

Ontological Commitments of Ethics and Economics

Karey Harrison¹, Faculty of Arts, University of Southern Queensland, Australia; Australian Centre for Sustainable Catchments (ACSC) karey.harrison@usq.edu.au

Abstract

This paper analyses the cognitive image schemas structuring the ontological commitments of dominant conceptions of ethics and economics to show that the content of economics is implicated in conceptions of ethics, and that these conceptions cannot be separated from questions of research and professional ethics. This analysis of the metaphoric structuring of the ontological commitments of ethics and economics is based on an extension of Kuhn's construct sense of 'paradigm' as concrete analogy; and on techniques of metaphoric analysis developed in cognitive linguistics. Analysis of the iconic and schematic representations of the concrete analogies and idealised cognitive models structuring economic and ethical theories expose both shared and conflicting ontological commitments.

Keywords: economic theory, ethical theory, ontology, metaphor, cognitive linguistics, paradigm

Introduction

In this paper I argue that questions of research ethics and professional ethics should not be separated from questions of ethics in relation to the content of economic theory. I argue that attempts to do so risk entrenching approaches to ethics whose ontological commitments are incompatible with commitments of heterodox economics such as inclusiveness in respect to theoretical perspectives; the domain scope of economic theory; and the diversity of economies studied. By examining the 'concrete analogies' underpinning dominant conceptions of ethics, politics and economics I will show that the content of economics is implicated in conceptions of ethics, and that conceptions of mainstream and heterodox economics cannot be separated from questions of research and professional ethics.

Ethical theory, like economics (Mearman 2008) and most social sciences, is rift by competing approaches and theories. Kuhn argued that this is typical of both pre-paradigmatic fields of research and of fields suffering paradigm crisis (Kuhn 1962, pp.160–3). I will explore the ontological assumptions of the three main approaches to ethics, and compare their ontological assumptions with the ontological presuppositions of mainstream and heterodox economics.

¹ http://tinyurl.com/karey-home

² Such as those expressed in the WEA (2011) Manifesto.

³ Which of these two categories economics falls into is itself a matter of debate (Rima 2008, p.5).

Approaches to Ethics

The three main (Western⁴) approaches to ethics I will be considering are: deontological approaches in which conduct is judged according to the rules or principles one must follow; consequentialist approaches which judge conduct based on its overall consequences; and virtue approaches which emphasise the development of character rather than being a guide to ethical decision making (Hursthouse 2012).

Deontological ethics emphasises rules – such as codes of practice, and principles. These require or forbid specific classes of action. They require us to follow such principles, regardless of the consequences of doing so. The psychological orientation of deontological ethics is duty and guilt. Deontological ethics would ask: what does the rule or principle that applies require or forbid (Crespo & Staveren 2011, p.245)? Deontological ethics treats ethics as contrary to desire, and hence has a problem with motivation.

The mainstream alternative to rule oriented approaches to ethics is utilitarianism, a consequentialist ethics which bases ethical decisions on the hedonic calculus: 'the greatest good for the greatest number' (Sinnott-Armstrong 2012). This is the ethical approach most closely aligned with the utility-calculus of neo-classical economics. Neo-classical economics assumes that all values can be meaningfully converted to a single measure of financial value and that the value of something is what we are willing to pay for it (Crespo & Staveren 2011, p.243). What we are willing to pay, and hence the financial value, is driven by what we want. This treats all wants (or desires) as if they are equal.

Virtue ethics is the main alternative to deontological and consequentialist approaches to ethics. Whereas deontological ethics suggest that being ethical means doing what you ought to, even though you do not want to; and consequentialist approaches have difficulty distinguishing between 'higher' and 'lower' pleasures (Mill 2010, p.79); a(n Aristotelian) virtues approach says being ethical means desiring (wanting) that which you ought to desire, and distinguishes between 'wants' and 'needs'.

Ontological Analysis

While Lawson is responsible for raising the topic of ontology in economics (Fullbrook 2009, p.76), my use of many concepts which are familiar to economists from this discussion cuts across the definitions and distinctions offered by Lawson and by other economists, and hence the differences between our use of concepts needs explaining in order to avoid confusion.

Like Lawson, my conception of ontology involves the 'study of the sorts of entities that are posited or presupposed', however, unlike Lawson (2004, p.2), I do not restrict my attention to the ontological presuppositions of 'scientific and other theories', but include as well the study of ontological presuppositions in folk-theoretic systems of belief. While Lawson (1997, p.15) is a realist in the sense of asserting 'that the ultimate objects of scientific investigation exist for the most part quite independent of, or at least prior to, their investigation,' I am an *experiential* (as opposed to objectivist) *realist* that:

'link[s ...] conceptual schemes and the world via real human experience; experience [that] is not purely internal, but is constrained at every instant by the real world of which we are an inextricable part (Lakoff 1987, p.263).'

Experiential realism provides us with a fundamentally *interactional* account of experience and an account of *motivated* but *under-determined* systems of knowledge representation (Fahy & Harrison 2005;

⁴ Although, I focus on Western discussions of ethics, my 'psychological' interpretation of Aristotle's Virtue ethics situates him closer to Eastern traditions such as Buddhism, whose 'criterion of ethics is not theological but psychological', than to the Western ethical traditions of deontological and consequentialist ethics (Sangharakshita 1997, p.128; cited in Harrison & Galloway 2005, p.7).

Harrison & Fahy 2005). What we can do with our bodies in the world depends not just on social and cultural expectations and ontologies, but also on the nature of our bodies and the way the external world works independently of our desires or expectations (Lakoff 1987, pp.xii–xviii, 265–266). While we try to impose our *category systems* on the world of experience, that world is messy and uncooperative, confronting us with perceptions and experiences that do not fit our expectations, forcing us to revise our ontological presuppositions.

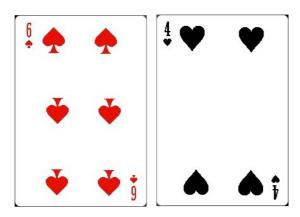


Figure 1: Anomalous cards

The brief display of a set of playing cards to subjects, some of which were anomalous, like those in Figure 1, is an example of a simple experiment that Kuhn referred to demonstrate the relevant features of our perceptual processes in the revision of ontological presuppositions. Subjects initially saw what they expected to see: 6 of red hearts or 4 of black spades, but as the cards from the pack were re-played, subjects would display first confusion, then correct description, modifying their ontology to accommodate the existence of black hearts (Kuhn 1962, p.63). Conventional categories can be reconfigured to accommodate disruptive perceptions and experience.

Whereas Lawson (2004, p.2) describes: the study of 'what all the things that are have in common' as the basis for 'what it is to be or to exist'; as *philosophical ontology*, I describe this as an *objectivist* ontology. Whereas Lawson (1997, pp.16–20) attributes a commitment to *deductivist* (D-N) methodology on a conception of scientific laws as an expression of event regularities in closed systems, I argue (Fahy & Harrison 2005, p.666) that the commitment to the D-N method depends on the objectivist system of *categorisation* that is implicated in Lawson's philosophical ontology. Philosophical ontology's conception of 'what it is to exist' in terms of the possession of 'common properties' depends on the idea that ideas and objects can be sorted into categories, as if they were objects being placed in containers, based on shared objective properties and characteristics.

