

**Economics, realism and reality: a comparison of
Mäki and Lawson**

Duncan Hodge

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Abstract

There is presently considerable debate about the application and interpretation of realism in economics. Interest in this area of the philosophy and methodology of economics has intensified over the last twenty years, especially due to the substantial contributions by Uskali Mäki and Tony Lawson respectively. Although their work falls under the same banner of realism in economics, their projects differ significantly in many important respects. This review tries to clarify the contrasting approaches of each author and explains the main reasons for the differences between them. The emphasis is on clarification of their respective positions rather than a comprehensive critical evaluation as such.

KEYWORDS: Realism, Economics and Reality, Mäki, Lawson

It is probably no exaggeration to say that by the 1990s the debates that had dominated the methodology of economics were beginning to flag. Diminishing returns had set in to the further allocation of intellectual resources to arguments about the applicability of the ideas of Popper, Lakatos and Kuhn to economics (with logical positivism the ritual whipping boy in such debates). The philosophy of economics sought a fresh approach, as suggested by the title of Backhouse's (1994) book *New Directions in Economic Methodology*. The philosophy of scientific realism is one such approach and the aim of this paper is to compare and contrast the positions of two of the main exponents of realism in economics, Uskali Mäki and Tony Lawson. Although they share some basic notions of realism, their approach and contributions to the realist project in economics differ fundamentally. Indeed they may be regarded as advancing two different if overlapping projects. The aim here is not a comprehensive critical evaluation as such, but primarily to clarify their interpretation and use of realist philosophy in economics. Although there are some explicit and implied criticisms in the text, close attention is paid to the work of the authors themselves rather than to what various critics have had to say about it. Needless to say, given the extensive publications by the two authors in this area, this review is necessarily selective in describing the main ideas and arguments in each case and the basic differences between them.

An indication of the growing influence of realism in the philosophy of economics is the increasing number of publications in this area. However, the realist project in economics has found more fertile soil in Europe than America, especially Lawson's realist critique of mainstream economic theory. Not surprisingly, given a tradition of thought critical of essential aspects of classical and neoclassical economics (to which Keynes and Kaldor are most often referred to in this regard), under Lawson's

*Department of Economics, University of South Africa

influence the University of Cambridge has become the main sponsor of research in this area. The Cambridge Workshop on Realism and Economics has been running for more than fifteen years since it was established in 1990. Lawson's influence is also detectable in the *Cambridge Journal of Economics* where the Editors explicitly favour contributions with, "a strong emphasis on realism of analysis".

Mäki has been more neutral in his approach and less critical of the actual content or substance of particular economic theories. This may reflect the fact that Mäki is a philosopher (since August 2006 in the Department of Social and Moral Philosophy at the University of Helsinki and for about ten years previously in the Department of Philosophy at Erasmus University in Rotterdam) with a strong interest in economics, rather than an economist with an interest in philosophy. Mäki's work is unusual in that besides its application to economics it has also been used to extend and refine the concept of realism in the hands of philosophers (see, for example, Mäki 1996). Economics is accustomed to hand-me-down philosophy of science and methodology based on the natural sciences, especially physics. Having economics provide case studies for lessons in the philosophy of science is thus a notable and refreshing exception to the rule.

Although there is a substantial and growing body of research and responses to the ideas put forward by Lawson and Mäki, there has been little in the way of a sustained direct comparison thereof. An important exception may be found in the book by Boylan and O'Gorman (1995). However, Boylan and O'Gorman's commentary is conducted within the broader context of finding a compromise between relativism and realism towards, as suggested by the subtitle of their book, "a reformulation of economic methodology". There is also a short description and explanation of Lawson's and Mäki's positions in Wade Hands' book, *Reflection without Rules* (see Hands 2001A). Where methodologists have commented on the realist project in economics, their arguments have at times (allegedly) misconceived the philosophical positions taken in this regard. For example, in his reply to a paper by Hausman (1998) critical of the realist project in economics, Mäki claims that, "his arguments misfire because they are based on misunderstandings about the nature of realism as I use the term. (I leave it to others, including Lawson, to defend themselves)" (Mäki 2000: 109). Thus there appears to be room for a paper that tries to clarify the application of philosophical realism to economics by concentrating on the different approaches taken by Mäki and Lawson.

Section 1 briefly outlines the realist philosophy of science, demarcating it from other philosophical perspectives. Sections 2 and 3 examine the distinct ways in which realism has been applied to economics by Mäki and Lawson respectively. Section 4 concludes by drawing on the previous sections in comparing the similarities and differences of the two realist projects in economics.

1 Scientific realism

In describing the state of progress and new directions in economic methodology, Wade Hands notes in one of his thirteen theses that debates on realism in economics have become "a many splendoured thing". The more recent work on realism in the methodology of economics has moved on from the time when such debates were derivative of the arguments between instrumentalists and scientific realists in the philosophy of the natural sciences: "Those writing on economic methodology have cut the philosophical umbilical cord to the Received View and the many different faces of 'realism' are now emerging within the methodological literature" (Hands 2001B: 53).

One reason for confusion regarding the term 'realism' in economics is that it has not one but many meanings, depending on the context in which the term is being used. As pointed out by Mäki (1998), "'Realism' is used as the name for a variety of doctrines about things such as science,

sense perception, universals, other minds, the past, mathematical objects, truth, moral values, possibilities and so on". Mäki notes that this diversity is reflected in the fact that opponents of realism come in various guises. Non-realists include, for example, those subscribing to idealism, phenomenism, empiricism, instrumentalism, fictionalism, constructivism and relativism. In this paper the main concern is with scientific realism: to what extent are theories (including economic theories) and the way theorists (including economists) think about them consistent with (different versions of) a realist interpretation? And, if not, is this a good or bad thing for the way we think about and do economics?

Boylan and O' Gorman (1995: 89 - 93) list four stereotypes of scientific realism thought to be broadly acceptable to those who regard themselves as scientific realists. (1) The minimum criterion is that the statements of a theory are (or may be) either true or false (contrary to instrumentalism). (2) Furthermore, the statements have to be true or false apart from ourselves, that is that although a theorist creates such statements their truth or falsehood is independent of the mind that created them (contrary to relativism). (3) At the ontological level, this can be taken to mean the view that the world exists independently of us, that the world really is this way rather than that, and what we think or feel about it makes no difference (contrary to constructivism). (4) Moreover, it is possible to know what the independently existing objects and their properties in the world truly are (contrary to Kantian idealism). Thus in principle there is no impenetrable veil between such objects, even if they are not directly observable, and their access to the human mind. It is the task of science and the role of theory to discover more precisely what the objects and their essential properties are.

These stereotypes characterize scientific realism at the basic levels of semantics (truth or falsehood), ontology (existence) and epistemology (knowledge of the world). With some modifications, they can accommodate most scientific realists. The main differences between scientific realism and other philosophies of science concern the role of theories as regards description, prediction and explanation. A theory may do all three things but an empiricist's basic instinct is to describe, an instrumentalist's is to predict and the scientific realist's is to explain (see, for example, Davis, Hands and Mäki 1998). The main opposition to scientific realism at the levels of semantics, ontology and epistemology is methodological instrumentalism. As with the term 'realism' there are different versions of instrumentalism. However, they have in common the basic view that the truth or falsehood of theoretical statements is unimportant. Such statements are regarded as nothing more than tools for generating predictions. They are seen simply as 'inference tickets' from which testable implications may be deduced. What matters for an instrumentalist is the ability of a theory to generate testable predictions and their corroboration by empirical evidence (or the absence of falsifying instances thereof - instrumentalism is broadly compatible with logical positivism, logical empiricism and falsificationism). The main differences between instrumentalism and scientific realism are thus at the levels of semantics and epistemology. However, instrumentalism is not necessarily inconsistent with realism at the ontological level. A modified form of instrumentalism can accommodate the belief that the entities postulated by a scientific theory exist but deny that the truth or falsehood of statements about them matter in the appraisal of the theory (all that matters in this regard is the accuracy of the predictions thereof).

For scientific realists, knowledge of some aspect of the world is unsatisfactory if it is confined to description and prediction. In addition to the questions "what is this like?" and "what will happen if", such realists want to know *why* things are the way they are or happen the way they do. Scientific realism usually requires true explanations to be in terms of theoretical objects that are not directly observable in the sense that we have no immediate sense impression thereof. Such

realists want to know, and believe it is possible to know, what is going on beneath the surface appearance of things. Such realists hold that theoretical objects such as viruses, genes, electrons and gravity exist (or refer to existing things) – even though they are not directly observable - and that the inherent nature of such entities explains the various manifestations of things like illness, intelligence, electricity and falling apples. A radical scientific realist holds that only the objects of a scientific theory exist (or refer) whereas a radical commonsense realist holds that only our ordinary unscientific notions of things exist (or refer). Most realists fall somewhere in between these two extremes.

Contrary to scientific realism, are descriptions and predictions of observable objects and their properties the only legitimate kinds of scientific knowledge available to us? This is the position taken by constructive empiricists such as van Fraassen (1980). Constructive empiricism gives science the task of providing true descriptions of that which is observable - the ultimate aim of scientific theorising is to construct models which are empirically adequate in this sense. As regards the hidden entities, essences and causal mechanisms postulated by such theories, the constructive empiricist does not deny their possible existence but suspends any judgement about them. Explanation is relegated to the realm of pragmatic considerations about the many different applied contexts or settings in which the question “Why X?” may be asked. By contrast scientific realists are committed to the belief that purely theoretical explanation is both possible and desirable, with the idea of explanation usually attached to some notion of causality or necessity. Thus for scientific realists, explanation requires an analysis of the hypothesized causal relationships between the objects of scientific inquiry. Constructive empiricism may be seen as a compromise between instrumentalism and realism. Unlike the instrumentalist, the constructive empiricist does not deny that theoretical statements are either true or false. Unlike the scientific realist, however, the constructive empiricist denies that we can know anything about the truth or falsehood of such statements beyond descriptively or empirically adequate models designed to “save the phenomena”.

The standard view of scientific explanation is the covering law or deductive-nomological model outlined by Hempel and Oppenheimer (1948). The D-N model has proved popular in both the natural and social sciences as it manages to combine elements of the empiricist, instrumentalist and realist philosophies of science in a disarmingly simple way. The logic of the D-N model is that any event (the explanandum) can be explained or subsumed under a given set of initial conditions and at least one general law (the explanans). For example: metals expand when heated (general law), therefore if copper is a metal and heat was applied to a piece of copper tubing without any other relevant variable changing in any way (the initial and ceteris paribus conditions), then this is sufficient to explain why the copper tubing expanded. The D-N model implies the symmetry thesis that prediction and explanation are the same except for their time dimensions: prediction standing before the event occurs and explanation after. As noted by Hands (1998) the D-N logic of scientific explanation remains the workhorse of the sciences, including economics (being compatible with both logical empiricism and Popperian falsificationism). However, it is precisely the D-N inferential model of explanation that has come under fire from realists such as Lawson in his critique of mainstream economics, as discussed further in section 3.

2 Mäki: dialectical realism

Mäki is a philosopher with a strong interest in the methodology of economics. Some of his more important early contributions regarding the application of philosophical realism to economics are Mäki (1986; 1988; 1989; 1990A; 1992). In much of this work there is a clear emphasis on the

essentialist concerns of scientific realism. For instance, Mäki suggests that his analysis of Austrian economics is “built upon realist and essentialist premises” and provides “a reconstructive interpretation of the deep structure of the Austrian approach to explaining economic phenomena” (Mäki 1990A: 310). For this reason Mäki’s approach to realism in economics has sometimes been labelled “essentialist scientific realism” (see Boylan and O’Gorman 1995: 131 and 175).

However, many of Mäki’s contributions are more wide-ranging than such essentialist interpretations or reconstructions of economics. The clarification of conceptual issues such as referentiality, truth, representation, common sense realism, the realisticness of assumptions, isolation and idealization, and the use of models in economics are not confined to the narrower thesis of essentialism. Mäki suggests that, “realism about science should be contextualized in terms of peculiarities of particular disciplines and kinds of theories” and that “This amounts to a defence of concrete and local as against abstract and global philosophy of science” (Mäki 1996: 427). Reflecting at a later stage on his approach to the philosophy and methodology of economics, Mäki (2002: 91) comments that, in contrast to the usual “top-down” prescriptive approach: “‘Bottom-up approach’ may be an approximately accurate label for some of my work, but taken together, it may be more accurate to view the totality of my research on the topic as a manifestation of a *dialectical approach* where philosophical concepts are adjusted and created in the light of empirical information concerning the actualities of economics” (my emphasis). Thus a study of realism in economics may have lessons for the realist philosophy of science as well as economics.

