”, but in Levitt’s view it is obviously not. As a scientist Levitt supposes himself to be in a situation that enables him to disavow the “European arguments” against GMO just by calling attention to the fact that “this is a cultural interpretation”, thus implying that there exists a “non-cultural interpretation” of genetic engineering (GE). This seems a possible conjecture, but only on the grounds of the

⁶ Levitt writes: “Why should this [GMO] have promoted so much concern? (...) Mary Douglas in her book *Purity and Danger*, puts forward the idea that cultures assume that there are “natural” categories, the transgression of which will bring about retribution. This obviously underlies much of the uneasiness concerning GM foods.” (Stangroom 2005, p. 148).

molecular biological passivist view on genes: there is no nature of nature, and therefore nothing that could be “unclean” or “pure”. This means that every critique of GE as such would be “cultured”, while the absence of critique would not be. In this case, as viewed by Levitt, we would be able to say that “the Europeans” have interpreted the technology while “the Americans” have managed to avoid that. To explain why the scientist *speaking as a scientist* can propose such a conjecture, we have to recognize the significance of the passivist view of natural science.

b. “Risk-Ethics”

Anyone who takes a closer look at the GE debate will find it somewhat impenetrable. It looks as if the positions taken do not communicate well with each other. The “un-reflected” lay-person’s concept of nature, employing the concept of naturalness, is “pedagogically rejected” by the scientist (Meyer and Sandøe 2001) but is defended by the “environmentalist” with the argument of intrinsic value (Verhoog 2003). The argument of intrinsic value, on the other hand has, as we have seen, no basis in the standard ontology of science and therefore no basis in “reality” either. The argument from naturalness is, for the reasons given, an argument that does not at all communicate with the scientist and the entrepreneurs of technology. The issue is therefore forced into a narrower discourse that *seems to be* the last common ground for both proponents and opponents, namely “risk-evaluations” (Wynne 2001). The debate about GMOs and gene-technology in general is about risks. This is a debate that apparently conforms to the scientist’s passivist worldview.

In this debate discussing risks amounts to the question: does the biology *work as planned*? Under the assumed account it would be sufficient to investigate the “biological functions” that are intended by the altered genetic modifications.

There is however a problem here. Does not the question “does it work?” need a reference that values specific kinds of nature, (as, for example, defining the function of a car requires definite purposes of the thing called a car)? What kind of ontology do we need to assume that nature has some function? If function and functional explanations are to be deployed one has to recognize the existence of organisms and the whole web of interconnections that has developed through the course of evolution — interconnections that belong to the organism. But then we would have

to talk about “right and wrong nature”: that is, some nature in nature; a nature that could work as some kind of measuring stick for the function of the GMOs we want to put on the market and in the field. What would be at risk at all if there were no state or process (that was independent of humans) that could be disturbed or destroyed; if every particular were independent from the other in a way that made their properties *compossible* with anything else without *any* further “causal consequences”? However, to talk about a nature in nature in this way would be to contradict the scientific ontology that is used to ridicule the lay-person when he or she tries to make a case for naturalness in the GMO debate. The least ridiculous thing for a scientist to do would then be not to take part, even in the risk debate. As long as the concept of naturalness as such is not recognized as a viable concept in the debate there should be no scientific panels approving or disapproving GMO products. That would also be the fair and right thing to do according to the strong is/ought distinction that is employed elsewhere, when suitable.

Could the following describe what is happening with scientists in the GMO debate? Bio-molecular science has already “neutrally” stated that the change in genetic dispositions is as *insignificant* as moving a grain of sand from one place to another (cf. the substantial equivalence principle). At the same time “the scientist” *somehow* recognizes that there is an ethical aspect hidden in the area under discussion. However, blinded by the success in narrowing down the debate to a “risk question”, she overlooks the fact that a risk judgement necessarily presupposes an evaluation of what is natural or at least functionally adequate — concepts that totally transcend the scope of molecular biology from whence the *insignificant view* originates.

More generally we could say that “the scientist” starts out with a “normative non-normativity”. This normativity, which is built into his passivist ontology, is invisible to him or her, and he or she therefore ends up making “neutral” evaluations on a basis that totally contradicts the official ontology (*passivism*) of natural science.

In this situation the ethicist seems to be an obedient “placeholder” who never comes upon the core of the question and ends up where he starts: in his “eunuch-ethics”. And this eunuch-ethics will follow the peer-reviews of post-normal science no matter how wide or quality-oriented this discourse will ever become.

“The scientist” will, of the measures proposed by the insight of post-normal science, interpret every extended peer-review as a category mistake, a substitution of truth with evaluations hampered by political correctness. I believe this will be the case with every suggestion that does not try to clear up the ontological problems that found the whole situation.

There is obviously a further way to argue for the view put forward here by showing directly how an alternative ontology would make a difference. For various reasons I have not given that priority here. But hopefully I have by now established a willingness to see that there is a present ontology of science but that this is not the only one and *thereby* neutral as e.g. Levitt typically assumes.

We often cling to the opinion that the present (passivist) ontology is neutral because we are unable to see any alternative other than the crude teleological one which for most people seems even more untenable. Other alternatives might be too new-age inspired and are often (willingly) not in compliance with basic scientific methods (e.g. Sheldrake, 1990). A leap hole for the many who disagree with the passivist ontology seems to be “complexity theories” such as chaos theories, probability theories and emergentism. These theories appear however not to be ontological in the sense that I try to convey here. They look more like extrapolated science. I believe that ontological arguments are needed against the passivist view, since that is what grounds its strength. I can show that the connections in the world are complex, but a Humean can show that they are totally contingent and an Armstrongian can show that they are totally compossible. I have pointed to the disposition ontology as a way to go. On this occasion I do not pursue the arguments for that view.