An objective category can be understood as a sort of mental *container*. Just as mail can be sorted into the appropriate pigeonhole or mailbox based on the name or number on the mailbox, objectivists believe that ideas and objects can be objectively sorted into categories based on necessary and sufficient conditions which provide the *defining* property of that category. Such necessary and sufficient conditions provide identity criteria for objective category membership. Within each pigeonhole, further sorting can take place, dividing the things in the *superordinate* category into further and further subordinate subcategories.

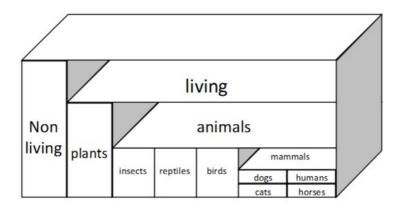


Figure 2: Categorisation as sorting in to containers

The sorting of things into the categories represented in Figure 2 is the sort of categorisation we are taught as children, by activities such as physically sorting things (like coloured and shaped blocks) into piles or boxes, and it becomes so automatic that we tend to think our mental categories simply match the kinds of things there are in 'reality'. Objective categorisation depends on all members of a category having some property in common, and all 'sister' or neighbour categories being minimally distinguished by at least one property that is not shared. The logical consequence of objective categorisation, is that category membership is *transitive*, that is, if *A* is a member of the same category as *B*, and *B* is a member of the same category as *C*, then *A* is a member of the same category as *C*. Davis' (2003, p.15) argument that in order to speak about individuals we need 'identity criteria for the use of the term', assumes, like Lawson, that ontologies are objectivist. To reject objectivist ontology is, according to Lawson (2004, p.6), to replace scientific and philosophical ontology with the taxonomic relativism of ontographology/opology.

When we start exploring examples of categories in natural languages, they turn out not to be objective categories. For instance, whereas objective categorisation requires that there be at least one property that all members of a category have in common, there is no one property that a 'mother' has to have that a 'non-mother' does not. Objectivist categorisation not only says that a thing cannot be both a member of a category and not a member of that category; it also says that any *thing* that has the defining property of the category is a member of that category. However, two guns may have the same properties - look like a gun but not work, but one may be a fake gun and the other may not (it was a real gun that is now broken). The difference between a 'fake gun' and a 'broken gun' does not rest on any physical properties but depends on their history. The fake gun was made not to work, whereas the broken gun comes (on purpose or by accident) not to work. In other words, this is an example where two physically identical objects may not be members of the same category (Lakoff & Johnson 1980, p.121). Learning what experiences to treat as 'the same' in order treat words applied to similar experiences as 'literally true' is a product of enculturation and language learning, not a reflection of any objective correspondence between words and reality. Pattern recognition is based on our perception of gestalts that contain systemic connections between functioning wholes.

For scientific categories like 'species,' for example, whether or not a group of animals belong in the same species as another group of animals depends on which taxonomic system is used; 6 and for

 $^{^{5}}$ The logical and mathematical meaning of 'transitive' as 'identity' is almost the opposite of Lawson's (1997, p.25) use of it as relative to our (transient) understanding.

⁶ Lakoff (1987, p.119) points out that whether or not the mountain zebra belongs in the same species as Grevey's and Burchell's zebras depends on whether you are using a cladist or pheneticist taxonomy.

categories such as 'being a member of the "same species",' for at least the example of Ensatina salamanders, on the one hand; and being 'a member of the same sex', on the other, are *not* transitive as objectivist categorisation would require. However, both the salamander and biological sex examples generate non-transitive categories as a result of the biological processes of branching evolutionary or developmental pathways. The non-transitivity is not an arbitrary (relativist) social construction, but reflects the fact there is no one physical property either members of 'species' or sex categories must have in common to be a member of the same category. On the basis of many such examples, I reject Lawson's distinction between both (objectivist) philosophical ontology and relativist ontographology, in favour of a non-transitive, *interactional* account of our ontological presuppositions. 'Complex, non-deterministic, evolutionary systems like the climate system or human economic systems do not have the properties required to be mapped by objectivist categories' (Harrison 2010b, p.29).

Research in cognitive linguistics demonstrates that objectivist ontology cannot account for the structure of most of our categories, and it provides an alternative account of categories as being organized in terms of basic concrete sensory-motor images with gestalt structures, and more abstract schemas derived from these images (Lakoff 1987, pp.150–154). Emphasising the 'motor' in 'sensory-motor' draws attention to our active role in structuring our experience and unites the elements of bodily origin of image schemas, manipulation of objects in material culture, and the socio-cultural context of language learning. Such sensory-motor images and schemas are simultaneously physical and social. They are structured by our embodied experience of the physical world, experiences which are themselves structured by the social practices and expectations of the specific social world we are born into or move to (Sharifian 2008, p.4). This fundamentally *interactional* account of experience provides us with an account of *motivated* but *under-determined* systems of knowledge representation (Fahy & Harrison 2005; Harrison & Fahy 2005). What we can do with our bodies in the world depends not just on social and cultural expectations and ontologies, but also on the nature of our bodies and the way the external world works independently of our desires or expectations.

While Lawson (1997, pp.238–240) appears to approve of an objectivist (philosophical) ontology which satisfies necessary and sufficient conditions of category membership, he rejects 'models' understood as 'maps' or 'representations', because of their association with correspondence theories of truth. McCloskey's (1983, p.502) argument that 'models are metaphors' is closer to my position than Lawson's interpretation of models as correspondence mappings. While McCloskey (1983, p.503) contemplates the possibility that 'thinking is metaphorical' he follows a primarily literary approach that grounds metaphor in the literal. In contrast, I follow cognitive linguistics in seeing 'metaphor' as a basic feature of human cognition that reflects our common capacity for gestalt pattern recognition based on relations of similarity rather than identity. Whereas category membership based on similarity:

'what counts as the 'important' features which a candidate must have *most* of to count as a member is particularly sensitive to the contextual *purposes* of those developing a particular classificatory categorisation. So not only can membership in such a category be a matter of degree, the degree to which a candidate is a member of a category is not an objective feature of the candidate [...] but depends on the interactional context [...as well as] on the perceptual structures of the being making the comparison. It depends on *interactional* properties, not just objective ones.' (Harrison 1992, pp.39–40, emphasis in original.)

⁷ In the logical sense above (Harrison forthcoming a)

⁸ I demonstrate the connection between the requirement for common properties and necessary and sufficient conditions in Harrison (forthcoming b)

When we 'pick out parts of our experience and treat them as [if they were] discrete entities or substances of a uniform kind' we have created an 'ontological metaphor' (Lakoff & Johnson 1980, p.25). These are 'conceptual metaphors', which should not be confused with 'literary metaphors'. Conceptual metaphors are not opposed to the 'literal', but constitute the 'literal' through our categorisation practices. An analysis of the kinds of ontological metaphors implicit in different approaches to a field can expose both shared ontologies that cut across apparent differences in theory and method, as well as unrecognised incommensurable ontologies. Metaphoric analysis can be distinguished from both positivist and structuralist versions of objectivism, as well as from constructivist approaches to analysing categories and ontologies in economic theory.