This reflexive interaction between the two disciplines and the broad scope of such analysis suggests that the essentialist label used to describe Mäki’s approach is too restrictive. In my opinion, taking Mäki’s own cue in this regard, a better label is “dialectical realism” both in the broad sense of “the testing of truth by discussion, logical disputation and criticism dealing with metaphysical contradictions and their solutions” (Oxford Reference Dictionary) and in the sense of a reflexive interaction between the two subjects. Whatever label we wish to use, Mäki’s approach is a refreshing change from the standard dogmatic response that if economics does not meet with some preconceived notion of realism (derived from analyses of the natural sciences) then economics and realism just do not fit (with the usually implied criticism that it has somehow failed an exam and is thus deficient in this respect).

It is useful to group Mäki’s published work into three categories, despite the considerable overlap between them. One category concerns the analysis of a particular school of thought in economics (or exponent thereof) to see how it might be construed along realist lines. As Mäki (2002: 91) puts it: “The first is to look at the actual theories, methods, and meta-theoretical views held by practicing economists, and to see whether there are plausible interpretations and reconstructions that would be consistent with versions of realism.” The main contributions here include his analyses of Austrian explanation (Mäki 1990A and 1990B), Milton Friedman (Mäki 1992), institutional economics (Mäki 1993), and Ronald Coase (Mäki 1998). A second category comprises papers that subject economic discourse to the rigours of analytical philosophy with two main aims in mind: to provide conceptual clarification of the terminology and methods commonly used by economists and to focus on the peculiarities of economics as a scientific discipline from a philosophical perspective (see Mäki 1988, 1989, 1990C, 1996, 2005). A third category includes the examination of arguments against realism in economics – most of which, according to Mäki, do not stand up to close scrutiny and are usually found to be nonreasons for nonrealism in economics (see Mäki 1993, 1996, 2000, 2002). Mäki’s approach in this regard is to argue that, “Even if P, realism about economics is not thereby discredited where ‘P’ designates such a premise which is believed to entail nonrealism” (Mäki 2002: 92). There is considerable overlap between the three categories and the separation is to some extent

arbitrary. However, they help to make the discussion of Mäki's wide-ranging contributions in this area more manageable. A representative paper from each of the above categories is selected for further examination.

2.1 Scientific realism and Austrian explanation

Mäki (1990A) provides a reconstruction of Austrian explanation along realist and essentialist lines. He focuses on the significance of the invisible hand in Austrian explanation with specific reference to the quantity theory of money. In this context, Mäki examines various aspects of Austrian explanation that uncover its realist premises and contrasts this with the instrumentalist D-N model of explanation. The important aspects of Austrian explanation in this regard are: redescription, identification, ontological unification, and the asymmetry of explanation and prediction.

Explanation as redescription involves various aspects. A realist explanation should reveal the true nature or deep essence of the phenomena in question and is not content with empirical generalisations based on surface appearances. For example, Austrians are not content with D-N explanations of inflation that do not go beyond the covering law argument showing that price increases are strictly proportional to increases in the quantity of money. There is dissatisfaction with the idea that macroeconomic aggregates have a real ontological existence and genuine causal relationship detached from the beliefs, intentions, subjective valuations and actions at the level of the individual. Thus the true nature and a real understanding of the relationship between inflation and the quantity of money can only be achieved through further redescription of these phenomena – and this invariably requires, in Austrian explanation, a microreduction to the individual since economic and statistical aggregates are regarded as nothing more than the outcomes of individual beliefs, valuations and actions.

Explanatory redescription thus also entails identifying what is essential about the social entities in question. Mäki asserts that, “Austrian economists at least implicitly subscribe to the following two general identification statements as part of their approach:

Social entities are aggregates or averages of individual entities, these latter entities being invested with meaning by acting individuals. (A)

Social entities are unintended consequences of actions by human individuals. (C)” (ibid. 324, his emphasis)

Mäki calls (A) the aggregative principle and (C) the causal principle of the constitution of social entities with the latter “the most distinctive ingredient in the Austrian way of explaining economic phenomena” (ibid. 325). Social entities (such as the demand and supply of money, the inflation rate, markets, GDP) are not simply the result of individual actions, but the *unintended* consequence thereof. In contrast to approaches that emphasise government agency and social planning, a distinctive feature of Austrian explanation is the importance attached to the unintended outcomes of spontaneous market processes guided by the invisible hand. Both (A) and (C) are consistent with a scientific realist view of Austrian explanation in that they require social aggregates and the relationships between them to be redescribed at the underlying level of individual human action.

For example, as noted above, the Austrians reject the strict proportionality between prices and money implied by the ‘mechanical’ version of the quantity theory: “They claim (and this claim would be impossible without identification statements such as (A) and (C)) that during the process whereby the additional money enters the economy, changes will take place in the ‘microstructure’

of the system (valuations and expectations of individuals, distribution of incomes, exchange ratios between goods)... This implies the rejection of the proportionality theorem..." (ibid. 328). It might be noted here that this view is also consistent with Keynes' assertion that the demand for money and velocity of circulation of money are not stable functions independent of changes in the money stock.

Explanatory redescription achieves the further aim of ontological unification, which is a key feature of scientific realism. Ontological unification brings about a common underlying explanation, in Austrian economics at the deeper micro level of the individual, of apparently diverse and independent phenomena. Mäki (1990A: 330) refers to Menger's (1976: 173) claims "that all phenomena of value are the same in nature and origin, and that the magnitude of value is always governed according to the same principles" and to von Mises's (1953: 144 – 45) criticism of theories of money and interest that determine their value differently rather than as having the same essential cause, that is, the subjective valuations placed on these objects by individuals.

Mäki (1990A: 331) notes an important distinction between logical and ontological unification: "Logical unification is brought about when more and more statements within a discipline become derivable from the same set of axioms, or when the same set of statements becomes derivable from a smaller set of axioms." Logical unification is epitomised by general equilibrium theorising. Although Austrian economics also relies on logical unification it is ontological unification, as described above, that is the hallmark of Austrian explanation.

In what may be regarded as the standard or mainstream methodological approach, successful prediction is the ultimate prize in economic science. By contrast, Austrian economists believe that the mainstream concern with prediction is misguided because, unlike the material world of the natural sciences, the economic realm is constituted by human individuals characterised by free will. Austrian economists are sceptical of predictions derived from the empirical generalisations of the D-N or covering law model as such generalisations are not strictly or universally true. They may be true of a limited domain of economic phenomena but it is precisely the work of scientific theories at the micro level to explain why this may be the case.

In explaining the limitations of predictions based on empirical generalisations, Mäki refers to the twin concepts of a closed and an open system. A closed system is characterised by both extrinsic and intrinsic closure conditions. The former requires that the system *in reality* be isolated from external influences or that these influences remain constant, while the latter requires the internal structure of the system to be constant (ibid. 332). Only a closed system can provide generalisations with no exceptions and only then can there be any faith in the reliability of predictions derived from such generalisations. Since a real economy (as opposed to a theoretical model thereof) is characterised by open systems in which either or both the extrinsic and intrinsic conditions fail to hold, the emphasis on prediction is misguided and the predictions as such highly misleading.

For example, the prediction by the quantity theory that a given increase in the money supply will lead to a strictly proportionate rise in prices is misleading because the intrinsic condition for closure does not hold. As emphasised by Austrian economists, individuals' past experience with inflation may lead to changes in expectations and valuations such that the real demand for money changes, thereby altering the proportional relationship between money supply and prices. In short, the complexity of economic interactions at the micro level militates against the identification and isolation of closed systems in real world economies, thereby making the aim of prediction a much more questionable enterprise than, perhaps, in the natural sciences where such closures may be identified more readily.

2.2 Realism vs realisticness

Mäki's (1989) paper "On the Problem of Realism in Economics" is a classic example of his varied contributions to the task of terminological and conceptual clarification in economics. These purely analytical tasks exemplify the traditionally conceived role of philosophy as the 'handmaiden' of the sciences, removing conceptual and semantic stumbling blocks to the progress of science in explaining, predicting and applying knowledge of the real world. On this view, it is not in the job description of philosophers to comment on the actual content of scientific theories or get their hands dirty with the empirical aspects thereof.

As regards economics, Mäki contends that progress has been stultified by various terminological and conceptual confusions. In particular, he asserts that the perennial debate about the realism of assumptions and theories in economics is misconstrued in that, on closer examination, the debate is only tangentially about the issue of realism as a philosophical doctrine. According to Mäki, what economists are often arguing about is what he calls the 'realisticness' of assumptions and theories, and to avoid ambiguity he recommends that these two terms be separated and made distinct conceptually. Mäki (1989: 194) explains why he regards 'realism' as "designating a collection of ontological and semantic doctrines" in contrast to 'realisticness' as "designating a collection of attributes predicable of representations" and then goes on to show how realisticness at times may be connected to the issue of realism in economics, referring to the work of Machlup, Friedman, Kirzner and Simon as regards the theory of the firm.

In comparing the ideas of realism and realisticness, Mäki notes first that there are many versions or aspects of philosophical realism, including amongst others, ontological, referential, representational, veristic, commonsense and methodological realism. These realisms have little direct link to what often passes as arguments about the realism of this or that assumption or theory when economists are really arguing about the (realistic or unrealistic) way in which such assumptions or theories represent the world: "A representation can be said to be realistic if it is about reality (i.e. it refers factually) or about observables (i.e. it refers observationally) or about essentials (i.e. it refers essentially), or if it represents what it refers to, or if it is true of what it represents" (ibid. 196). Other senses in which a theoretical representation may be said to be realistic is "if it has been tested and well confirmed, or if it is plausible, or a useful approximation, or practically relevant, etc" (ibid. 196). In short, realism is a 'theory of theories' or philosophical metatheory, whereas 'realisticness' is a multifaceted property of theories themselves.

These distinctions are clarified further with reference to methodological views on the theory of the firm by the above-mentioned authors. As noted by Mäki, none of these economists present a fully consistent appraisal but rather an amalgam of metatheoretical views. For example, Friedman's views suggest that he is an ontological, referential, representational, and veristic realist, but a methodological non-realist (ibid. 202). Friedman believes that real business firms exist (ontological realist), that the neoclassical theory refers to such firms (referential realist) and represents them falsely (representational realist), and that the falsity of the neoclassical assumptions about the firm is a desirable property of such theories (veristic realist). The latter so-called F-twist is a distinctive feature of Friedman's methodological instrumentalism. Economic theories are instruments for generating predictions, on this view, but not in the usual sense of such theories being neither true nor false – they indeed have a truth-value in being descriptively false, wildly inaccurate even, and this is deemed by Friedman to be a desirable property.

Mäki shows that Friedman is more of a realist than Machlup. Machlup denies that real neoclassical business firms exist because as such they are literally unobservable. The neoclassical firm is viewed as a fictional entity responding passively to changes in situational factors such as costs and

technology, and the prices and quantities of the goods concerned. The neoclassical theory of the firm is concerned exclusively with its role in coordinating a competitive market system of prices, inputs and outputs. The internal structure, organisation and decision-making aspects comprising the commonsense notion of the firm are ignored. Other theories of the firm, such as the behavioural, managerial and organizational theories are designed for the purpose of explaining these factors and Machlup is a meta-theoretical realist in this regard – he holds that such firms exist and in many respects are more realistic than the neoclassical theory of the firm. In summary, as regards the neoclassical theory of the firm Machlup is an ontological, referential and representational non-realist in both the descriptive and normative senses. However, as regards business firms in general Machlup is an ontological commonsense realist holding that such firms are observable and can be referred to and represented by other theories with a different aim in mind – to uncover and explain the microstructure of such firms rather than their coordinating role in a competitive market system.

While Machlup and Friedman provide methodological defences of the ‘unrealisticness’ of the neoclassical theory of the firm, Kirzner and Simon criticise the theory for being unrealistic in its different senses. Kirzner believes that the neoclassical theory of the firm ignores what is the essential feature of real business firms, entrepreneurial alertness. Austrian firms are not passive recipients of information that respond robotically by calculating the relevant costs, prices and quantities and moving automatically to their constrained profit maximising equilibrium positions. Austrian firms are purposeful in seeking out new opportunities for profit and adapting the means of production to this end.

Thus, according to Mäki (1989: 204), Austrian economists like Kirzner are methodological realists: they regard their theory of the firm as having an explanatory power that is not reducible to predictive success. They are also commonsense realists who view such firms as encompassing everyday notions of purposefulness in discovering and learning about their business environment. Also, by capturing what they regard as the entrepreneurial essence of the firm, Austrians may be seen as referential, representational and veristic realists: the Austrian theory of the firm refers to existing firms, represents them in a particular way and, moreover, is held to be a true representation of the essential aspects thereof. However, the Austrian view of the firm is similar in some respects to that of Machlup. Like Machlup, the Austrians ignore the internal organization and managerial decision-making aspects that are part of our everyday notions of existing business firms. Like Machlup, they also focus on the role of the firm in coordinating the market process. Hence in this respect the Austrian theory is unrealistic in that it does not describe these aspects of existing, observable business firms.