Literature

Aristotle, (1999) *The Metaphysics*, trans. Hugh Lawson-Tancred, Penguin Classics.

Aristotle, (1996) *Physics*, trans. Robin Waterfield, Oxford University Press.

Armstrong, D. M. (1989) *A Combinatorial Theory of Possibility*, Cambridge University Press.

Barrows, John D. (1991) *Theories of Everything*, Fawcett Books.

- Beck, Ulrich (1992) *Risk Society: Towards a New Modernity*, Sage Publications.
- Bird, Alexander (2007) *Nature's Metaphysics*, Oxford University Press.
- Bonny, Sylvie (2003) 'Why are most Europeans opposed to GMOs? Factors explaining rejection in France and Europe' *Electronic Journal of Biotechnology*, Vol. 6 No. 1.
- Brown, Joel (2001) 'Fit of Form and Function, Diversity of Life, and Progression of Life as an Evolutionary Game', in *Adaptionism and Optimality*, ed. S. H. Orzack and E. Sober, Cambridge University Press.
- Christiansen, Stine B. and Sandø, Peter (1999) 'Bioethics: Limits to the Interference with Life', *Animal Reproduction Science* 60–61, 15–29.
- Crane, Tim ed. (1996) *Dispositions: a Debate*, Routledge.
- Curry, Patrick (2006) *Ecological Ethics: an Introduction*, Polity Press.
- Deckers, Jan (2005) 'Are Scientists Right and Non-Scientists Wrong? Reflections on Discussions of GM', *Journal of Agricultural and Environmental Ethics* 18:5, 451–478.
- Dierickx, Kris (2003) 'Is Nature Neutral? The Concept of Health', in *Is Nature ever Evil?* ed. W. B. Drees, Routledge.
- Ellis, Brian (2002) *The Philosophy of Nature: a Guide to the New Essentialism*, Acumen Publishing.
- Funtowicz S. and Ravetz J. (1992) 'The good, the true and the post-modern', *Futures* 24, 963–974.
- Funtowicz, S. and Ravetz, J. (1994a) 'Emergent Complex Systems', *Futures* 26:6, 568–582.
- Funtowicz, S. and Ravetz, J. (1994b) 'The worth of a songbird: ecological economics as post-normal science', *Ecological Economics* 10:3, 197–207.
- Funtowicz, S. and Ravetz, J. (1999) 'Post-normal science – an insight now maturing', *Futures* 31, 641–646.
- Giere, Ronald N. (1999) *Science without Laws*, University of Chicago Press.
- Heidegger, Martin (1991) *Sein und Zeit*, Max Niemeyer Verlag.

- Hume, David (1978) *A Treatise of Human Nature*, Oxford University Press.
- Kant, Immanuel (1998) *Groundwork of the Metaphysics of Morals*, ed. Mary Gregor, Cambridge University Press.
- Kvilhaug, Terje (1997 and 1998) 'Naturens realitet i teorier – Kuhns irrealisme', *Agora* No. 3-4 1997, 110–159 and *Agora* No. 1 1998, 56–107.
- Lovelock, James (1995) *Gaia: A New Look at Life on Earth*, Oxford University Press.
- Marris, Claire (2001) 'Public Views on GMOs: deconstructing the myths', *EMBO Rep.* 2 (7), 545–548.
- Martin C. B. (2008) *The Mind in Nature*, Oxford University Press.
- Mayr, Ernst (1985) 'How biology differs from the physical sciences', in *Evolution at a Crossroads: the New Biology and the New Philosophy of Science*, ed. D. J. Depew and B. H. Weber, MIT Press.
- Mayr, Ernst (1988) *Toward a New Philosophy of Biology: Observations of an Evolutionist*, Harvard University Press.
- Meyer, Gitte and Sandøe, Peter (2001) 'Oplysning og dialog om bioteknologi i forhold til planter' Forskningsrapport 1, Frederiksberg: Center for Bioetik og Risikovurdering, 19pp.
- Molnar, George (2003) *Powers: A Study in Metaphysics*, ed. S. Mumford, Oxford University Press.
- Mumford, Stephen (1998) *Dispositions*, Oxford University Press.
- Mumford, Stephen (2004) *Laws in Nature*, Routledge
- O'Neill, John, Holland, Alan and Light, Andrew (2008) *Environmental Values*, Routledge.
- Ravetz, J. R. (1999) 'What is post-normal science?' *Futures* 31:7.
- Reiss, M. J. and Straughan, R. (1996) *Improving Nature? The Science and Ethics of Genetic Engineering*, Cambridge University Press.
- Sheldrake, Rupert (1990) *The Rebirth of Nature*, Rider.
- Soper, Kate (1995) *What is Nature: Culture, Politics and the Non-Human*, Blackwell Publishing.

Strangroom J. ed. (2005) *What Scientists Think*, Routledge.

Szerszynski, Branislaw (2003) 'The Deep Surface: the Human Genome Project and the Death of the Human', in *Brave New World? Theology, Ethics and the Human Genome*, ed. Celia Deane-Drummond, T and T Clark Publishers.

Verhoog, Henk (2003) 'Naturalness and the Genetic Modification of Animals', *Trends in Biotechnology* 21:7, 294–297.

Williams, George C. (1996) *Plan and Purpose in Nature*, Weidenfeld and Nicolson.

Wynn, B. (2001) 'Creating Public Alienation: Expert Cultures of Risks and Ethics of GMOs', *Science as Culture* 10 (4), 445–81.