Whereas most discussions of Kuhn's concept of paradigm in economics interpret it in terms of metaphysical 'world views,' 'systems of thought,' or 'core ideas,' (Garnett 2006, p.525; Rima 2008) few mention the key meaning of 'paradigm' as an exemplar functioning as a puzzle solving 'artefact'.9 It is this construct sense of paradigm that Masterman (1970, p.70) argues is central to Kuhn's characterisation of 'paradigm' as a puzzle-solving tool in science. Kuhn showed that scientific progress depends on the energetic exploitation and extension of 'concrete analogy[s]' - understood as 'picture[s] of concrete object[s]' - rather than on the confirmation or falsification of theories (Masterman 1970, p.77). Like other instances of pattern recognition, the application of 'concrete analogies' in novel situations is based on relations of similarity, rather than identity, and hence is never an all or nothing affair. The concrete analogy at the heart of a scientific paradigm reflects fundamental ontological commitments or beliefs within a field of study about the sort of things the world is made of – the 'objects, concepts, and other entities that are assumed to exist' - and is made explicit by a concrete image, not a list of properties or propositions. I argue that rather than being an abstract 'quasi-metaphysical' account of science (Laudan 1978, pp.73-79), the ontological commitments of a field are driven by the concrete analogy at the heart of it. While models in science can include words, and are frequently surrounded by discursive interactions, they function as icons by involving either mental or actual pictorial images, or existing as concrete manipulable objects in the world (Van Langendonck 2007, p.398). The diagrams in this paper reflect the fact that conceptual metaphors are primarily imagistic and multi-modal (Forceville 2006, p.381).

Because it is our embodied, structured, *sensory-motor* experiences that underpin our concept of 'causation,' ¹⁰ *concrete manipulable models* are of particular importance in exploring causal mechanisms. Our structured experience in one domain can guide our action in another domain, if we see it as similar. It is our success in manipulating causal mechanisms to do things and reliably produce expected outcomes that gives us confidence in the existence of such causal mechanisms (Cartwright 1983, p.37). Not belief but action grounds realism. Ontological metaphors are kinaesthetic, in the sense of being structured by our muscular/motor and perceptual activity. ¹¹ Ontological metaphors are grounded in our sensory-motor experience; are instantiated in the topographical *mappings* of sensory and motor neurons; and correlate with the sensory-motor neuron-mappings of the action-contexts with which they are associated. ¹² These metaphors are structured by topographic perceptual and motor neural 'maps' of our body and our senses.

Cognitive linguistics provides an alternative account of categories as being organized in terms of basic concrete sensori-motor images with gestalt structures, and more abstract schemas derived from these images (Lakoff 1987, pp.150–154). Such images and schemas are simultaneously physical and social. They are structured by our embodied experience of the physical world, experiences which are

⁹ Fine (2002, p.2061), a development economist, is an exception.

¹⁰ Harrison (1992, pp.72–76); Mahajan & Woodward (2009); Gredebäck & Melinder (2010); Cannon et al. (2012); Woodward (in press)

^{11 (}Gärdenfors 2007, p.64; Lakoff & Johnson 1980, p.476; Lakoff 1987, p.267)

¹² (Harrison 1992, pp.86–87; Lakoff & Johnson 2003, p.255, loc. 4162)

themselves structured by the social practices and expectations of the specific social world we are born into or move to.

Competing Ontological Commitments

Whether a field of study is committed to only one 'concrete analogy' through which the field 'sees' its domain, or whether it is split by competing ways of 'seeing' its domain, an explicit examination of the ontological commitments of such 'ways of seeing' can illuminate both debates within the field of study, and folk-theoretic 'ways of seeing' within that domain of study.

Radford (2011, p.2) suggests economics use Medical ethics as a guide to constructing ethics principles for economics. The two main ethical theories that have been relied on in bioethics are deontology and utilitarianism (Johnstone 1994; E. L. Bandman & B. Bandman 1995). However, if we examine both deontological ethics and utilitarianism, we find that they are both trying to find solutions to the ethical dilemmas generated by the same ontological commitments about the nature of individuals and society that underpin neo-classical economics.

Both deontology and utilitarianism accept the Enlightenment belief that humans are by nature 'free' and motivated by reason (Elshtain 1981, p.120). Included in this freedom is the autonomy to make and be responsible for one's own moral decisions or choices. 14 Out of rational self-interest the 'autonomous' moral agent freely consents to social limits on individual freedom to the minimal extent necessary to guarantee the same degree of freedom for everyone else. Justice demands that each individual's freedom is restricted only in so far as that restriction is necessary to guarantee the same degree of freedom for others (Fahy et al. 1998). Davis (2003, p.16) argues that both neo-classical and mainstream economics share this belief in individual autonomy.

An image from the 'billiard ball' model of gases, such as that in Figure 3, provides the concrete analogy which structures neo-classical economic theory (Mirowski 1990; Smith & Foley 2008) as well as deontological and utilitarian ethics and liberal political theory (Harrison & Hutton 2005). This ontological metaphor captures the 'rationality-individualism-equilibrium nexus' that Davis (2008, pp.55–57) argues mainstream economics inherits from neo-classical economics. Each self is seen as 'containerised', sharply separated from one another by the 'walls' that bound us. The *internalist* view of 'subjective preferences [...] in terms of [...] internal states of consciousness' (Davis 2003, p.17), follows from the ontological metaphor in Figure 3, in which individual preferences are seen as being in the 'container' which is the self, hence conceiving of each person's desires, interests, and welfare as being independent of the desires, interests, and welfare of others.

¹³ The two approaches to bioethics Lewins distinguishes: the 'academic' and the 'imperative', are in fact both based on deontological ethics, with the 'academic' focused on the discussion of 'principles', and the 'imperative' on the codification of such principles (pp. 12-13). While Johnstone discusses virtue ethics (p.57-63) in her latest edition of *Bioethics* (2011), she acknowledges that 'ethical principlism' is 'one of the most popular perspectives', and most commonly relies on the principles of 'autonomy, non-maleficence, beneficence and justice' (p.39). While Bandman & Bandman's latest edition devotes two chapters to virtue ethics, it nevertheless conceives of all ethical action in terms of reasoning from ethical *principles* (2002, p.4).

¹⁴ Individual moral responsibility is qualified in virtue ethics by the recognition that one's character, and cultivation of the virtues, is limited by factors such as wealth, intelligence, health, and family that are beyond one's control. From the perspective of the dominant ontology, this is a limitation of virtue ethics (Athanassoulis 2010), from the perspective of heterodox economics, which recognises the constraints social structures place on individuals, it could be seen as a strength.

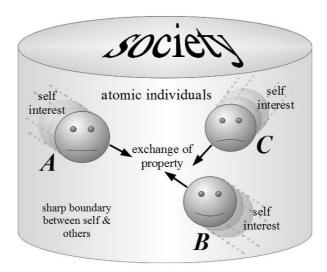


Figure 3: Atomistic model of self

Figure 3 shows the separate and independent desires of individuals as motivating our 'interactions' with others (Harrison & Strassmann 1989; Harrison 2002). When Ballet et al (2011, pp.225–226) characterise the person in terms of autonomy, freedom of choice, rationality, and reciprocity, the fact that responsibility enters into conflict with, and has to be balanced against individual pleasure is consistent with the competitive individualism of Figure 4, and shows this account of economics and ethics is an extension of the atomistic and mechanistic ontological in Figure 3, rather than a conception of the individual as intrinsically social. This image structures the dominant ways of thinking, talking, and reasoning about 'selves' in economic and in political theory. A person who satisfied the 'idealised' picture in neo-classical economics, of humans as 'self-interested utility maximisers' would be profiled by psychologists as a 'sociopath.' It could be argued that this model takes what is in fact a poor example of persons and their characteristics to develop flawed accounts of economic and social interaction.