By contrast, Simon makes the information and decision-making processes the central feature of his behavioral theory of the firm. For Simon, the neoclassical theory is deficient because it ignores these observable features of business firms and does not refer to or represent them in any way. In contrast to both Friedman and Machlup, Simon is a methodological realist believing that a theory of the firm should strive for true propositions of how firms really behave. Moreover, instead of armchair theorising, business firms should be subjected to close empirical analysis to observe how they actually function. According to Mäki, such analysis leads Simon to recommend a “new realism” in which “The neoclassical fully informed, maximizing firm should give way to the searching, information processing and satisficing firm. As to the notion of rationality in the study of decision-making, he advocates switching attention from what he calls perfect substantive rationality or results of choice to bounded procedural rationality or the process of choice” (ibid. 206).

Mäki’s analysis shows that Simon also prefers theories of the firm that are more realistic in the

sense of being more comprehensive (eg. by showing not only what the equilibrium position is but also how that position is actually reached by business firms – in other words, opening up the comparative statics ‘black box’ of neoclassical theory) and the assumptions of the theory being confirmed by empirical evidence. Simon also appears to be a veristic realist in stating that the neoclassical theory of the firm is deficient, not because it simplifies or idealizes the way firms really behave, but because the representations it makes (‘firms desire to maximise profits’ and ‘businessmen can compute and identify the profit maximising course of action’) are false. Simon accepts the need for any theory to simplify to some extent but within the bounds of what are reasonably good approximations to the truth – which neoclassical theory fails to do. To sum up in Mäki’s words: “In conclusion, it can be said that Herbert Simon’s “new realism” amounts to varieties of commonsense realism with special emphasis on the realisticness of economic theories, most often in the dual sense of being both comprehensive and empirically confirmed, and sometimes also in the sense of being true” (ibid. 210).

2.3 Non-reasons against realism in economics

Mäki (2002) provides a classic rebuttal of some of the main arguments against realism about economics. His strategy is to argue, “Even if P, realism about economics is not thereby discredited” where “P” designates such a premise which is believed to entail nonrealism” (Mäki 2002: 92). The premises in question are: economic theory postulates unobservables; economic theory simplifies and includes false assumptions; economic theory does not refer to anything that would fit its description; economics is policy-ineffective; the economy is economics dependent; accepted theories and statements of fact are results of rhetorical persuasion; economic identities are mind dependent. Mäki’s counter-arguments for each are described briefly as follows.

Being unobservable does not necessarily imply nonrealism. Mäki notes that it is precisely by invoking the existence of entities that are not directly observable (eg. electrons, quarks, viruses) that theories in the natural sciences have explanatory power and success in controlling certain phenomena. Such unobservables do not preclude a realist view of such theories, and neither should they of economic theories. Mäki also notes that many terms used in economics do refer to observables in the sense of commonsensibles such as tastes, choices, firms, markets, households etc being part of the common everyday ontic furniture of the economy. According to Mäki (2002: 95) it is the peculiar way in which they are represented in some economic theories that is the real issue, not their observability as such.

Mäki asserts that since all theories simplify, all theories are inherently false – so there is nothing special about economic theories in this regard (see section 4 below for more on the contrast between Mäki and Lawson as regards abstraction, isolation and idealization). Mäki suggests that there are two main questions pertinent to economics here: “(a) Could a theory involving falsehood possibly serve the pursuit of truth? (b) Could a theory involving falsehood possibly be true?” (ibid. 96). As regards (a), this is an argument popular in economics: false assumptions will gradually give way to better approximations to reality as we gain greater understanding of the economy. However, as noted by Mäki, this process is seldom taken very far in mainstream economic theory. As regards (b), Mäki suggests that false assumptions can be rephrased, in which case the theory might be true – for example, instead of assuming that a factor X is absent such a theory might assert that the influence of X on the phenomena in question is negligible. At another level, Mäki (2002: 96) asserts that simplifications and falsehoods are necessary to help slice up the world and isolate a particular subsystem or fragment of reality. Only if one insisted that the entire universe were some

inextricably organic whole of which no part could be studied independently could one argue against realism about economic theories on these grounds.

Many economic theories do not appear to refer to anything that is real and therefore, according to this argument against realism about economics, the question of their truth does not even arise in the first place. Such theories (eg. the perfectly competitive firm) are about fictitious entities and therefore preclude a realist interpretation. However, Mäki notes that the multifunctionality of language allows one to distinguish between the referential and attributive aspects of theories. The theory of the perfectly competitive firm may thus indeed refer to real firms even though the idealised features it attributes to them may be false. In other words, “The falsehood of assumptions does not undermine reference – even though it undermines their truth. And even though it undermines the truth of the assumptions, it does not necessarily undermine the truth of the theory” (ibid. 97).

The presumed policy ineffectiveness of economics has led some to assert that the “no miracle” argument for realism about the natural sciences does not apply to economics. We have faith in realism to the extent that technologies and interventions based on a theory succeed. Economic policies routinely fail, so our faith in realism about economics is misplaced. Mäki counters this argument by noting the Cairnes-Robbins train of thought that we have more direct access to the fundamental entities of economic reality than the entities hypothesised by the natural sciences. Therefore the roundabout “no miracle” argument as regards realism about economics is unnecessary. Moreover, Mäki notes that the “no miracle” argument can be reversed: given the complexity and difficulty in isolating relatively independent subsystems in the social world, it would be a miracle if economic theories did make accurate predictions and allow successful interventions in this regard. Mäki (2002: 98) also notes that even if we accept the “no miracle” argument, this does not preclude a weaker form of realism that economic theories may be true and that economic entities may exist (rather than they are true and do exist respectively).

To say that the economy is economics dependent could mean at least two different things. It could mean conceptual construction whereby the world is what our theories say it is. On this view, the representations made by models and theories do not uncover the real world, they are the world. Social and economic structures are, on this account, conceptual inventions rather than discovered facts. As noted by Mäki (2002: 101), realism cannot easily accommodate such a belief. However, realism can accommodate the view that the economy is causally constructed in the sense that people holding a certain economic theory act upon their beliefs in a way that reproduces the content and implications of the theory. Conceptual construction is not open to factual debate whereas the truth or falsehood of causal construction can, in principle, be established empirically.

Rhetoric can persuade economists to accept or reject a theory but it does not thereby determine the truth or falsehood thereof. Mäki contrasts the rhetoric argument with the naïve view in which theories are accepted or rejected to the extent that they are either true or false which in turn depends on reality. Both arguments are flawed in tying truth and existence too closely to the acceptance and rejection of theories. Thus one can accept the premise that the acceptance and rejection of economic theories is a matter of rhetorical persuasion, without having to accept the nonrealist argument that truth and existence are determined thereby. Mäki again invokes the multifunctionality of language to show that sentences may both represent and persuade: “Using a piece of language rhetorically does not exclude its (simultaneous) use for making possibly true claims about reality. Whatever persuades economists may be true – or false. Persuasion does not make it so” (ibid. 101).

A realist interpretation of economics would have to be able to accommodate the fact that many of its theoretical entities (such as expectations, preferences, utility) are mind-dependent. Mäki notes that most philosophers have defined realism in these terms. However, this is a good

example of Mäki's dialectical approach whereby the peculiarities of a social science like economics may be used to refine concepts and arguments in philosophy (rather than trying to fit economics into a preconceived philosophy of the natural sciences). At the ontological level, there are good grounds for realism about mind-dependent entities. Mäki suggests that we distinguish between the propositions that economic entities are dependent on the minds of economic actors and whether they are dependent on the minds of economists as such. The former can be readily accommodated by an adjustment in the definition of philosophical realism. The latter returns us to the distinction made above between conceptual and causal construction and the same arguments apply in this case.

Mäki concedes that he has matched each of the above nonrealist arguments against a weak version of realism that "Entity X might exist" [R1] and "Theory T might be true" [R2] rather than a stronger realist position that "Entity X exists" [R3] and "Theory T is true" [R4]. He suggests that this is necessary for two reasons. First, it must be established that economics can survive [R1] and [R2] before it is subjected to stronger tests implied by [R3] and [R4]. Second, the arguments in support of the two versions of realism about economics are different: "Ultimately, one wants to critically examine particular economic theories for their truth and particular postulated entities for their existence. Such an examination will not get off the ground if economics as a discipline does not yield to a realist interpretation in the sense of [R1] and [R2]" and "My fear is that giving up [R1] and [R2] would result in the worst form of complacency. The resolution of the ultimate issue of whether economics is in touch with the facts or whether it is a game of just playing with fictions would be biased towards the latter alternative" (ibid. 102).

It seems that, on Mäki's account, economics can be accommodated by weaker forms of philosophical realism. Mäki suggests that despite appearances there is more realism in economics than meets the eye and that, for example, even Friedman turns out to be a realist in the end! However, the finding that economics can be construed as such does not impress those who feel that 'weak realism' is far too permissive and allows mainstream economic theorising to get away with far too much wrongdoing. As discussed in section 3 below, Lawson is an example of just such a critical realist who believes that economics is not "in touch with the facts" and is indeed largely "a game of just playing with fictions."

3 Lawson: critical realism

Lawson's background is quite different to Mäki's. As noted above, Mäki is a philosopher who turned to economics and has used it as a dialectical testing ground for various propositions about philosophical realism. Lawson was a mathematician who then retooled as an academic (Marxist) economist and subsequently became interested in the philosophy and methodology of economics: "Having come to economics by way of first studying mathematics I was immediately impressed by, as I saw it, the widespread and rather uncritical application of formalistic methods and systems to conditions for which they were obviously quite unsuited. In consequence, my interests turned fairly quickly to questions of ontology, and specifically to the study of how methods and modes of reasoning might be fashioned to insights concerning the nature of social being. However, I first approached these issues by way of reading economists rather than philosophers" (Lawson 1997: xiii).

Lawson and Mäki also differ in the way in which they have published their views. Mäki has almost exclusively published his ideas in the form of journal articles or as chapter contributions to books (or in the form of Prefaces or Introductions to books which he has edited). While Lawson has also published widely through these channels, his ideas are collected and developed more fully in two

major books, *Economics and Reality* (published in 1997) and *Reorienting Economics* (published in 2003).

This is perhaps more than just a matter of taste as it reveals, even at this basic level, a fundamental difference in approach and aims. Mäki's approach is to focus on specific issues in economics of interest to philosophers (and to economists in philosopher's clothing), with the aim of conceptual and terminological clarification. Despite some occasional, usually implied realist criticisms of mainstream theorising and methodology, Mäki is largely neutral regarding the content and practices of orthodox economics. This approach allows Mäki to write more compactly on specific issues on realism and economics. By contrast Lawson's aim, as suggested by the title of his later book, is to transform the accepted methodology of mainstream economics. The rationale for such a radical transformation is provided in the form of a sustained realist attack on the orthodoxy, for which short journal articles would not be able to do full justice. The appropriate medium for Lawson's critique is thus books in which these arguments can be developed more fully and where an adequate response to the various counterarguments put forward by his critics can be given. Thus in what follows, reference will be made mostly (although not exclusively) to Lawson's books rather than the various journal articles he has published.

The purpose of such criticism is not only the negative aim of showing the alleged inadequacies of mainstream economics but also, more importantly, to reorient economics and show the possibilities for bringing about fundamental change in society. This is done by noting that institutions and other social organizations are the real product of human choices and practices and that these can be influenced by "*criticising* the conceptions and understandings on which people act" (Lawson 1997: 158). Although Lawson is not entirely happy with the label 'critical realism', noting that his account differs in some important respects from Roy Bhaskar's seminal explanation thereof, "I persist with the label of critical realism, in short, in full recognition that it is an ascription for which numerous conceptions may eventually equally qualify" (ibid.). However, while the word 'critical' denotes the broad thrust of his work, 'transcendental realism' captures the specific angle of Lawson's attack on mainstream economics and his proposed alternative. 'Transcendental realism' reveals the basic ontological point of departure for Lawson from the orthodox conception of reality that he labels 'empirical realism'. According to Lawson, it is this impoverished conception of reality that is the root cause of what he identifies as the inadequacies of mainstream economics and which only an alternative ontology along the lines he suggests can resolve satisfactorily.

3.1 Ontology

Because ontological concerns are at the heart of Lawson's arguments it is a good idea to start by explaining Lawson's conception of the role and scope of ontology more carefully, in general and more specifically in the social sciences. For Lawson, the term ontology means the study of being in two related senses:

1. Something that is, or exists; an entity, a thing
2. What it is to be or to exist; what all the things that are have in common. (Lawson 2004: 1)

Lawson calls (1) scientific ontology. Clearly to make such an ontological study manageable it must be confined to those entities or things about a particular aspect of the world or domain - a study of everything that exists is untenable. Moreover such studies must be confined to what are thought to be the most basic or significant entities and things in this regard. Lawson calls (2) philosophical

ontology, which he regards as a mode of speculative philosophy concerned with categorising those features which all the entities identified in (1) for a particular domain have in common. Hence the task of philosophical ontology is broadly taxonomic and to provide a categorial grammar whereby seemingly diverse entities under a certain domain are related by virtue of common, often hidden features and essential characteristics. Neither (1) nor (2) are fixed or unchanging as they depend on the specific context of the study and are historically relative.

