



## Methodological and Ideological Options

## The second generation of ecological economics: How far has the apple fallen from the tree?



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## ABSTRACT

This paper examines the discourse produced in the academic journal *Ecological Economics* from its inception in 1989, and compares this discourse with that of the field of environmental economics. I used methods for discourse analysis (Alceste and Iramuteq) on 6308 abstracts of papers published in four journals — namely *Ecological Economics*, the *Journal of Environmental Economics and Management*, *Environmental Values*, and *Environmental and Resource Economics*, published between 1989 and 2013. The results suggest that the discourses of ecological economics and environmental economics have grown closer over time. The semantic classification of co-occurring terms used in *Ecological Economics* indicates increasing significance of the notions of ecosystem services and of monetary valuation. I argue that this trend is parallel to Costanza's career-path, which suggests the rise of a tacit recognition of the New Environmental Pragmatic scientific approach. I conclude with some of the implications for EE of promoting this kind of discourse to such an extent.

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## 1. Introduction

In recent years, articles have been published envisaging the future of ecological economics (Spash, 2011; Anderson and M'Gonigle, 2012; Spash, 2012). These articles have echoed and increased the large number of publications analyzing ecological economics. In this line of research, we can distinguish historical analysis and reports from personal experience (Spash, 1999; Pearce, 2002; Costanza, 2003; Røpke, 2004, 2005; Spash, 2006) and from more normative works defining the goal of ecological economics (Costanza, 1989; Norgaard, 1989; Van den Bergh, 2001; Özkaynak et al., 2002; Gowdy and Erickson, 2005a; Spash, 2012; Martinez-Alier, 2001). Although both kinds of research aim at finding common ground for the community of researchers, they also employ discourse on the reasons why we should adopt an ecological economic approach towards environmental problems (Luks, 1998). As a result, from individual researchers' perspectives, they define what 'good' ecological economists should be.

The purposes of this paper were to analyze this discourse produced by ecological economics since the emergence of the field in 1989, and examine the relationship between the second generation of ecological economics and the origins of the movement. Evidence of these discourses can be found in academic journals of the ecological economic community, and in particular, *Ecological Economics* (EE hereafter). Of course, the discourse of ecological economics is not exhaustively summarized in the articles published in EE, and the authors published in

the journal are often distantly related to the community if at all. Yet, EE articles can be used as representative of the discourse prevailing in the field because EE has institutional rules and organizational structures ensuring that the articles published, in addition to meeting academic standards, are also consistent with the paradigms prevailing in the field. To a certain extent, the principles and procedures of decision-making for publication in EE comply with the normative requisites prevailing in the field. For instance, when selecting new members for the editorial board in 2009, the Editor-in-Chief wrote, "These individuals were selected to provide service opportunities to new members of the ecological economic community, taking into account the journal's evolving intellectual focus and the increasingly international scope of our field. Selections were made by the Editor-in-Chief in close consultation with the publisher and the leaders of the International Society for Ecological Economics" (Howarth, 2009, p. 593).

Analyzing scientific discourse requires considering that the production of knowledge is about defining narratives. The second section of this paper investigates the ways in which articles published in academic journals can be considered as discourses and analyzed as such. The third section then questions the discourses produced in ecological economics through textual analysis of abstracts by (i) comparing the evolution of environmental and ecological economic discourses and (ii) studying the evolution of the semantic content of the EE publications. Abstracts of articles published in EE, in the *Journal of Environmental Economics and Management* (JEEM), in *Environmental Values* (EV), and in *Environmental and Resource Economics* (ERE) between 1989 and 2013 have been processed with innovative methods of textual data analysis, namely Alceste (Reinert, 1983, 1990) and Iramuteq (Ratinaud and Dejean,

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2009) software. Results presented in the fourth section suggest that ecological economic discourse is evolving towards convergence with environmental economic discourse. Following Illge and Schwarze (2009), there are some common points between ecological and environmental economics (Gowdy and Erickson, 2005b; Spash and Ryan, 2012). Results in this study particularly point to the increasing importance of the evaluation of ecosystem services in ecological economic discourse. Finally, I discuss this trend and interpret it as the prevalence of an academic convention supported by (i) the ambition to improve EE's success and (ii) the justification of a pragmatist paradigm (Section 6). I conclude by questioning the kind of transdisciplinarity promoted by ecological economics.

## 2. Talking About Discourse in Ecological Economics

Post-modern science not only follows from the need to address complex issues in a fast-changing world, but also acknowledges the fact that research must address urgent societal issues (Funtowicz and Ravetz, 1991, 1994). The aim of this section is to clarify the ways in which research can be considered as a collective discourse. Such clarification leads to considering the power issues that arise in the production of discourse.