The ontological metaphor in Figure 3 privileges the experience of independent adult men whose lives are primarily focused on market-oriented interactions with others. The political, economic, and rational choice literature that relies on this model is written as if such autonomous men spring fully formed from the womb. The model in Figure 3 ignores or suppresses awareness of the fact that we all start (and often finish) our lives helpless and dependent on the care of others, and that many of our most significant relations with others are not based on (rational) choice. Those responsible for raising children, on the other hand, are only too well aware that while infants are not born completely plastic, their attitudes and desires can be significantly shaped by the efforts of their caregivers.

Because A's wellbeing is conceived of as being independent of B's, what happens to B does not directly affect A. As Figure 4 shows, the competition for resources is assumed to be a zero-sum game in which one person's gain is another person's loss. The model in Figure 3 denies or ignores the existence of the *intrinsic* connections between people. When A does something to benefit B, it is by definition at A's expense, and hence is 'altruistic.' The atomistic conception of self creates a dualistic opposition between 'altruism' and 'self-interest.'

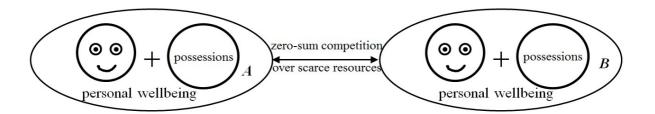


Figure 4: Competitive individualism

Figure 4 shows how this model of self conceptually separates one person's wellbeing from the wellbeing of another, so that whatever hurts or pleasures *B* experiences are seen as being felt only by *B*. Benefiting self and benefiting an other are created as opposites by this atomistic conception of self. Jennings Jr. (2012, p.8) describes it in terms of the 'conflicts of value assumed in [... relation to scarcity of physical goods] create a rivalrous social linkage as a means to serve common needs.' The ontological resources provided by the atomistic account of self do not allow for relations of mutual interdependence between people and the between people and the environment. Davis (2003, p.11, emphasis in original) argues that mainstream economics sees 'individuals as *exogenous* to the economic process [... or] that individuals are changed in nature by the economic process.' The model in Figure 3 shows how this follows from the mechanistic-atomistic self, which treats the interests and desires of selves as ontologically the same kind of thing as the physical properties of mechanical objects – that is, such properties are fixed and have an objective existence independent of the properties (interests) of other objects (persons).

Although both deontology and utilitarianism promote the principles of 'beneficence' - to do good and 'non-maleficence' - to do no harm, they justify those principles in different ways. A utilitarian determination of the good - whether for an individual or for a society as a whole - requires a calculus, or summing, of the pleasures and pains that would result from an action to ensure an overall positive balance of utility. In the hedonic calculus 'reason' serves 'pleasure'. Deontologists, on the other hand, appeal to 'rational' principles which they believe 'can and ought to be held by all men [sic], independent of circumstances and conditions, and which could consistently be obeyed by every rational agent on every occasion' - 'desire' serves 'reason' (MacIntyre 1984, p.45). Neo-classical economics claims to resolve the ethical problem of maximising utility by leaving the market to determine the most 'efficient' and hence optimum allocation of resources. Growth is the mechanism that enables Pareto optimality to increase the wellbeing of the poor without reducing the wellbeing of the rich. By treating the environment as external to the economy and human wellbeing, growth can be interpreted as doing no harm. Because the economy, is in fact, part of the complex global eco-system, not outside it (Harrison 2010b, p.30), economic growth is driving the planet towards a tipping point into catastrophic climate change (Wadsell et al. 2007; Hansen et al. 2008). As Jennings points out, when "our business practices are destroying life on earth," [...] systems approaches find theory failure,' while mainstream economics sees only market failure (Hawken 2013, p.4; cited in Jennings, Jr. 2009, pp.34, 18).

If all actors are self-interested, then only if one can decide for oneself can one protect one's own interest. Such a view of the individual means that only direct democracy is seen as legitimate, as no one can be trusted to represent the individual's interests but themselves (Wolff 1970, pp.13–14). Even in principle, not all those affected by economic, social and political decision making can participate. Future generations, children, the cognitively impaired, and non-human elements of ecosystems, both present and future, depend on those of us in the present making decisions that recognise our interdependence

and care about those who come after, to make decisions that take account of values beyond immediate self-interest. While it is clearly the case that there are situations in which we do act as if we are solely or principally motivated by self-interest, it is just as clearly the case that there are circumstances where 'self-interest', as narrowly defined, does not adequately account for our actions.

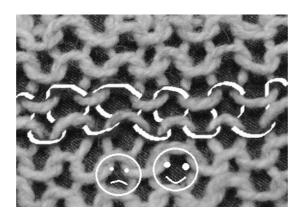


Figure 5: Intrinsically connected self (image adapted from (WillowW 2008) (CC-BY 3.0)

Figure 5 provides an alternative image that captures the fact that we are actually interdependent on each other and on the ecosystems we depend on for our wellbeing; and that our desires, preferences, skills, and capacities are shaped and constrained by the society we are part of. If the ontological metaphor in Figure 5 is understood to include nature as well as society in the knitted fabric, then it can be seen to capture key elements of the 'human ecology' metaphor, described by Jennings Jr. (2009, p.51) as fundamentally 'participative, cooperative, and complementary, rather than conflictive'.

The metaphor of self and society in Figure 5 provides an ontology of the 'socially embedded' individual favoured by heterodox economics (Davis 2003, p.17), without falling into Giddens' agency-structure dualism (Giddens 1984; Lawson 1997, pp.159–173). We are all embedded in networks of interrelationships based on affection, mutual obligation, and interdependency. This ontological metaphor can be easily extended to capture the fact that society has emergent properties which are more than the sum of the properties of the individuals that constitute it, ¹⁵ and it accommodates 'heterodox concerns with institutions, history, and social structure' (Davis 2008, p.57).

Virtue Ethics

Aristotle (1941, para.1103a15ff.) argues that morality consists in *developing* those character traits, or *virtues*, which are *at odds* with natural inclinations or tendencies. He saw human beings in terms of a potentiality which untutored would develop inclinations or tendencies that might interfere with or lead us from realising the goal of human life. After considering various alternatives, Aristotle characterises human *flourishing* in terms of achieving 'happiness,' understood as the *telos* of a human life. He is at pains to point out, however, that we ought not confuse 'happiness' with the pursuit of pleasure (1941, para.1095b15). Happiness as the 'pursuit of pleasure' is the sort of 'happiness' which the American declaration declares it is our 'right' to pursue, and which 'utility maximisation' aims at.

¹⁵ See Harrison (forthcoming b, fig.9b) for an illustration of this.