Lawson makes a further key distinction between ontological analysis along the lines suggested above and studies of the theories as such and the claims to knowledge based on them. The latter is a study of the presuppositions and beliefs about what exists held by a theorist by virtue of subscribing to a particular theory, system of theories, paradigm, research programme or what have you. Such studies include issues such as the plausibility of scientific theories, the acceptance or rejection of theories and the claims to knowledge about the world in this regard. To confuse the two types of analysis, according to Lawson, is to commit the epistemic fallacy: “To suppose that the study of being can be reduced to the study of theories and their presuppositions (about being) is to commit the epistemic fallacy, to reduce ontology to epistemology”. Lawson coins the terms ontographology and opology to distinguish such analysis from ontology proper, where the ‘graph’ in ontographology “means (the art of) writing or describing or representing” and where the op in opology “stands in for **ontological** presuppositions (incorporating **ontological** premises and **ontological** posits)” (ibid. 2).

Lawson believes that both scientific and philosophical ontology are possible and desirable. This is in sharp contrast to many philosophers of science who believe that the only legitimate role of ontology is in the study about being and not of being or, in Lawson’s terms, ontographology or opology. Thus for these philosophers only the study of the ontological presuppositions of theories and their consistency with the world views, beliefs and knowledge claims espoused by the theorist is deemed to be of any value. Some philosophers take a less extreme position – they hold that substantive ontology is possible but only to the extent that the entities posited by our best scientific theories are regarded as reliable enough to be afforded an independent real existence. ‘Best’ in this context invariably means theories of the natural sciences. This is the naturalist position held by philosophers such as Quine who afford such theories an elite status as a ‘top rate conceptual system’ in contrast to ‘a second grade conceptual system’ descriptive of other theorising (such as the social sciences). More accommodating still are those who see a limited role for philosophical ontology as well but believe that it must be tied to successful scientific practice (again, invariably that of the natural sciences). For example, Pratten shows that although Lawson and Cartwright share similar ontological concerns, Cartwright is far less ambitious than Lawson in using philosophical ontological analysis to form our ideas of social reality because, “It seems that while she is prepared to develop some speculative hypotheses about the structure of the world where these are motivated by observations about successful scientific practice, she is less prepared to start from generalised features of experience unrelated to successful science” (Pratten, forthcoming: 23). Different degrees of commitment to the role and scope of ontology can thus be discerned: denialists who reject any role for scientific or philosophical ontology and who only see value in the internal metaphysics of ontographological/opological studies; weak ontologists like Quine who subscribe to a dilute version of scientific ontology in which only the entities posited by theories of the natural sciences count; semi-strong ontologists like Cartwright, who also allow a limited role for philosophical ontology but limit their speculative hypothesizing about reality to that based on observations about our best and most successful natural scientific practice; strong ontologists in the critical realism fold such as Lawson, who see a much broader and radical role for scientific and philosophical ontology in the

social domain.

Philosophical ontology can take different forms. Lawson's preferred brand is that of transcendental realism as described by Bhaskar whereby we move deductively from certain generalised features of our experience and practices (premises) to infer what the world must be like to make the existence of these experiences and practices possible (conclusions): "On the transcendental realist view of science, then, its essence lies in the movement at any one level from knowledge of manifest phenomena to knowledge, produced by means of antecedent knowledge, of the structures that generate them" (Bhaskar 1989: 20). For example, Lawson, following Bhaskar, notes the widespread use of the experimental method in the natural sciences whereby event regularities are successfully engineered by isolating, separating and triggering causal mechanisms in a laboratory setting. These generally accepted premises, in turn, thus imply general features or properties of the natural world such as its structure, causality, separability and openness/closure that make successful scientific practices such as experimental control intelligible. However, Lawson emphasizes that transcendental realism is not the only approach to philosophical ontology: "But I do not suggest that this is the only method of philosophical ontology, and even less define it in terms of (that) method" (Lawson 2004: 10). Moreover, the transcendental method he proposes is not the same as the transcendental idealism of Kant in which the derived concepts of human thought are universal and infallible. For Lawson, transcendental reasoning under his definition of philosophical ontology can be accepted "just as fallible, practically conditioned investigation into some or other feature of our experience, a practice taking, in philosophical ontology, the form of an investigation into generalised features of our experience, including human activities" (ibid.).

Lawson distinguishes between the natural and social domains by including within the latter everything that depends, at least in part, on us for its existence. Thus (1) becomes social scientific ontology (the study of the most basic or significant entities in the social domain) and (2) becomes social philosophic ontology (the study of what such social entities have in common and what makes their existence possible). As regards (1) Lawson notes that, despite the widely held belief that ontology is less problematic in the natural sciences, social scientific ontology has at least one advantage in this regard. There is less reason to doubt the commonsense ontic furniture of the social world than the postulated entities of the natural world which may only be accessible to us indirectly (for example, atoms can only be observed via the medium of an electron microscope). By contrast, markets, money, institutions, firms and the like are direct features of our everyday experience in a way that electrons, electromagnetic waves and quarks are not. However, what is more problematic is the way in which such social entities are represented in economic theories: "The primary problem with social scientific theorising lies not with identifying the categories (although it may be that a realistic analysis may throw up hitherto unrecognised categories) but in the fact that such categories as appear vital are treated differently in competing theories" (ibid. 12). This, one may notice, bears close resemblance to Mäki's observations about commonsense realism and the need to distinguish conceptually between realism (as a philosophical analysis of theories) and realisticness (as a property of a specific theory in the way it represents certain entities) in economics (see also section 4 below for further discussion of the similarities and differences between Mäki and Lawson).

Lawson suggests that even if analyses of the social domain were limited to ontographological/opological studies about the internal metaphysics of social theories, this would be of considerable value in itself. Social ontology can help clarify the ontological presuppositions and thereby aid the interpretation of the theorist's claims about the world against other contributions to the subject (eg. by showing that Marx's theory of capitalism is not, in fact, a deterministic theory). It can also help to reveal possible inconsistencies between the ontological presuppositions and other beliefs

held by the same theorist or school of thought (eg. the mistaken belief that general equilibrium theorising is essentially the same as Adam Smith’s explanation of the invisible hand in his *Wealth of Nations*). However, for Lawson social ontology does not go far enough. Such studies are unable to “provide insight into the basic structure of social reality; it throws little if any light on the world beyond our conceptions of it. It would be preferable to engage in social scientific ontology. But is it possible?” (ibid. 14).

Lawson’s various contributions to the subject are aimed at outlining how social scientific ontology is possible (indeed necessary) and how, perhaps more contentiously, philosophical ontology can aid this endeavour. Lawson shows how social philosophical ontology can give order and a conceptual framework to our thinking about the basic entities and things existing in the social domain. However, Lawson concedes that philosophical ontology cannot by itself give a more substantive account of social reality and that it must be supplemented by empirical studies to this end. The role of philosophical ontology is to give directionality to social theorising such that the identification and explanation of significant social entities and mechanisms must be consistent with it. For example, Lawson asserts that our everyday interactions with, and observations about, the social world provide us with what he suggests are essentially uncontested premises, for example that: all social practices are partially routinised; society is structured according to social rules and codes; such rules condition but are not the same as social practices; society is structured according to social positions and internal relations between such positions; social structures are enduring and are capable of reproducing themselves; change and transformation are an inherent quality of such social structures; social reality is characterised by openness in that the relations and interconnectivity between its different aspects mean that they cannot be easily isolated and separated under experimental conditions; social reality comprises different strata in which higher strata emerge from more basic lower strata; the higher strata remain dependent on the lower strata for their existence and contain causal powers irreducible to those operating at the lower level. These broad features of social reality, arrived at retroductively through philosophical ontological analysis, imply that social reality is “an emergent, open-ended, structured, transformational process in motion, in which the parts are constituted in and through their (changing) relations to each other” (ibid. 19). More detailed empirical studies of these social entities and realities falling under social scientific ontology proper are thus inescapably conditioned and directed in a way consistent with such conceptions arrived at via the antecedent process of philosophical ontological analysis.

With the above description of Lawson’s ontological point of departure in mind, the following sections flesh out his critical realist approach and specific critique of mainstream economics in more detail. The attention then turns to a more evaluative comparison of Lawson’s ideas with those of Mäki.

3.2 Empirical realism, event regularities and deductivism

For Lawson, ‘empirical realism’ identifies reality, in both the natural and social worlds, with the sense impressions or observation of atomistic events and their constant conjunctions. This is a Humean conception of reality in terms of which we have no logical basis for inferring the presence of causality, powers, essences or intermediate structures. For the empirical realist all that matters are correlations between individual events and these are the empirical bedrock upon which science is built. More complex phenomena can, indeed must, be reduced to such more basic event regularities and science consists largely of discovering such event regularities.

Once such event regularities have been reliably established they take the form of empirical gen-

eralisations or scientific laws. These empirical generalisations are the foundation of the ‘covering law’ or deductive-nomological D-N model of scientific explanation in the natural sciences (see also the discussion at the end of section 1 above). A similar deductive approach is discernible in the model-building method of contemporary mainstream economics. However, Lawson notes that few empirical generalisations approaching the reliability of such laws in the natural sciences have been forthcoming in economics. According to Lawson, in economic models it is the axioms and assumptions that provide the universal ‘covering laws’ against which the predictions of the model are derived and tested empirically. Although seldom stated explicitly, mainstream economics tacitly endorses this mode of explanation: “In short, if a reliance upon the deductivist mode of explanation is not always explicit in orthodox accounts, it is not denied. Rather a presumption of its centrality and indeed universality in science is essentially taken for granted; so much so that any attempted defence or justification of it is considered unnecessary” (Lawson 1997: 92). For Lawson the uncritical acceptance of the deductivist approach in mainstream economics has led to the untenable situation in which the orthodoxy finds itself – specifically that it is unable to give a satisfactory explanation of social reality – and his aim, “is to determine the character of social material which would legitimise the wielding of methods and techniques premised upon the deductivist theory of explanation and the associated conception of scientific laws. Once this is achieved we can assess the extent of relevance of the ontological conception uncovered and so of deductivism. More specifically, we can determine the actual bearing of the latter for the social domain” (ibid. 18–19).

3.3 Transcendental realism and analysis

As noted in section 3.1, Lawson proposes an alternative ontology consistent with what he labels ‘transcendental realism’. Despite its name, this conception of social reality is not derived from the Kantian idea of a priori knowledge of ‘the thing in itself’ but from the work of Roy Bhaskar (see Bhaskar 1978, 1979, 1986, 1989). Lawson notes two ways in which transcendental realism and empirical realism differ. The first difference is that “the world is composed not only of events and states of affairs and our experiences and impressions, but also of underlying structures, powers, mechanisms and tendencies that exist, whether or not detected, and govern or facilitate actual events” and the second difference is that “on the transcendental realist conception, the different levels of reality are out of phase with each other” (Lawson 1997: 21).

Three domains of reality are held to exist, rather than just the one of the empirical realist, namely “the *empirical* (experience and impression), the *actual* (actual events and states of affairs in addition to the empirical) and the *real* (structures, powers, mechanisms and tendencies, in addition to actual events and experiences)” (ibid.). These three domains are held to be ontologically distinct and irreducible to each other. Moreover they are out of phase in that one or more levels of reality may not be manifest simultaneously. Lawson gives the example of a leaf blowing about in the wind. Gravity is a real power acting upon the leaf resulting in a tendency for it to fall, but this power on the leaf may be obscured by the countervailing powers of the wind, friction etc. Hence the real mechanism of gravity is not in phase with the actual event of the leaf’s movement in the air (it might be added that different people viewing the same event might experience it differently in which case the empirical and actual levels of reality are also out of phase). Tendencies are thus of fundamental importance in transcendental realism: a tendency is an enduring power that acts unconditionally, even if in conjunction with countervailing tendencies that mask its presence. Tendencies as such are non-empirical and intransitive – they are transfactual statements about the casual structures, powers and mechanisms that produce a particular result.

Lawson identifies a mode of reasoning that characterises transcendental analysis that he calls abduction (or retroduction) to distinguish it from the more familiar modes of deduction and induction. For example, the move from the general claim that ‘all ravens are black’ to the particular claim that the next raven will be black is a deductive inference, compared to the inductive inference from the observation of many black ravens to the general claim that ‘all ravens are black’. By contrast, abduction is a mode of reasoning from the observation that many ravens are black to propositions about the types of mechanisms, causal powers and structures that predispose ravens to be black (ibid. 24). Moreover, our knowledge about such powers and mechanisms is regarded as a transitive “produced means of production” derived from the assembly of facts, hunches, hypotheses, intuitions etc at any given time and which is in a continual state of flux as these assemblies are transformed over time by “the laborious social practice of science” (ibid. 25).

It is important to note that the argument for the transcendental realist ontology and mode of explanation in economics is fallible and not based on an *a priori* premise. Specifically the case for transcendental realism in the social domain is not argued to be the same as for the natural sciences and must take the pertinent realist features of society, such as intentional human agency and the absence of any noteworthy event regularities, into account. Still it is clear throughout his work that Lawson accepts the broad outline of transcendental realism as essentially correct even if the specific ontological conceptions of society that are tied to it are fallible and may be revised against the results of ongoing research in this area (ibid. 27 – 35, 157 – 158).