### 2.1. Post-Normality, Norms, and Constructivism

Ecological economics was first created as a forum providing space for criticizing 'normal science,' i.e. science based on an oversimplification of complex issues and aiming at predictions. It also sought to propose an ambitious scientific project by re-embedding science into society, challenging technological paradigms, and seriously considering the issue of the size of the economic scale (Costanza and Daly, 1987). This ambition required a paradigm shift, that is, a revolution in the way knowledge is constructed (Kuhn, 1962). In this sense, the scientific revolution described by Kuhn is a process through which the norms of producing scientific theories or knowledge are questioned and replaced by other norms. For instance, ecological economics considers that knowledge is useful as long as it produces operational solutions, while traditional, positivist science judges the usefulness of knowledge in regard to the accuracy of its predictions (Friedman, 1953).

If we accept the premise that theories are a way to simplify complex realities, then we have to acknowledge that the acceptability of theories or knowledge claims depends on: (i) the ways in which they are communicated within and/or outside the scientific sphere (Luks, 1998) and (ii) the pre-analytical choices and problem-structuring of a given issue (Özkaynak et al., 2002; Giampietro, 2004). To address these two aspects, we must ask a decisive question regarding ontology, i.e. the status that researchers grant to reality. Reality can be either perceived as something that *exists* (realism) or something that is *constructed* (constructivism) – or any blending of these extremes. Answers may vary across disciplines, the subjects under study, or even by researchers.<sup>1</sup> Constructivists either emphasize the equipment the scientific production process requires (Latour and Woolgar, 1979), the historical determinants of science (Hacking, 2002), or the social effects induced by knowledge production (Hacking, 1999; Daston and Galison, 2007). For constructivists, the structuring of the problem, e.g. establishing categories for analysis, means formatting reality. Moreover, since complexity implies non-equivalent perspectives, choices of narratives have to be made (Allen and Giampietro, 2006). Therefore, theories only tackle a limited set of facets of 'reality.'

<sup>1</sup> This question is philosophical and is beyond the scope of science because of the autopoietic system paradox (also known as chicken-egg paradox): producing truthful knowledge already requires having preconceived what is truth... which follows from the production of truth itself (see Hacking, 1999, for a clear and still current report on debates between realism and constructivism). As a result, ontological positioning is a matter of *a priori* scientific positioning.

Yet moving beyond the split between realism and constructivism, the ways in which science is communicated is also a matter of importance, not only because of the conception of reality it reflects or because of the socio-political effects it induces, but also because controlling perceptions about rightness is an issue of power (Martinez-Alier, 2001).

### 2.2. What is Academic Discourse (Also) About?

Identifying who (e.g. which peer community) has the ability to design such norms and to which extent they have the power to impose them is therefore crucial because these norms influence the magnitude of theories' acceptance. Indeed, according to Kuhn, the willingness to accept a new scientific theory is not only a question of formal logic. It also depends, maybe to an even greater extent, on its emotional effects and resonance within peer communities (Kuhn, 1957, p. 40). In this sense, paradigms not only refer to sets of concepts, theories, and accepted practices within a field of inquiry, but also encompass the entire worldview that this set entails (Kuhn, 1962). It follows, then, that arguing about truth entails arguing about much wider representations of the world. Hence, scientific discourses are not only about producing valid knowledge, but also about power relationships. In other words, discourses not only reflect power relationships or are conceived as a way to make a statement be accepted as truthful, but also are a means to control commonly accepted representations on how the world functions. In this sense, academic discourse, and in particular ecological economic discourse, is rhetoric (Luks, 1998; Shi, 2004).

In ecological economics, some studies have already highlighted questions of power and influence within the field (Røpke, 2005; Spash, 2011). For instance, Røpke (2005) documented the following event at the 1996 conference of ecological economics at Versailles St. Quentin University: during the conference, David Pearce (who at the time was an associate editor of the journal *Ecological Economics*) claimed that ecological economics was a sub-discipline of environmental economics. The result was that he had to leave his position on the board of the journal (Spash, 2011, also refers to this event, but noted that "Pearce was not separated from the journal for another two years", p. 353). The same sort of censure arose when Cutler Cleveland took over as an editor of the journal in 2002. Clive Spash, who had been appointed as a board member few months before, was dismissed along with others (Røpke, 2005). In some cases, it remains difficult to sort out the reasons why some people were excluded from the field of ecological economics. What we can say with certainty is that not every discourse is (or has been) admissible within ecological economics.

### 2.3. Sources of Scientific Discourse

As these two examples highlight, academic discourses are found primarily in conferences and in academic journals. Such a distinction refers to what Luks (1999) called internal rhetoric and external rhetoric: internal rhetoric aims at persuading a specific audience (within a scientific community) while external rhetoric aims at convincing a more universal audience (science as a whole, or even the whole world) (Perelman (1977) introduced this distinction between "persuasion" and "conviction" in line with the tradition established by Kant and Pascal).<sup>2</sup> The present study is concerned exclusively with the external discourse of ecological economics for two reasons: (technical and practical reasons are discussed in the next section):

- First, articles present arguments in the most scientific way. They respond to certain codes and norms of presentation (Collins, 1993), while debates in conferences are often more open and may drift to discussing normativity and even the ways science is/should be

<sup>2</sup> The difference between conviction and persuasion has long been the subject of intense debate. For Pascal (1670), conviction is based on reason, whereas persuasion is based on passion, while for Kant (1781), the former is objective, while the latter is subjective.

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