Aristotle (1941, para.1097b) embraces the paradox that when we desire or care for something for its own sake we pursue its well-being without regard for the cost or benefit to ourselves, but that it is precisely when we thus act without regard for ourselves that we gain the 'happiness' which is the 'end' or telos of human life. Rather than altruism and self-interest being opposed to one another, Aristotle's account of 'happiness' suggests that 'altruism' is the attitude we most need to cultivate if we want to be happy. Consumption and the pursuit of pleasure, on the other hand, which are commonly interpreted as manifestations of 'self-interest,' would appear to be self-defeating. 'Happiness' is what happens to us when we stop trying to get it. 'Happiness' of the sort Aristotle is talking about, supervenes incidentally to the pursuit of some 'good' that is engaged in for its own sake, not for the pleasure that might be obtained from it. The more one directly tries to pursue 'happiness' thus conceived as a goal of activity, the more it will elude one. Rather he defines 'happiness' as 'an activity of the soul in accordance with perfect virtue' (1941, para.1102a5).

Pursuing the internal goods of a practice involves caring for the practice for its own sake, that is, loving it, rather than pursuing the practice simply for the sake of the external goods you can get from doing it. Moreover, practices only exist in the context of tradition and community. Along the lines of Wittgenstein's (1958, p.242 ff.) arguments against the notion of a private language, an individual cannot by themselves create and pursue a practice. Caring about a practice also requires, then, a commitment to the reproduction of the community engaged in the practice, and the continuation and extension of the tradition associated with that practice.

While Aristotle clearly conceives of human beings as fundamentally social animals, he nevertheless moves towards the possibility of characterising human flourishing as such, rather than in terms of our performance in socially defined roles. It is only with some such conception of what it means to function well as a human being that it can make sense to argue, as he does, that some of the available social roles facilitate human flourishing to a greater measure than others. If human beings were infinitely plastic, and capable of being moulded without damage to their being to fit into any situation, there would be no basis for saying that the lot of some human beings is worse than others. If we admit, on the other hand, that human beings have at least certain basic needs that must be met for their flourishing, then we can compare social arrangements for how well, and how justly, human needs are met.

When the external context involves overwhelming pressures to be oriented towards external goods, those people who resist this and remain committed to the internal goods of a practice will experience painful conflict between competing imperatives. While resolving the conflict in favour of the pursuit of external goods may result in social or corporate advancement, resisting the enticement of external goods in favour of the pursuit of internal goods may compromise one's possibility of moving up the status hierarchy, but will promote the development of the virtues that constitute happiness. Whilst MacIntyre (1984, p.194) claimed that institutions simply are 'corrupting', it is possible that different forms of institutional organisation can be less or more corrupting. Competitive markets, as well as bureaucratic and hierarchical institutions, for instance, foster a preoccupation with external goods by making that the standard of success. Other forms of institutional organisation have been structured, however, so as to minimise the incentives on their members to be oriented towards external goods.

While pleasure is something that supervenes upon activity in general, Aristotle (1941, para.1176b8) distinguishes between those activities or 'amusements' done for the sake of the pleasure experienced and those done for their own sake. Whilst pleasure does supervene upon virtuous activity it is incidental to our participation in the activity. We pursue virtuous activities because we value them in themselves, and not just for what we get out of them. 'Amusements', on the other hand, are only valued to the extent we get fun out of them. Virtuous activities as those which 'are desirable in themselves [and] from which nothing is sought beyond the activity' (Aristotle 1941, para.1176b5). Love plays a central role in Aristotle's account of the virtues because to desire or value something for its own sake is to love it.

Aristotle (1941, para.1159b25) sees friendship, or reciprocal love between *persons*, as particularly important because it as the form of association that holds communities together.



Figure 6: Love & happiness

Love creates an intrinsic connection between self and others, thus turning the opposition between 'altruism' and 'self-interest' into a false dichotomy. When we care about others we do not simply act so as to maximise our pleasure and our accumulation of property, but nor are we denying or acting against our own desires or feelings. When we care for one another, and recognise our interdependence, it is in our self-interest to aim for the flourishing of others.

When we care for someone, we care about their wellbeing. If something good happens to someone we care about we feel happy because they are happy, if something bad, we feel sad because they are sad. Our wellbeing in part depends on the loved one's wellbeing. Figure 6 shows how A's wellbeing increases when B's wellbeing does. When we do or risk something for someone we love, our loss is simultaneously our gain, because the happiness we give them also gives us happiness. Jennings Jr. (2009, p.10) describes 'goods' such as love, learning, and information, as 'complementary', and recommends the creative commons strategy, that the more we give complementary goods freely, the more there are of them to share. This is exactly what Aristotle is talking about when he says that 'happiness' comes from doing something for its own sake, rather than doing things for what we get out of it.

The atomistic conception of self shown in Figure 4 has to describe actions done out of love in terms of 'self-denial' and 'altruism'. An atomistic conception of the person can be contrasted with a model that emphasises the connections and interdependencies between people. Steveren and Crespo (2010, p.15) point out that care and self-interest need not be mutually exclusive. The images in Figures 5 and 6 provide an ontology of self that allows us to conceive of the wellbeing or welfare of one person being dependent on the wellbeing of both other people and the ecosystems that support them, rather than each person's interests being independent of everyone else's, as the billiard ball image leads us to think. Figures 5 and 6 emphasise the fact that agency and personhood are relational rather than atomistic. This relational conception can be extended to incorporate an understanding of our interdependence with natural ecosystems in a way that is consistent with scientific accounts of complex nonlinear systems and with ecological economics.

Aristotle (1941, para.1176b5) describes virtuous activities as those which 'are desirable in themselves [and] from which nothing is sought beyond the activity'. We pursue virtuous activities because we value them in themselves, and not just for what we get out of them. 'Amusements,' on the other hand, are only valued to the extent we get fun out of them. Participation in a sport for its own sake, for example, requires recognition and understanding of the existing rules of the game, respect for those who play well, a willingness to take advice and criticism and submit to the directions of those who know what the game involves, and a willingness to risk failure by pushing oneself to one's limits for the sake of extending one's capacity to play the game well. Similarly, doing research or being a member of a profession involves recognition of the discipline or profession's existing standards of excellence and rules of evidence,

acknowledgement of the contributions of others, and a willingness to expose one's work to the criticisms of one's peers.

Although performance enhancing drugs might increase an athlete's chance of winning (against players who are not taking such drugs, for example) they do so by placing the external rewards that come from winning above the purpose of extending human powers to achieve excellence in the performance of this activity. Only those who are committed to this purpose can decide whether a proposed change is compatible or not. Do new materials for a racket, or a new design for a hull, or new training regimes, defeat or enhance the purpose of achieving human excellence? Similarly, stealing other people's work, or fabricating evidence may result in increased prestige and status, but only at the expense of the purpose of the activity one is engaged in. To the extent we value the activity for its own sake, cheating is self-defeating.

MacIntyre introduces the concept of a 'practice' to elucidate the distinction Aristotle is making between things done for 'pleasure' and things done 'for their own sake'. A *practice* is an area of human endeavour that is worth doing for its own sake. It is:

'any coherent and complex form of socially established cooperative human activity through which goods internal to that form of activity are realized in the course of trying to achieve those *standards* of excellence which are appropriate to, and partially definitive of, that form of activity, with the result that *human powers* to achieve excellence, and human conceptions of the ends and goods involved, are systematically *extended*' (1984, p.187, emphasis added).