With the tools of transcendental analysis in hand, a large part of Lawson’s efforts are directed to showing the various inconsistencies, impasses and other difficulties within the mainstream and how various orthodox economists have responded to them. According to Lawson, such ‘fractures’ derive from the inappropriate empirical realist ontology and positivist-deductivist methodological foundations of the mainstream project. Both econometrics and economic theory are singled out for special attention.

3.4 Econometrics

Lawson sees the essence of econometrics as estimating Humean type constant conjunctions of event regularities and thus to derive empirical laws in the social domain similar to the deterministic laws of the natural sciences. In the probability framework of econometrics such regularities are renamed stochastic event regularities. Lawson argues that no empirical laws comparable to those in the natural sciences have as yet been discovered – and are unlikely to, given the flawed conception of social reality that the econometric approach is based on. Lawson points to the notorious unreliability of the empirical ‘laws’ and predictions derived from regression equations, where instability of the parameter estimates is the rule rather than the exception.

Lawson also examines some of the responses to these problems from within the mainstream, in particular the Lucas critique. Lucas, he suggests, correctly identifies a major problem with regression estimates – they are not policy invariant as implicitly assumed in standard econometric practice and thus cannot provide a reliable guide to policymakers. However, Lawson argues that the responses to the Lucas critique do not (indeed cannot) resolve the problem because they do not address the fundamental reasons for these difficulties. Lucas’s own initial response was to urge policymakers to be guided by simple credible rules and to communicate effectively with the public explaining the reasons for any major changes to such rules. The other main response has been to argue that individuals understand the basic structure of the economy and how it operates and rationally alter their expectations in response to policy change (for example, see Sargent 1986).

Econometric models can be made internally consistent by endogenising expectations along the lines suggested by the rational expectations hypothesis – meaning that expectations are determined by the very same structural parameters identified by the model builder. Once this is done, the model should then be able to provide the stable parameter estimates sought after by the econometrician to reliably predict the outcomes of policy changes and other ‘shocks’.

Lawson argues that the strategies used by Lucas, Sargent and others in response to the repeated failures of estimated econometric relationships may be recast as the search for extrinsic and intrinsic closures. These closures are the necessary conditions for identifying the (stochastic) event regularities presupposed by such relationships. Extrinsic closure requires isolating the relevant independent or ‘forcing’ variables from the dependent variable of interest. The Lucas policy invariance critique and the responses to it are an example of the way in which a misspecified model is broadened to include additional variables hitherto regarded as extrinsic to the model – either explicitly or implicitly under the *ceteris paribus* clause. Such variables are thus made endogenous to the model, in this case the influence of expectations in the way suggested by the rational expectations hypothesis.

Lawson notes that intrinsic closures are also necessary to achieve reliable econometric relationships in that the behaviour of the ‘unit of analysis’ of the variables in question must be constant over different times, places and social settings. The search for intrinsic closure is reflected in the emphasis placed by the new classical economists on microfoundations and an invariant structure upon which econometric relationships may be built. These microfoundations are provided by new classical economists in the form of rational, optimising individuals in a choice-theoretic framework.

To recap, econometrics cannot succeed in providing reliable empirical generalisations without such extrinsic and intrinsic closures. The problem then, according to Lawson, is that the closures proposed by orthodox economists like Lucas and Sargent are derived from a false conception of social reality as made up of event regularities. For the social and economic worlds are open rather than closed such that “the system can rarely if ever be viewed as one of isolation – so suggesting problems in satisfying the extrinsic condition for closure” and “Once, furthermore it is allowed that human agents are internally structured and complex and possess the capacity always to have acted otherwise the whole framework appears to go by the board” (*ibid.* 83).

Lawson concludes his piece on econometrics by referring to what he calls the atomistic and isolationist fallacies which underpin regularity stochasticism in economics: “These are the suppositions that all behaviour or aspects can in some form be given, or reduced to, a (crypto-) atomistic representation and treated analytically as though effectively isolated from all other factors not explicitly identified. It is under the influence of these fallacies that econometricians attempt repeatedly to shore up the closure conditions. And in the limit the tendencies so set in train amount to the search for systems so large that they exclude nothing and individuals so small that they include nothing. This is the direction in which the familiar responses to econometric failure ultimately lead” (*ibid.* 84). For Lawson, the only viable alternative “is to posit an autonomous, structured, intentional agent somewhere between the universe and the atom, that acts in a complexly structured, fundamentally open, internally related and changing world” (*ibid.* 84).

3.5 Economic theory

Formal economic theory, according to Lawson, faces similar problems to econometrics and he asserts that the responses and adjustments within the mainstream to these problems are similarly doomed to lead to a dead end. This is because they do not identify the real nature of the disorder. The fundamental problem is that economic theory follows a deductivist methodology that, in turn, is

derived from the wrong ontological picture of social reality as comprising event regularities.

Lawson notes the distinction often made by mainstream theorists between axioms and assumptions. Axioms are the most general behavioural statements or starting points that the theorist does not seek to question. By contrast, assumptions are more specific or concrete assertions consistent with such axioms. For example, following Hahn (whom Lawson holds up as one of the few mainstream theorists prepared to explicitly defend its methods) the assertion that more input is needed to produce more output is an axiom whereas the specific form of the production function (eg. that it is Cobb-Douglas) counts as an assumption. Many substantive features of mainstream economic theory are assumptions rather than axioms – for example, universal perfect competition, constant returns to scale and perfect knowledge. These are not seen as essential to economic theorising, rather they are viewed as ‘scaffolding’ that can be removed later as progress is made in explaining the economy. According to Hahn only individualism, some postulate regarding rationality, and a commitment to the analysis of equilibrium states is essential to the mainstream (neoclassical) theory project.

Lawson notes some recently proposed modifications to the orthodox economic theory project and explains how these have come about. For example, in place of rational individuals some theorists have examined the outcomes of models which assume that individuals are rule following automata while others have treated groups or social aggregates as if they were a single rational individual. The commitment to single solution equilibrium states has mostly been abandoned in favour of multiple model solutions; and whereas the mainstream used to prefer simplicity in model construction, the new orthodoxy sees the recognition of complexity and more concrete empirical hypotheses, if not as a virtue, then as a necessary evil. Advances in computer power have made it possible to embody such complexity and empirical specificity in computer simulations. But according to Lawson, “Such changes as have been occurring represent merely the latest set of manoeuvres aimed at *prolonging* the life of an essentially misguided project. The nature of the proposed changes...are such that they necessarily leave the project still incapable of dealing with its manifest problems. They do not facilitate a theory capable of explaining real-world events or of assisting policy formulation” (ibid. 90).

The reason for this is essentially the same as for the incapacity of econometrics to illuminate adequately the real world: the orthodox theory project is built on inappropriate deductivist-positivist foundations. In place of the regularity stochasticism of econometric models, formal economic theorising and models are characterised by regularity determinism. The empirical generalisations or ‘laws’ sought after by econometricians are replaced by the axioms and assumptions of formal economic theory and these are derived from the same types of intrinsic and extrinsic closures explained above. The deductivist mode of reasoning is then relied upon to demonstrate the internal coherence of the model, the existence of one or more equilibria (the familiar ‘equilibrium proofs’) and other purely formal properties thereof.

According to Lawson, whereas orthodox economic theory is to some extent flexible as regards the content of its axioms and assumptions, the deductivist mode of reasoning is the most essential and inflexible aspect thereof, “Given the revealed flexibility of that project at the level of substantive premises, including axioms as well as assumptions, and its apparent *inflexibility* at the level of its *mode* of explanation, I suggest that an adherence to deductivism in the context of attempting to understand social phenomena be recognised not merely as fundamental to, but actually constitutive of, the ‘economic theory’ project... I suggest that the mainstream ‘theorising’ project be recognised just as the uncritical adherence to, or persistence with, the deductivist mode of explanation in the context of economics” (ibid. 103).

3.6 Demi-regularities

If the ontology of orthodox economics, based on social atomism and methodological individualism, is regarded as deficient, what specific alternative conception does Lawson have in mind? In Part III of *Economics and Reality*, Lawson examines alternative conceptions of social reality and modes of explanation consistent with his version of transcendental realism. These are not new perspectives and are familiar to other social scientists, particularly sociologists, working outside of mainstream economics. Besides the distinction between open and closed systems referred to above, Lawson conceives social reality as comprising intentional human beings and social structures functionally dependent on human agency. These social structures are irreducible and thus not explicable as the mechanistic sum or aggregate outcome of the actions of individuals. Lawson refers to the various elements of these social structures such as the importance of habit and routinisation of human behaviour, social rules, social relations and positions, and social systems (such as institutions) and collectives (sets of people occupying particular positions in society). In this social setting, individuals are seen as behaving according to a theory of situated rationality: “Not only are individuals’ choices of actions conditioned by the situated options which they perceive, but also the individuals themselves, their expressions of their needs and motives, the manner in which their capacities and capabilities have been moulded, their values and interests and so forth are conditioned by the context of their birth and development” (Lawson 1997: 187).

But how are the important and relevant social structures, powers and tendencies identified by a transcendental realist? In the natural sciences, interventions in the form of experiments, control groups and the like are used to discover the underlying causal mechanisms that produce the empirical regularities isolated under experimental conditions. But if, as Lawson argues, strict empirical regularities in open social contexts are the exception rather than the rule and if the kinds of experimental interventions and controls used in the natural sciences are unavailable in such social settings, then how is a social science like economics possible? Lawson’s version of transcendental analysis relies on the presence of (surprisingly pervasive) partial, demi-regularities or ‘demi-regs’ as indicators of the possible causal mechanisms and structures in social settings. Despite the potentially chaotic nature of open social systems, characterised as they are by so many cross-cutting and countervailing factors, relatively stable partial regularities do emerge. Such demi-regs are partial in that they are time and location specific. Lawson gives various examples: “productivity growth in the UK over the last century has frequently been slower than that of most other, otherwise comparable, industrial countries”; “women look after children more often than men do”; “average unemployment rates in western industrial countries are higher in the 1990s than in the 1960s” and; “an increasing proportion of the world’s population lives in cities” (ibid. 204 - 207).

Interesting demi-regs are contrastive in that, as these examples suggest, they are phrased as direct or implied comparisons over time, gender or different locations. Moreover, not all partial regularities are interesting in the sense of stimulating further inquiry to find a satisfactory explanation. Interesting demi-regs, according to Lawson, are those that are surprising, contradictory or inconsistent with existing beliefs, expectations or theories (ibid. 210) – thus the partial regularity that presently in the UK “on average more people go to church on a Sunday than on Tuesday” hardly qualifies as an interesting demi-reg worthy of further investigation (ibid.211).

Contrastive demi-regs thus lead to hypotheses about the possible causal mechanisms generating them. But the transcendental mode of reasoning required here is not induction or deduction but retrodution – reasoning directed at identifying the factors responsible for the demi-reg in question. Lawson notes that it is difficult to be more specific: “Not much can be said about this process

of retroduction independent of context other than it is likely to operate under a logic of analogy or metaphor and to draw heavily on the investigator's perspective, beliefs and experience" (ibid. 212). Also noteworthy is that deduction necessarily plays a role in assessing the chosen causal hypotheses – if the hypotheses were true, what empirical consequences would logically follow from their operation? Further investigation would entail checking to see if the conditions under which the causal mechanism is operative are present and whether such empirical results are actually in evidence in various settings where this can be established.

3.7 Alternatives to mainstream economics

Alternative traditions of economic thought to the orthodoxy are referred to approvingly by Lawson to the extent that they embody, to varying degrees, essential elements of the critical realist perspective: "It turned out that it is mostly (but not exclusively) economists regarded as non-mainstream who have reflected on these matters to any significant extent. I refer here to the likes of Keynes, Hayek, Marx, Dobb, Veblen, Marshall, Smith, Shackle, Menger, Boulding, and Kaldor. In consequence, it is their writings that provided much of the initial background material for the central argument set out below. . . In fact they contribute rather more than this. In one form or another, they already express many of the fundamental tenets of the basic thesis" (Lawson 1997: xii). Hayek and Menger are given some attention here and the points of similarity and contrast of their ideas to Lawson's interpretation of critical and transcendental realism is explained in more detail (ibid. 113-151). However, the focus of *Economics and Reality* is a critique of the mainstream and an outline of his realist perspective, rather than a sustained examination of non-mainstream thinking.

Heterodox thinking in economics and other alternative realist views of society are explored further in Lawson's later book, *Reorienting Economics* (Lawson 2003). Keynes and post-Keynesianism, institutional economics and feminism are explored in greater depth in this book (ibid. 165-244). Lawson argues that these alternative explanations of social reality all have something in common and that they can, indeed should, fall under the umbrella of critical/transcendental realism and analysis as a unifying framework for social explanation. Besides the analytical argument regarding these commonalities there is also a strategic argument for this move. Strategically, to change mainstream thinking and to reorient economics by taking the 'ontological turn' suggested by critical realist analysis, this needs a united opposition and a coherent alternative framework. For Lawson, building on his arguments in his earlier book, gives various reasons why and how the mainstream orthodoxy (also called the 'economics academy' in this book) has become so powerful and entrenched. Each of the various heterodox positions has something to offer as an alternative to the mainstream but are separately unlikely to persuade the economics academy to change its ways in the desired direction – a case of 'united we stand, divided we fall'.