Doing something for its own sake, then, both requires and develops the virtues of justice, honesty, and courage. Internal goods of a practice can only be achieved by *subordinating* ourselves within the practice both in our relationships to other practitioners and in relation to the demands of the practice. We can only achieve this if we diminish our ego attachment to our conception of ourself. Whilst Aristotle (1941, para. 1106a28) describes virtue as the mean in relation to a passion between deficit and excess, in fact the mean of most of the virtues Aristotle lists do not simply lie between excess and deficit but involves a quite different psychological orientation towards self. ¹⁶

Justice demands that we recognise the skills, knowledge, and expertise of other practitioners; and, that we learn from those who know more and have greater experience than we do. *Courage* requires that we take self-endangering risks that push ourselves to the limits of our capacities; and, be prepared to challenge existing practice in the interests of extending the practice, despite institutional pressures against such critique. Honesty asks us to be able to accept criticism; and, to learn from our errors and mistakes (MacIntyre 1984, p.178). Virtue is not simply a matter of doing the right thing on a specific occasion, but of developing habits that mean our automatic response to a situation is in line with virtue. As Crespo points out, because virtues are habits, both the social arrangements we are born into, and the economic structures we participate in, tend to shape both virtues and vices (Crespo 2009, p.17; Jennings, Jr. 2012, p.6). ¹⁷

MacIntyre (1984, p.188) contrasts the *internal* goods of a practice with *external* goods (or rewards) such as 'prestige, status and money' which are only contingently related to any particular practice. Achieving the internal goods of a practice can only be done within that specific practice, whereas external goods such as money are transferable across fields of activity. The pursuit of money is always an activity done for the sake of external rewards, because money is not desired for its own sake but only for

_

¹⁶ See my analysis of this psychological orientation (in Harrison & Galloway 2005, pp.6–8)

¹⁷ The names we have for virtues of vices, or lack of them, provides some indication of the institutional fostering of some virtues and vices over others. 'Obsequiousness, for example is such a prominent vice for us that we have lots of (vulgar) words for it' (Harrison & Galloway 2005, p.6).

what we can get from having it (Aristotle 1941, para.1096a5). Money from practising medicine can buy you the same pleasures as money from playing sport, whereas the pleasure that supervenes on a successful performance in a life threatening and technically challenging moment in surgery is quite distinct from the pleasure that supervenes on a moment of superlative play in a basketball game. The pleasure that supervenes on activities done for their own sake comes unlooked for, and is not compatible with the self-preoccupation that is associated with activities done for the sake of the pleasure experienced.

What Aristotle means by 'happiness' can only be understood with reference to the different kinds of pleasure or enjoyment that follow as either internal or external goods of an activity. The difference MacIntyre is getting at can be illustrated by the contrast between the pleasure that comes from the physical thrill (or adrenaline rush) produced by a roller coaster ride with the 'pleasure' that a scientist feels when their experiment works out. Utilitarians like John Stuart Mill tried to distinguish between 'lower' and 'higher' pleasures, but the limitations of their ethical theory made this difficult to resolve. While the former can be bought, like other forms of 'consumption' pleasure, it will cease to be 'fun' the more it is pursued. Neo-classical economists incorporate this feature of the 'pleasure' of consumption into their theories as 'The Law of Diminishing Marginal Utility'. This law is used to explain why, for instance, if we equally enjoy eating both chicken and apples and apples are cheaper, we don't spend all our money on apples. Past a certain point, too many apples will make us feel sick rather than good, to get the same degree of thrill from a roller coaster ride it needs to be higher and steeper, and to achieve the same high from mind altering drugs requires ever higher doses. This is the sort of pleasure we seek from consumption, and the more we pursue it the more we are destined to be dissatisfied.

In contrast, the sort of pleasure that supervenes upon an activity pursued for its own sake can't be bought. Its achievement is the result of dedication, training, and consistent effort. Repetition of the activity does not result in symptoms of surfeit, rather, the more the scientist works at their experiments, the philosopher at their arguments, or the sports person at their game, the more often they will experience the pleasure of doing it well. The limits to pursuing science or philosophy is not the result of a surfeit that reduces pleasure, as is the case with consumption activities, but the fact that there are other goods in themselves, such as gardening, providing our children with the love and attention they need, or participating in community groups, whose values we cannot realise while we attend to one activity rather than another.

By converting all values to monetary 'equivalents' economists exclude consideration of the difference between things done or valued for their own sake and those valued only as a means to other things. Current empirical research into human flourishing supports Aristotle's account comes from doing things that are worthwhile in themselves, rather than from the utility maximisation and pursuit of consumption celebrated in neo-classical economics.¹⁸

Conclusion

In this paper I have demonstrated that deontological and utilitarian ethics share ontological commitments – based on concrete metaphors or analogies – with mainstream economics. I have shown, on the other hand, that virtue ethics shares many of the ontological commitments of heterodox economics.

¹⁸ Seligman et. al. report that the most 'satisfied people are those who orient their pursuits towards' activities weighted towards engagement and meaning, with pleasure given less emphasis. 'Happy people are healthier, more successful, and more socially engaged, and the causal direction runs both ways' (2005, pp.413–414). Research has shown that individuals measuring high on eudaimonic as opposed to hedonic measures 'have high levels of inner peace, [...] frequent experiences of moral elevation and deep appreciation of life; feel connected not only with themselves but also with a [transcendant] whole' (Ryan et al. 2008, p.162).

This comparison of various ethical approaches has demonstrated that ethical frameworks are not ontologically neutral, and cannot be chosen independently of consideration of the ontological commitments of competing approaches to the study of economics.

Acknowledgements

I am grateful for supportive comments on an earlier draft of this paper, from Frederic B. Jennings Jr. in the WEA conference on Economics in Society: The Ethical Dimension, and to Ricardo Crespo on the Economic Thought website. I particularly appreciate Vinca Bigo's detailed comments on the Economic Thought website, which helped me identify which points needed elaboration for facilitating the intersection between philosophy and economics. I started exploring my ideas about conceptual (ontological) metaphors in economics in a paper I wrote with Diana Strassmann (1989), presented with her on the first feminist economics panel at a Southern Economics Association meeting in Florida. I am grateful to Diana for helping me bridge the gap between philosophy and economics. Some of these ideas were subsequently taken up by Julie Nelson, and extended by Diana. Diedre McCloskey made helpful comments on the differences between my use of the concept of 'metaphor' in this, and on subsequent papers I presented to International Association For Feminist Economics (IAFFE) conferences. The elaboration of my ideas on ontological metaphors in economics further benefited from an exchange with Tony Lawson on a panel at the (2001) IAFFE conference. I want to thank Julie Nelson for accepting my initial exploration of a feminist and ecological perspective on ontological metaphors in ethics and economics on her panel at the (2008) IAFFE meeting. I want to thank John Davis for an encouraging conversation after my presentation exploring the ontological commitments of development economics and ecology at the (2010a) Revival of Political Economy conference.

References

Aristotle, 1941, 'Nichomachean ethics', in R. McKeon, ed. *The basic works of Aristotle*, Random House, pp. 935–1112.

Athanassoulis, N., 2010, Virtue Ethics, *Internet Encyclopedia of Philosophy*, Available at: http://www.iep.utm.edu/virtue/ [Accessed March 24, 2013].

Ballet, J. et al., 2011, 'Some reflections on responsibility and happiness in economics', In J. Ballet and D. Bazin, eds. *Positive Ethics in Economics*, Transaction Publishers, pp. 225–238.

Bandman, E.L. and Bandman, B., 1995, *Nursing ethics through the life span* 3rd ed., Connecticut: Norwark.

Bandman, E.L. and Bandman, B., 2002, Nursing Ethics Through the Life Span, Prentice Hall.

Cannon, E.N. et al., 2012, 'Action production influences 12-month-old infants' attention to others' actions', Developmental Science, 15(1), pp.35–42. Available at:

http://woodwardlab.uchicago.edu/Publications_files/Cannon_etal_DS_2011.pdf [Accessed March 23, 2013].

Cartwright, N., 1983, How the laws of physics lie, Clarendon Press.

Crespo, R., 2009, 'Aristotle', in J. Peil and I. van Staveren, eds. *Handbook of Economics and Ethics*, Elgar Original Reference Series, Edward Elgar Publishing, pp. 14–20.

Crespo, R. and Staveren, I. van, 2011, 'Would we have had this crisis if women had been running the financial sector?' *Journal of Sustainable Finance and Investment*, 1(3-4), pp.241–250. Available at: http://dx.doi.org/10.1080/20430795.2012.655892 [Accessed January 2, 2013].

Davis, J.B., 2008, 'Heterodox economics, the fragmentation of the mainstream, and embedded individual analysis', in J. T. Harvey and R. F. G. Jr, eds. *Future Directions for Heterodox Economics*, University of Michigan Press, pp. 53–73.

Davis, J.B., 2003, *The Theory of the Individual in Economics: Identity and Value*, Online (netLibrary): Routledge.

Elshtain, J.B., 1981, *Public man, private woman: women in social and political thought*, Princeton University Press.

Fahy, K. and Harrison, K., 2005, 'Constructivist research: methodology and practice', in G. Tenenbaum and M. P. Driscoll, eds. *Methods of research in sport sciences: quantitative and qualitative approaches*, Meyer and Meyer Verlag, pp. 660–701.

Fahy, K., Thompson, F. and Harrison, K., 1998, 'Do we need a different ethic for the midwifery partnership?' In *9th Annual International Critical and Feminist perspectives in Nursing Conference*, 9th Annual International Critical and Feminist perspectives in Nursing Conference, Adelaide, South Australia. Available at: http://www.academia.edu/attachments/9324026/download_file [Accessed October 24, 2012].

Fine, B., 2002, 'Economics imperialism and the new development economics as Kuhnian paradigm shift?' *World Development*, 30(12), pp.2057–2070.

Forceville, C., 2006, 'Non-verbal and multimodal metaphor in a cognitivist framework: Agendas for research', in G. Kristiansen et al., eds, *Cognitive Linguistics: Current Applications And Future Perspectives*, Walter de Gruyter, pp. 379–402. Available at:

http://ezproxy.usq.edu.au/login?url=http://site.ebrary.com/lib/unisouthernqld/Doc?id=10197200 [Accessed January 25, 2013].

Fullbrook, E., 2009, 'Lawson's reorientation', *Real-world economics review*, (49), pp.73–82. Available at: http://www.paecon.net/PAEReview/issue49/Fullbrook49.pdf [Accessed March 24, 2013].

Gärdenfors, P., 2007, 'Cognitive semantics and image schemas with embodied forces', in J. M. Krois et al., eds. *Embodiment in Cognition and Culture*, John Benjamins Publishing, pp. 57–76. Available at: http://oddelki.ff.uni-mb.si/filozofija/files/Festschrift/Dunjas_festschrift/gardenfors.pdf [Accessed November 8, 2012].

Garnett, R.F., 2006, 'Paradigms and pluralism in heterodox economics', *Review of Political Economy*, 18(4), pp.521–546.

Giddens, A., 1984, The Constitution of Society: Outline of the Theory of Structuration, Polity Press.

Gredebäck, G. and Melinder, A., 2010, 'Infants' understanding of everyday social interactions: A dual process account', *Cognition*, 114(2), pp.197–206. Available at: http://www.psychologie.uzh.ch/studium/master/abschluss/artikel/Artikel_Daum1_HS12.pdf001002770900 2170 [Accessed March 23, 2013].

Hansen, J. et al., 2008, 'Target Atmospheric CO2: Where Should Humanity Aim?' *Open Atmos. Sci. J.*, 2, pp.217–231. Available at: http://www.columbia.edu/~jeh1/2008/TargetCO2_20080407.pdf [Accessed October 9, 2010].

Harrison, K., 2002, 'Categories as containers: classification and the type-hierarchy explanation of models', in Agent Modeling and Cross-Disciplinary Discourse Conference, New Mexico State University, Las Cruces, USA. Available at: http://www.academia.edu/attachments/9300433/download_file [Accessed February 19, 2012].

Harrison, K., 2001, 'Critical realism and emancipatory practice', in International Association for Feminist Economics (IAFFE), Oslo, Norway. Available at:

http://www.academia.edu/attachments/9300953/download_file [Accessed February 19, 2012].

Harrison, K., 2008, 'Economics and ethics of GHG allocation', in International Association for Feminist Economics (IAFFE) Conference, Torino, Italy.

Harrison, K., 1992, *Eros and rationality: from an algorithmic to an erotic conception of reason*, Philosophy Phd thesis, Bundoora: Latrobe University. Available at:

http://www.academia.edu/778702/Eros_and_Rationality_From_an_Algorithmic_to_an_Erotic_Conception of Reason [Accessed February 19, 2012].

Harrison, K., 2010a, Limits to Growth and concepts of sustainable development. Available at: http://vimeo.com/17103911 [Accessed February 18, 2013].

Harrison, K., 2010b, 'Limits to Growth and the Economic Crisis', in G. Vlašić and J. Pavičić, eds. *Global Business Conference Proceedings 13-16 October*, Global Business Conference, Dubrovnik, Croatia: Innovations Institute, pp. 26–40.

Harrison, K., forthcoming b, 'Metaphors of power: objectivist ontologies of gender, love and marriage', in S. Petrella, ed. *Gender and Love: Constructions, Practices and Narrative*, Fisher Imprints.

Harrison, K., forthcoming a, 'Objectivist and Essentialist Ontologies of Gender and Love', in S. Petrella, ed. *Proceedings of the 2nd Global Conference on Gender and Love*, Inter-Disciplinary Press.

Harrison, K. & Fahy, K., 2005. 'Postmodern and Feminist qualitative research methodology, methods and practice'. In G. Tenenbaum & M. P. Driscoll, eds. *Methods of research in sport sciences: quantitative and qualitative approaches*. Meyer & Meyer Verlag, pp. 702–740.

Harrison, K. and Galloway, C., 2005,' Public relations ethics: a simpler (but not simplistic) approach to the complexities', *PRism*, 3(1), pp.1–17. Available at:

http://praxis.massey.ac.nz/fileadmin/Praxis/Files/Journal_Files/Issue3/Harrison_Galloway.pdf [Accessed October 12, 2008].