In this book (as well as his earlier book), Lawson's message is that only an 'ontological turn' that grasps social reality along something like the transcendental realist lines explained above can save mainstream economics from the predicament it finds itself in. To paraphrase his argument about this predicament, in the opening chapter Lawson writes four theses on the state of modern economics as follows:

1. Academic economics is currently dominated to a very significant degree by a mainstream tradition or orthodoxy, the essence of which is an insistence on methods of mathematical-deductivist modelling.
2. This mainstream project is not in too healthy a condition.

3. A major reason why the mainstream project performs so poorly is that mathematical-deductivist methods are being applied in conditions for which they are not appropriate.
4. Despite ambitions to the contrary, the modern mainstream project mostly serves to constrain economics from realising its (nevertheless real) potential to be not only explanatorily powerful, but scientific in the sense of natural science. (ibid. 3)

Although Lawson regards each of these four theses as largely self-evident, they are explained and defended by extending the arguments outlined in his earlier book. In defending the first thesis, Lawson refers to various economists – including theorists and methodologists – who have described the formal model building approach in economics and its reliance on mathematics and have expressed their concerns about it (ibid. 3–8, 165–183). Lawson also gives an interesting historical explanation of the mathematising tendency in modern mainstream economics, suggesting that the seductive power of the elegance, simplicity, and rigour of mathematics has led to its seemingly unshakeable hold over economic theory – such that orthodox economics is seen as virtually synonymous with formal mathematical modelling and its deductivist methodology (ibid. 247–282, see also Colander 2001).

The second thesis is less self-evident and is a more problematic link in Lawson’s argument. First, although there are many economists who agree with Lawson that there is something badly wrong with mainstream economic theorising and practice, there are others with very divergent beliefs in this regard. Many believe that orthodox economics is doing perfectly well and has shown itself to be highly successful – both in its general predictions and as an explanatory guide to policymakers. There are still others who admit that the record has not been that great in this regard but that it is continually improving with new advances in mathematical and econometric techniques. Second, the mainstream would not be the mainstream if the majority of economists did not have faith in the project. Here there is an element of irony in Lawson’s argument about the way in which social structures reproduce themselves. The mainstream academic orthodoxy is perhaps a good example of a social tendency that manages to reproduce itself and manufacture stratagems to deflect criticism (including that of critical realism), thereby becoming resistant to change and thus self-perpetuating (see also the conclusion to section 4 below).

The third thesis depends crucially on how far one is prepared to accept that the formal deductivist model building approach and its reliance on mathematics is inappropriate when applied to the social realm; and accepting the fourth thesis requires an evaluation of possible alternatives to the mainstream, especially those in which the elements of transcendental realism shine through more strongly.

4 Mäki and Lawson compared: a preliminary evaluation

The main aim of this review to this point has been to summarize and clarify Mäki’s and Lawson’s approaches to the connection between economics, realism and reality as outlined in sections 2 and 3 respectively. An accurate summary of their respective positions is necessary before more evaluative and critical comments are made thereon, if only to avoid the charge that such criticisms misfire because they are based on a misconception or mistaken representations of their ideas and arguments, as in Mäki’s retort to Hausman referred to in the introduction. Drawing on the above, this section extracts the main points of agreement and differences between Mäki and Lawson and suggests a preliminary evaluation of their individual contributions. A more comprehensive critical evaluation

of their respective positions is beyond the scope of this review paper but it is hoped that there is enough here to stimulate and carry forward the debate on some of the more essential issues.

4.1 Similarities

As pointed out in the introduction, despite the superficial appearance of similarity, the realism projects of Mäki and Lawson differ so fundamentally that they are best thought of as advancing separate projects. However, they do share the same broad concern with questions of ontology and the metaphysics of economic theory and make such issues the focus of their philosophical analysis. This sets them apart from the prior emphasis in the methodology of economics on epistemological concerns. As noted in the introduction, during the 1970s and for much of the 1980s, the methodology of economics was preoccupied with issues surrounding the appraisal of economic theories. The search for a demarcation principle to separate science from non-scientific endeavours and to serve as a rational basis for choosing between competing theories was the order of the day. In particular, the ideas of Popper and Lakatos, developed with the natural sciences in mind, were applied perhaps uncritically to economics. The overriding concern was to see to what extent economic theorising conformed to the dictates of falsificationism and the methodology of scientific research programmes – with the implied concern as to whether or not economics could be legitimately regarded as a science. In their analyses of the ontological presuppositions of economics, Mäki and Lawson have been leading contributors to the break up of the ‘Popperian dominance’ in the philosophy of economics.

4.2 Differences

Five aspects of the projects advanced by Mäki and Lawson are selected here for comparison. There are no doubt other differences as well, but the following appear to the author to be the most striking: critical content and scope; approach to abstraction in economic theorising; realism vs realismness and; significance and use of dialectics.

4.2.1 Critical content and scope

The difference in critical content and scope of their respective projects is the most obvious and important difference. Mäki’s approach is much more neutral than Lawson’s as regards criticism of mainstream economics. Mäki’s project is to examine economics as an interesting case study for analytical philosophy. His project has had two main related aims in mind. The first is to see to what extent the different schools of thought in economic theory are compatible with realism. Mäki shows that most areas of economics can be interpreted along realist lines or at least are consistent with certain elements of realism. Against the criticism that only rather weak versions of realism are used in such studies, Mäki argues that it is necessary to establish this first before scrutinising the content of particular economic theories for their coherence against stricter versions of realism. His position is that the question of whether the entities postulated by economic theory *might* exist and whether such theories *might* be true logically precede the questions of whether the entities *do* exist and that the theories *are* true. To become entangled in arguments about the latter before the former issues have been resolved is simply to put the cart before the horse. Mäki’s second aim is to exploit the opportunity for the philosophical tasks of conceptual and terminological clarification. An important aspect of this analysis is the dialectical interaction between the subject matter of economics and the conceptual resources of philosophy - for example, in showing how the notion

of realism in philosophy can be modified in accounting for some of the observed peculiarities of economics such as the mind-dependent existence of many of its objects (see more below).

Lawson, by contrast, is not content with a purely conceptual analysis aimed at the terminological clarification and classification of economic theory or to what extent the different theories and methodological pronouncements are consistent with weak versions of philosophical realism. Lawson is critical of what he regards as mainstream economics, from the perspective of transcendental realism and is thus prescriptive as well as descriptive of economic theory and practice. For example, as explained in section 2.2, Mäki finds important elements of Friedman's methodological position consistent with realism (concluding that he is an ontological, referential, representational and veristic theorist but a methodological non-realist). Mäki concedes that his interpretation of Friedman as a realist is somewhat surprising (given the traditional idea of Friedman's position as the classic statement of instrumentalism in economics) and that quite a weak version of realism is being entertained thereto, as revealed in his remark that 'Even Friedman turns out to be a realist in the end!' Mäki's criticism of Friedman is more along the lines of the inconsistencies and conceptual confusions uncovered by a close philosophical analysis of his ideas rather than that he is a non-realist in some respects (see Boylan and O' Gorman 1995: 117). Lawson, by sharp contrast, finds Friedman's 'as if' method together with his positivist interpretation and almost exclusive emphasis on the testing of the predictions of economic theory to be deficient from a critical realist perspective (ibid. 108 – 112).

Another way of explaining their differences as regards the critical content and scope of their varied contributions is to use Lawson's distinction between (social scientific and social philosophical) ontological analysis and opology. Lawson notes that opological studies can reveal inconsistencies between the ontological presuppositions and other beliefs held by a theorist and, via a dialectical process (see also below), may help to reconcile them. Lawson does not engage in any such studies himself but refers approvingly to other authors thereof. As explained in section 3.1, Lawson sees studies of this sort as interesting but not going far enough. Much more important is social scientific and social philosophical ontology which, for Lawson, has the potential to uncover the 'basic structure of social reality'. By contrast, an important part of Mäki's work is just such opological studies of particular theorists, "to look at the actual theories, methods, and meta-theoretical views held by practicing economists, and to see whether there are plausible interpretations and reconstructions that would be consistent with versions of realism" (Mäki 2002: 91). Thus for critical realists like Lawson, social philosophical ontology along the lines of transcendental realism can give us insights into the basic ontological categories of experience which, in turn, conditions and gives direction to the closer empirical studies of social scientific ontology (see section 3.1). Mäki, by contrast, does not speculate on the nature of social reality in the way Lawson does and confines this part of his work to opology rather than ontological theorising as such.

4.2.2 Abstraction in economic theorising

A more specific difference in their respective approaches is the way in which they view the role of abstraction in economic theorising. Both Lawson and Mäki seem to agree that such abstraction necessarily involves a degree of simplification of a complex social reality but they differ markedly as to the way in which this should be done. As noted in section 2.3, Mäki asserts that since all theories simplify, all theories are necessarily false and hence economics should not be criticised too harshly on this score. Simplifications and falsehoods are a necessary and desirable feature of economic theorising, in order to isolate a particular aspect or region of social reality. Mäki (1992: 328 - 324)

explains that this ‘method of isolation’ is carried out by using the techniques of ‘omission’ and ‘idealisation’ (in economics as in the natural sciences). ‘Omission’ is the intentional leaving out of variables believed to have no or only a negligible influence on the particular subsystem of reality isolated for further analysis, as in partial equilibrium analysis of a particular market (say coal) where the influence of supply and demand conditions in most other markets is ignored (lemons, haircuts, gold, and primary school education but not close substitutes like oil and gas). ‘Idealisation’, by contrast, is the deliberate distortion of the variables that are part of the selected subsystem by giving them an extreme characterisation that is not found in reality, for example firms operating under conditions of universal perfect competition. In economics both omission and idealisation are accomplished by means of assumptions rather than the interventions and manipulations carried out in the natural sciences using the experimental method. Although fictitious such assumptions may aid the pursuit of truth as heuristic devices whereby the restrictions implied by the assumptions can be relaxed in various ways, providing successively better approximations to reality although, as noted by Mäki, this process is generally not taken very far in economics. Before noting Lawson’s criticisms, a more recent extension of Mäki’s ideas to the connection between isolations, models and experiments is examined. This usefully serves a dual purpose as it also provides an entry to the debate concerning realism vs realisticness in economics.

Mäki (2005) suggests that models are representations of something – this ‘something’ could be reality itself but they could just as easily be representative of theories or data - so we can have material models, theoretical models and empirical models. Models are thus intended as representatives: “Another way of putting this is to say that models serve as ‘substitute systems’ of the target system they represent. They are substitute systems in the sense that one does not directly examine the target systems, rather one focuses on the properties and behaviour of the representatives as substitutes of the targets” (ibid. 304). The target system is too complex to be understood in its entirety so a simpler model is constructed to explore it: “Theoretical practice in economics is in line with this notion of representation: ‘let us examine what happens in this model’ thereby hoping to gain some insight into the ‘whys’ and ‘hows’ of what happens in the real world” (ibid.). However, not just any substitute system will do, the representative model must resemble the target system adequately where ‘adequately’ depends on the intention or purpose of the model.

Many variants of economic models may thus be seen, Mäki suggests, as the ‘laboratories of economic theorists’ in which ‘thought experiments’ replace the ‘material experiments’ of the natural sciences. In the former ‘theoretical isolations’ are achieved by means of assumptions and these do the work of the material manipulations and causal isolations of the latter. Mäki views this as a necessary evil and even as a desirable feature of theorising in economics: “Assumptions play a key role in the construction of theoretical models as substitute systems. Such idealising assumptions, if interpreted as statements about the real world, are characteristically false. Yet they are necessary for effecting the required theoretical isolations. Unrealistic assumptions are the indispensable tools of the economic theorist” (ibid. 308). However, as noted at the end of the preceding paragraph, the models based on such assumptions cannot be unrealistic in an unqualified sense – they must resemble the target system in some way, depending on the purpose of the model: “The issue of resemblance is the hottest methodological issue in and about theoretical economics. Models and their assumptions are being criticised for being unrealistic and defended as sufficiently realistic or inconsequentially unrealistic. . . The traditional complaint is that the representatives do not sufficiently resemble what they represent, and that the gap between the two is ignored by treating the substitute systems as if they were the real system” (ibid. 309).

Mäki elaborates further on what the issue of resemblance implies if we take a model as repre-

sentative of some aspect of the external ‘maxi-world’ or ‘economy in the wild’ by suggesting three possibilities: the tightly constrained and orderly ‘mini-world’ of the model resembles the relevant aspects of the more chaotic non-isolated ‘maxi-world’ or; it resembles what would happen in the real world if the isolations of the model were carried out or; the isolations of the model capture real causal powers and mechanisms which resemble those at work in reality. Although Mäki explicitly favours the third conjecture it is instructive to note that, in keeping with his mostly descriptive and neutral interpretation of economic theorising within the framework of philosophical realism, he does not elaborate any further on whether such models do in fact capture the essential causal elements and are indeed realistic in this sense: “But there are models that again do play a role in judging these options: the options involve metaphysical conjectures, and these conjectures are described in terms of metaphysical models of the basic constitution of the social world” and in a footnote thereto “The very idea of model isolation (whether theoretical or experimental) is metaphysically sufficiently neutral to allow for all three metaphysical models” (ibid. 311 and fn 5, 314). The question of what the basic constitution of the social world really is and whether conventional economic theory and modelling captures it adequately is left hanging. It is precisely on these and related issues of representation and resemblance that Lawson and Mäki part company.

In short, Lawson argues that Mäki’s idea of abstraction as a ‘method of isolation’ as applied to economics (either to the extent that it is being recommended or as simply descriptive of what economists do) is incapable of capturing the essential causal features of economic reality. Lawson notes Mäki’s distinction between internal and external isolations that close off a system of relations between selected variables. According to Lawson, by using ‘techniques of isolation’ such as ‘omission and idealization’ Mäki thus presents an interpretation of the notion of successive approximation (to reality) which is thereby “able to accommodate a good deal of contemporary orthodox economics” (Lawson 1997: 132). Lawson criticises Mäki’s use of the method of isolation as inappropriate in a social context: “However, if... the social world is not usefully viewed as crypto-atomistic and the various social phenomena cannot be combined mechanically, then, just as contemporary orthodox economics is largely irrelevant, so, as a social scientific device, must be any such ‘method of isolation’ ” (ibid.).

Lawson has a very different view of social phenomena and of abstraction in the social context which he argues does not involve such techniques of omission and idealization and thereby avoids theoretical simplifications leading to no more than artificial, convenient fictions. First, Lawson shares the critical realist view of social phenomena as being stratified with higher strata emerging from lower strata. Such strata thus possess the properties of emergence and rootedness – the higher strata are dependent for their existence on the lower strata from which they emerge but they are not reducible thereto. Each strata has its own entities, nature, powers, tendencies and real existence that cannot be satisfactorily explained in terms of the entities, causal powers and tendencies of the lower strata. Another way of putting this is that the causal mechanisms of a particular stratum combine chemically rather than mechanically to produce an emergent outcome that is qualitatively different to the mechanical additive sum of its constituent parts. Second, for Lawson abstraction focuses on particular aspects of some social phenomenon of interest to the temporary neglect of other aspects. Moreover, abstraction also takes place at the level of selecting from the possible causal mechanisms that might give rise to such phenomena – a form of reasoning Lawson calls retroduction. On the realist view such abstraction must identify social phenomena and structures which exist in reality and should not be used merely to simplify matters as a contrivance in the mind of the theorist in which the main aim is to explore the formal properties of some model. Crucially, for Lawson, abstraction is context specific and must never lose sight of the social

background against which these aspects are abstracted from and brought to the fore. This is in contrast to Mäki's method of isolation which, Lawson argues, uses the techniques of omission and idealization to construct economic models in which the social context or background ceases to exist. Lawson uses the analogy of a football or hockey game to make his point clear. Lawson suggests that using the method of isolation to understand such an activity is like isolating an individual (atomistic) player and omitting the other players and their interactions (the background context). One might be able to correlate certain actions of the individual player with certain motions of the football or puck and even, perhaps, be able to predict on the basis of such correlations whether or not a touchdown or goal might be scored. However, from the perspective of a realist like Lawson, such an analysis is deficient in being unable to properly understand and explain key aspects of the game. A satisfactory realist explanation of such social activities requires a form of abstraction that recognizes the openness of social systems (both extrinsically in recognizing the interactions between the players and intrinsically as regards the motivations of the individual players) and the contextual background when temporarily focussing on a particular aspect thereof (ibid. 227 – 234).

4.2.3 Realism vs realisticness

The issues raised above concerning the differences between Mäki and Lawson in their approach to abstraction in economic theorising suggest an underlying reason for the many contrasts between their respective projects. The reason is that Mäki is concerned with the broad issue of the connection between realism and economics whereas Lawson's focus is on the actual content of economic theories – especially their realisticness or lack thereof. In Mäki's terms, as outlined in section 2.2, realisticness is about the way in which economic theories represent the world and is thus a property that adheres, or does not adhere, to a particular theory. Although the two terms are obviously connected in various ways, realism is a broader thesis than realisticness – it is a metatheoretical perspective or a 'theory of theories'. As noted by Mäki, a theoretical representation can be called realistic in many different senses – for example, if it is about the real world, observables, essentials, truth, or if the theory is plausible, successful empirically or practically useful (see Mäki 1994). Also, as explained above with regard to abstraction and isolation in economics, Mäki (2005) seems to suggest that there is a connection between realisticness and his concept of resemblance although he does not use this exact terminology in his explanation thereof. For example, he notes that economic models are representative of some target subsystem under investigation and that such models, as substitute systems, should resemble their target. Mäki does not say explicitly how this should be achieved beyond stating that this depends on the purpose or aim of the model. However, where the target subsystem is some aspect or region of the real world (rather than another theory or model with the aim of purely formal exploration of its properties), it would appear that to resemble such a target the model would have to be realistic in some of the ways he suggests as regards his earlier definition of and arguments concerning 'realisticness' (Mäki 1994; 2005).

To generalise Mäki's distinction between realism and realisticness, someone who believes that economic theories must or should include unrealistic assumptions is not necessarily a non-realist in the broader sense of philosophical realism: "A realist economist is permitted, indeed required, to use unrealistic assumptions in order to isolate what are believed to be the most essential features in a complex situation. . . To count as a minimal realist, an economist is required to believe that economic reality is unconstituted by his or her representations of it and that whatever truth value those representations have is independent of his or her or anybody else's opinions of it" (Mäki 1994: 248).

Although Lawson would presumably not deny that orthodox economic theorists ‘count as minimal realists’ in this sense, his concern is that orthodox economic theory is unrealistic in not representing the way things really are in that it does not refer factually and does not latch onto what is essential in the social domain (as opposed to that which is the most general). According to Lawson, the deductivist formal model building methodology of mainstream economics is built upon a flawed conception of reality as composed of empirical event regularities (see section 3.2). In turn, this leads orthodox theory into untenable fictional representations of the economy via techniques of isolation such as omission and idealization. This means, for Lawson, that such theorising is unable to explain what is really going on in the social domain, that is, the structures, powers and tendencies underlying and producing the surface empirical phenomena. Lawson’s standpoint is that economic theory should strive for true explanations of social phenomena, hence Lawson is a methodological realist in this respect. Moreover, Lawson believes that economics can be a genuine science with such explanatory powers if it reorients itself along the lines of transcendental realism.

Besides his criticisms of what he regards as the mainstream, Lawson has also criticized alternative projects in economics. While someone like Friedman might be regarded as an easy target for Lawson’s criticisms (see above in this section under critical content and scope), Lawson has also tackled less obvious economists such as Menger and Hayek who are themselves also critical of certain aspects of what they see as the mainstream. By contrast, Mäki has provided a realist interpretation of Austrian economics and refers explicitly to Menger’s contributions in this regard (see section 2.1). Thus a further illustration of the way Lawson and Mäki differ as regards theorising in economics and the realism vs realisticness issue can be seen in their interpretations of aspects of Austrian economics.

Mäki, as explained in section 2.1, sees Austrian economics as consistent with (minimal) criteria of scientific realism. Starting off his reconstruction of Austrian explanation (Mäki 1990: 320) Mäki refers to Menger’s distinction between *Erkenntnis* (cognition) and *Verstandnis* (understanding) as indicative of the realist premise underlying Austrian explanation. Mäki interprets Menger’s emphasis on *Verstandnis* as the true aim of economics as an example of explanatory redescription. Mäki interprets *Erkenntnis* as limited to the description of surface empirical phenomena while *Verstandnis* goes beneath the surface and redescribes such phenomena in terms of the true nature or essence of the objects that produce these empirical results.

Mäki also refers to the key distinction made by Menger and von Mises between ‘theory’ and ‘history’ (for example, in the *Methodenstreit* with the German historical school) in which theory takes centre stage to play the primary role in scientific explanation. According to Mäki, the Austrian emphasis on theory shows a realist orientation in the sense of explanatory redescription as, “It is only by means of the conceptual resources of a theory – not being reducible to the observational language of empirical facts and generalisations – that empirical facts can be redescribed in a way which reveals what those facts really are” (ibid. 321). He also suggests that Austrian economists identify social entities as being nothing but aggregates of meaningful individual actions (the ‘aggregative principle’) and to be the unintended consequences of such actions (the ‘causal principle’). According to Mäki, such explanatory identifications further reveal the underlying realist orientation of Austrians like Menger, von Mises and Hayek. Moreover, Mäki notes Menger’s criticism of classical economics as being unable to give a uniform explanation for prices of both factor services and consumer goods. He interprets Menger’s striving towards a uniform theory in which all phenomena of value are explained according to the same principles as an example of ontological unification – a hallmark of scientific realism.

Lawson, however, finds much of Menger’s methodological pronouncements to be deficient from a

transcendental realist perspective. Lawson notes that Menger starts his analysis promisingly (from a transcendental realist position at least) by observing that strict regularities of actual events rarely occur in either the social or natural worlds. However, Menger argues that exact laws based on event regularities are possible in economics nevertheless. These regularities are not constant conjunctions of actual empirical phenomena but regularities based on the theoretically derived simplest elements of social reality (such as the assumptions of omniscience and infallibility and that human beings are purely economically motivated). Menger argues that just as theories in the natural sciences make use of simplifying idealisations such as pure alcohol or pure copper (even though such elements do not actually exist in the real world, only in a laboratory), so can theories in the social sciences derive exact laws using similarly fictitious idealising assumptions.

Lawson concedes that Menger's analysis is not without some insight into social reality: "His exact laws can correspond to something real, wherein a stable mechanism or tendency is acting in relative isolation". However, Lawson argues that the problem with Menger's account, even when applied to the natural world, is that it fails to capture the entirety of a mechanism's essential way of acting. Lawson extends the example of pure copper to note that science is not concerned with finding event regularities associated with the metal's pure state as such. Rather the aim of science is to uncover the (transfactual) atomic structure that gives all copper its characteristic properties, powers and tendencies under particular conditions. Lawson argues further that in this respect Menger's idealising fictions in economics are qualitatively different to the typical idealisations of the natural sciences: "And while copper's ideal electronic structure is real and accounts for copper's power to conduct electricity, conceptions of omniscience or infallibility do not express structures or powers possessed by any human. They are not powers which are possessed but may or may not be exercised, and if exercised as tendencies may be in play unrealised because of countervailing metaphorical blinkers or whatever. They are not real human powers at all" (Lawson 1997: 126).

To rephrase the contrasting views in this illustration, it is apparent that Mäki can accommodate Austrian economics under a weak version of philosophical realism whereby some of the more specific ways in which their theories represent the real world are ignored or glossed over. For Mäki, Austrian economics is consistent with philosophical realism as it bears the hallmarks of explanatory redescription and ontological unification, commonsense, methodological, veristic, and referential realism (see sections 2.1 and 2.2). Mäki also argues that the Austrians are representational realists to the extent that their theory represents the firm in a particular way (as the embodiment of entrepreneurship) which is held to be a true representation capturing its essential features. On the other hand, the Austrian representation of the firm is unrealistic in that it ignores the organisational structure and managerial decision-making aspects thereof and sees the firm as an abstract entity coordinating a competitive market process – a representation which in these respects does not resemble observed business firms. For Lawson, the fact that Austrian economics may be consistent with aspects of commonsense, methodological, referential and veristic realism does not ensure that the way it represents the world is adequately realistic. From a critical realist position such as Lawson's, the meat of the issue is precisely how Austrian theorising represents the particular target subsystems of social reality and whether it provides an adequate resemblance thereof. Lawson might not object to the idea that the Austrian representation of the firm captures an essential entrepreneurial aspect of its nature and may thus be regarded as realistic in this respect. However, it is evident from Lawson's account of Menger's approach to theory that he finds idealising representations depicting individuals as 'omniscient' and 'infallible' to be a gross distortion of social reality in which the fictions being entertained are incapable of providing a satisfactory explanation of how the world really operates.

4.2.4 Dialectics

In the introduction to Mäki's work it was noted that he describes his realism project as dialectical, hence the label 'dialectical realism' was suggested as a broad classification thereof (see section 2.1). Lawson, at various stages in his explanation of ontological analysis (see section 3.1), also refers to certain aspects thereof as 'dialectical'. However, it is apparent from the way in which this term is used by the two authors that they impart very different meanings thereto and to its role and significance in their respective projects. Due to the significance and development of this concept in critical realism, especially via Bhaskar (from its origins in Hegel and materialist reworking by Marx), it makes sense to consider the influence of dialectics in Lawson's realist project first before considering its meaning and role in Mäki's work.