Harrison, K. and Hutton, D., 2005, Rebuilding the ship: a new model of democracy in emergence, in Ecopolitics XVI: Transforming Environmental Governance for the 21st Century, 4-6 July 2005, Brisbane, Australia. Available at: http://eprints.usq.edu.au/841/1/Harrison_Hutton_RebuildingTheShipKHDH.pdf [Accessed October 12, 2008].

Harrison, K. and Strassmann, D., 1989, Gender, Rhetoric and Economic Theory, in Southern Economics Association Annual Meeting, Orlando, Florida.

Hawken, P., 2013, The Ecology of Commerce: A Declaration of Sustainability, HarperCollins.

Hursthouse, R., 2012, 'Virtue Ethics', in E. N. Zalta, ed. *The Stanford Encyclopedia of Philosophy*, Available at: http://plato.stanford.edu/archives/sum2012/entries/ethics-virtue/ [Accessed March 24, 2013]. Jennings, Jr., F.B., 2012, A theory of planning horizons (1): market design in a post-neoclassical world, *The Journal of Philosophical Economics*, V(2), pp.5–37. Available at:http://www.jpe.ro/poze/articole/69.pdf [Accessed March 20, 2012].

Jennings, Jr., F.B., 2009, 'Six choice metaphors and their social implications', *The Journal of Philosophical Economics*, II(2), pp.34–77. Available at: http://www.jpe.ro/poze/articole/24.pdf [Accessed March 20, 2012].

Johnstone, M.-J., 1994, Bioethics: a nursing perspective 2nd ed., Sydney: W.B. Saunders.

Johnstone, M.-J., 2011, Bioethics: A Nursing Perspective, Elsevier Health Sciences.

Kuhn, T., 1962, The structure of scientific revolutions 2nd ed., University of Chicago Press.

Lakoff, G., 1987, Women, fire, and dangerous things: what categories reveal about the mind, University of Chicago Press.

Lakoff, G. and Johnson, M., 1980, Metaphors we live by, University of Chicago Press.

Lakoff, G. and Johnson, M., 2003, Metaphors We Live By Kindle., University of Chicago Press.

Van Langendonck, W., 2007, 'Iconicity', in D. Geeraerts and H. Cuyckens, eds. *The Oxford Handbook of Cognitive Linguistics*, Oxford University Press, pp. 394–418.

Laudan, L., 1978, *Progress and Its Problems: Towards a Theory of Scientific Growth*, University of California Press.

Lawson, T., 2004, *A conception of ontology*, Cambridge: Cambridge Social Ontology Group. Available at: http://www.csog.group.cam.ac.uk/A_Conception_of_Ontology.pdf [Accessed March 21, 2013].

Lawson, T., 1997, Economics and Reality, Routledge.

MacIntyre, A.C., 1984, After virtue: a study in moral theory 2nd ed., University of Notre Dame Press.

Mahajan, N. and Woodward, A.L., 2009, 'Seven-Month-Old Infants Selectively Reproduce the Goals of Animate But Not Inanimate Agents', *Infancy*, 14(6), pp.667–679. Available at: http://www.bsos.umd.edu/psyc/woodward/lab/AW_Pubs/MahajanandWoodward2009.pdf [Accessed March 23, 2013].

Masterman, M., 1970, 'The nature of a paradigm', in I. Lakatos and A. Musgrave, eds. *Criticism and the growth of knowledge*, Cambridge University Press, pp. 59–89.

McCloskey, D.N., 1983, 'The rhetoric of economics', *Journal of Economic Literature*, XXI(June), pp.481–517. Available at: http://www.deirdremccloskey.com/docs/pdf/Article_110.pdf [Accessed March 20, 2013].

Mearman, A., 2008, 'Pluralism and heterodoxy: introduction to the special issue', *The Journal of Philosophical Economics*, I(2), pp.5–25. Available at: http://www.jpe.ro/poze/articole/8.pdf [Accessed March 23, 2013].

Mill, J.S., 2010, On Liberty and Other Essays, Digireads.com Publishing.

Mirowski, P., 1990, 'From Mandelbrot to Chaos in Economic Theory', Southern Economic Journal, 57(2), pp.289–307.

Radford, P., 2011, 'Ethics in Economics - Where is it?' *real-world economics review*, (58), pp.2–8. Available at: http://www.paecon.net/PAEReview/issue58/Radford58.pdf [Accessed December 16, 2011].

Rima, I.H., 2008, Development of Economic Analysis 7th ed., Routledge.

Ryan, R.M., Huta, V. and Deci, E.L., 2008, 'Living well: a self-determination theory perspective on eudaimonia', *Journal of Happiness Studies*, 9(1), pp.139–170.

Sangharakshita, 1997, A guide to the Buddhist path, Windhorse.

Seligman, M.E.P. et al., 2005, 'Positive psychology progress: empirical validation of interventions', *The American psychologist*, 60(5), pp.410–421. Available at:

http://w.ebt.org/sites/www.ebt.org/files/empiricaldata.pdf [Accessed March 27, 2013].

Sharifian, F., 2008, 'Distributed, emergent cultural cognition, conceptualisation and language', in R. M. Frank et al., eds. *Body, Language, and Mind: Sociocultural situatedness*, Walter de Gruyter, pp. 109–136. Available at: http://www.geocities.ws/fsharifian/SharifianBLM-final.pdf [Accessed January 13, 2013].

Sinnott-Armstrong, W., 2012, Consequentialism, in E. N. Zalta, ed. *The Stanford Encyclopedia of Philosophy*. Available at: http://plato.stanford.edu/archives/win2012/entries/consequentialism/ [Accessed March 24, 2013].

Smith, E. and Foley, D.K., 2008, 'Classical thermodynamics and economic general equilibrium theory', *Journal of economic dynamics and control*, 32(1), pp.7–65.

Staveren, I. van and Crespo, R., 2010, Would we have had this crisis if women had been running the financial sector? In Annual Conference of the International Association For Feminist Economics(IAFFE), Buenos Aires. Available at

http://www.iae.edu.ar/pi/Documentos%20Investigacin/Research%20Seminars/IAFFE_RCIvS.pdf [Accessed March 25, 2013].

Wadsell, D. et al., 2007, *Planet Earth We Have A Problem: Feedback Dynamics and the Acceleration of Climate Change*, Available at: http://www.apollo-gaia.org/BaliandBeyond.htm [Accessed October 18, 2012].

WEA, 2011, Manifesto, *World Economics Association*. Available at: http://www.worldeconomicsassociation.org/WEA/Manifesto.html [Accessed December 17, 2011].

WillowW, 2008, *Knitting knit and purl stitches*, Available at: http://en.wikipedia.org/wiki/File:Knitting_knit_and_purl_stitches.png [Accessed January 31, 2013].

Wittgenstein, L., 1958, Philosophical investigations, B. Blackwell.

Wolff, R.P., 1970, In defense of anarchism, New York: Harper Torch Books.

Woodward, A.L., in press, 'Infant foundations of intentional understanding', in M. R. Banaji and S. A. Gelman, eds. *Navigating the Social World: A Developmental Perspective*, Oxford University Press. Available at:

http://mfs.uchicago.edu/public/institutes/2013/cognition/prereadings/InfantFoundationsofIntentionalUnder standing.pdf [Accessed March 23, 2013].