Although Lawson occasionally uses the terms 'dialectics' and 'dialectical' they do not get much of the limelight and are not emphasized as a key aspect of his critical realist approach. In none of his publications reviewed here are these terms explained in any depth – it is left to the reader to infer what is meant in the specific context of the discussion. This is intriguing given Lawson's acknowledged intellectual debt to Bhaskar who, as the inventor of critical realism, came to regard dialectics as essential to it. Indeed, with the publication of his later book *Dialectic: The Pulse of Freedom*, Bhaskar sought to systematize and extend the concept in an all-encompassing way (see Bhaskar 1993, Collier 2002). In any event the concept has not been neglected by some contributors to the critical realism project, especially those with a leaning towards Marxist and radical schools of thought. For this group it is not far off the mark to say that a version of Marx's dialectics is a (if not the) key ingredient of critical realism – it is the yeast that allows the classical realist dough to rise and become bread: "...the materialist dialectics of the classical Marxist tradition, though enriched by the ontological insights of critical realism, is nonetheless indispensable to critical realism" (Creaven 2002: 131).

Before examining Lawson's use of this slippery term a more general description of its different meanings is thus in order. For critical realists influenced by Marx the most important meaning of 'dialectical' is its reference to the actual presence of a real process at work in the world, the essence of which, in some sense, is a pattern of contradictions and progress via the resolution of such contradictions. The basic idea of dialectical materialism is thus of a social system or totality (thesis), containing within it antagonistic contradictions which are a source of conflict (antithesis), and leading to a transformation of the system thereby resolving these contradictions (synthesis). The dialectical process does not end with this synthesis - the new system will develop its own contradictions and the process is one of ongoing conflict, change and transformation. Such contradictions are seen as a structural feature of a social system and, significantly, are internal to the system in that they are recognised as problematic not just by external critics but by those within the system. As regards capitalism the standard examples include (prevailing and periodic) crises in the form of stagnation, severe contractions in output, high levels of unemployment, highly unequal distribution in income and wealth, and environmental disasters: "Contradiction in this sense is the fundamental concept of Marx's political philosophy, and is what enables him to avoid the utopianism of every other radical political thinker. We fight capitalism, not because we have a view from nowhere and can see what the best society for human beings would be, but because capitalism has contradictions which we can see from inside it, which hurt the people inside it, and which could be resolved with the resources produced by it, but only by its abolition" (Collier 2002: 156).

Besides such structural contradictions, Collier identifies two other forms of contradiction which he also attributes as having their origins in Marx: 'inversions' and 'Colletti contradictions'. Inversions capture the idea that social systems produce certain outcomes that are the opposite of

what is deemed desirable or what might be expected. In this respect there is often an ironic twist to such contradictions. For example, in a capitalist system alienation is the result when the product comes to dominate the producer. Another example is when living labour (workers) are dominated by dead labour (capital) revealing the “paradox that the most powerful instrument for reducing labour-time suffers a dialectical inversion and becomes the most unfailing means for turning the whole lifetime of the worker and his family into labour-time at capital’s disposal” (Marx 1976: 532, quoted in Collier 2003: 157).

Colletti contradictions are apparent where there is a conflict between appearances and social realities. As an example, money appears to be neutral in the sense that its transfer from one person to another is regarded as voluntary and therefore not harmful to either whereas in reality it is a form of power over the labour of others (Collier 2003: 158). At a more general level, the smooth functioning of complex societies like capitalism requires the appearance of harmony, cooperation and mutual advantage which mask an underlying conflict and power struggle between antagonistic groups (eg. class struggle, the proclaimed benefits of free trade vs the realities of colonialism/imperialism etc).

Structural contradictions, inversions and Colletti contradictions all have their origins in Marx and were identified as such by Bhaskar before his *Dialectic*. In his earlier work, Bhaskar also identifies other forms of dialectics including ‘methodological’ dialectics and what Collier calls Edgley contradictions (named after its originator, Roy Edgley). Neither of these, according to Collier, can be attributed convincingly to Marx however. Methodological or epistemological dialectics, as these labels imply, move away from materialist dialectical processes that may or may not be at work in some area of social reality to the idea of dialectical logic as “skill in organising concepts” or “the art of thinking the coincidence of distinctions and connections” (Collier 2002: 157; Bhaskar 1989). Collier argues that of greater significance, from a critical realist perspective, are Edgley contradictions in that they suggest a way in which logical contradictions can exist in social reality: people’s opinions are part of reality, people’s opinions may logically contradict each other, ergo logical contradictions are part of social reality. Moreover, such contradictions are essential to critical realism because they allow entry to explanatory critiques of the society containing such contradictions with a view to its transformation: “In the central case of an explanatory critique, the social science which carries out the critique shows that an opinion about a society is prevalent in that society and is false; furthermore that its prevalence is no accident, but is generated by the structures of that society and is necessary to the smooth running of that society. To show all this is not just to criticise the false opinions, but to criticise the society and, other things being equal, to motivate the transformation of that society into one which will not necessitate falsehoods” (Collier 2002: 158).

To summarise the various meanings of dialectics and dialectical thus far there are structural contradictions, inversions, and Colletti contradictions which (arguably) have their fragmented origins in Marx’s dialectical materialism (Marx 1976; Bhaskar 1979, 1987, 1989). Then there are Edgley contradictions (Edgley 1976/1998; Bhaskar 1987) which do not have their origin in Marx. All four meanings refer to a real process at work, or an ontological aspect of, the social domain. Both Colletti and Edgley contradictions also (arguably) contain an element of logical contradiction alongside their description of social contradictions (Collier 2002: 158). According to Collier, all four are (or can be) of valuable service to critical realism and should be retained as such. Less clear is the status of methodological dialectics in critical realism, perhaps due to scepticism about whether it is a true description or genuine element of Marx’s materialist dialectics (despite Marx’s own references to and use of the term). More generally, perhaps, because it involves a shift of

emphasis to epistemology and thus distracts from the critical realist focus on ontology.

While methodological dialectics may have an ambiguous status amongst some critical realists, Collier has no hesitation in condemning what he sees as the two cardinal errors of dialecticians. The first error is to trivialise dialectics by universalising the concept of contradiction such that it loses the more concrete and practical application it carries in Marx's materialist dialectic (for example, Lenin's inclusion of plus and minus signs and Mao's inclusion of all differences as contradictions). Here Collier also criticises Bhaskar's Dialectic for extending the concept of contradiction to denote 'any kind of dissonance, strain or tension' and for allowing certain phenomena without contradictions (unspecified by Bhaskar) to be classed as dialectical (Collier 2002: 162-163). The second error is to deny the formal logic of non-contradiction that two inconsistent propositions cannot both be true. Structural contradictions, inversions, Colletti contradictions, and Edgley contradictions as explained above can all be described consistently without breaking the rules of formal logic (such as the laws of identity and transitivity of identity). Allowing statements to assert logically inconsistent propositions thwarts any progress of knowledge. In any event, Collier argues that they are unnecessary because formal logic does not rule out any ontological position about reality as mistakenly supposed by some dialectical materialists.

Returning to Lawson, it was suggested above that he does not appear to regard dialectics as particularly significant in his version of critical / transcendental realism. In *Economics and Reality*, Lawson's ground-breaking book outlining his critique of mainstream economics and his alternative approach to the subject, he does not once refer explicitly to dialectics (although there are passages where some version of dialectics or dialectical might be inferred from the context). Certainly he would not see his work as a whole as being described accurately by the label 'dialectical critical realism'. Nevertheless, in some of his later publications reviewed here, there are the occasional sympathetic references to 'dialectics' and 'dialectical' although he does not explain explicitly the meanings he ascribes to these terms. However, with the above distinctions and arguments in mind, we can perhaps infer the way in which Lawson uses these terms and judge how important is the role played by dialectics in his work.

Lawson does not use these terms in the sense that is most important to dialectical critical realists influenced by Marx, as an ontological hypothesis about the structure of social reality (containing antagonistic contradictions) and its transformation (conflict and the resolution of these contradictions to form a new synthesis). In all his explicit references to dialectics, Lawson uses the term to mean a form of reasoning. Using Lawson's ontological terminology (see section 3.1) he suggests, for example, that dialectical reasoning can help in opology and philosophical ontological analysis. In explaining how opology can clarify a theorist's ontological preconceptions and illuminate the possible inconsistencies of these with other beliefs held by the theorist, Lawson suggests that: "Here, though, is a yet further (or alternative) way in which social opology can be useful: in revealing such inconsistencies (and possibly stimulating a dialectical process aimed at reconciling them)" (Lawson 2004: 21).

As another (and for Lawson more important) example of dialectical reasoning, Lawson explains how differing conceptions of a social entity like an institution can be synthesised and made consistent with the conceptual category of emergence arrived at via philosophical ontology and he asserts that, "This synthesising process will typically be dialectical (preserving the insights of all conceptions dialectically developed.) In any case, an initial conception will be continually revised to fit with relevant considerations. Put differently, the process will involve what Strawson calls revisionary metaphysics in addition to the initial descriptive metaphysics" (ibid. 21). Lawson concludes his thoughts in *A Conception of Ontology* by saying that insights into the basic social categories

or entities “may actually be best achieved by way of (dialectically) combining philosophical ontology and socio-substantive accounts (including lay interpretations) in a programme of revisionary metaphysics” (ibid. 23).

In chapter four of his book *Reorienting Economics*, Lawson explains how his conception of ontology directs social explanation in certain ways as he then outlines in an alternative explanatory method for social science. According to this method, knowledge of and about the social domain is a transformational dialectical process: “And I am reaffirming the familiar realist insight that knowledge, although concerned with an at least partly independent reality or ‘intransitive’ object, is a two-way process. Through confronting ‘objects’ of study we learn not only about them but simultaneously about ourselves, including, in particular, the errors of our current thinking... Knowledge... is intrinsically a transformational process... the knowledge process is fundamentally dialectical.” Defending his reorientation of the explanatory method in the social sciences along the lines of what he calls ‘contrast explanation’ he concludes that this “is merely an illustration of the more general insight already noted that, given the open, processual and highly internally related nature of social reality, we need to be not only analytical in our reasoning, but also, and I suspect primarily, dialectical” (Lawson 2003: 101 and 109).

From the above, then, it is clear that Lawson endorses the importance of dialectical reasoning in support of the critical realist approach to the social sciences. However, there is little or no explicit indication in Lawson’s work (at least in his publications reviewed here) regarding the issue of whether social reality itself is a dialectical process in the way critical realists influenced by Marxist and radical thought see it. The contradictions and inconsistencies examined by Lawson, their resolution and synthesis, all belong to the conceptual realm, of reasoning and epistemology rather than statements about the possibly dialectical nature of social reality. However, there are a few places where Lawson refers approvingly to certain authors who do endorse the more substantive ontological view of social structures and processes as being inherently dialectical (for example, see Lawson’s 2003: 216, 335fn reference to Wilkinson 1983). Hence it appears that indirectly or implicitly at least, Lawson may in fact be supportive of this dialectical perspective but he chooses not to elaborate explicitly in this regard.

The significance and role of dialectic in Mäki’s work was outlined at the beginning of section 2. As explained in the introduction thereto, Mäki describes the general tenor of his varied contributions as a “manifestation of a dialectical approach where philosophical concepts are adjusted and created in the light of empirical information concerning the actualities of economics” (Mäki 2002: 91). Like Lawson, Mäki does not use the term to denote a particular ontological belief about social reality. Like Lawson, the significance of dialectic in Mäki’s work is its utility as a mode of reasoning rather than as an ontological presupposition about the social realm. Also like Lawson, Mäki’s use of dialectic captures a form of interactive and reflexive reasoning between two or more internally related objects of analysis.

Despite these similarities there are some important differences in the way Lawson and Mäki use the term and its significance in their work. As noted above, Lawson sees dialectics as useful in opological studies by revealing inconsistencies between the ontological presuppositions and other beliefs held by a theorist and possibly helping to reconcile them. A significant part of Mäki’s work is dialectical in this sense as in his classic study of Milton Friedman But, as explained above, for Lawson a more important role for dialectics is in “combining philosophical ontology and socio-substantive accounts (including lay interpretations) in a programme of revisionary metaphysics”. The idea here is that there is a reflexive interaction between the ‘objects’ of study in the social realm and our knowledge of or about these social entities. As an example of this process (see above),

Lawson suggests that different conceptions of a social entity like an institution can be compared to each other and that in this interaction of ideas our knowledge of such entities is continually adjusted and transformed. Moreover the insights of these different conceptions are preserved in the dialectical process and synthesized to conform to the more general concept of emergence (itself arrived at via philosophical ontological analysis). This (for Lawson) more important role played by dialectics is not evident in Mäki's work. This is because Mäki does not indulge in philosophical ontology to speculate about the basic categories of social reality in the way envisioned by Lawson. In contrast to Lawson, Mäki is content with the less ambitious dialectical tasks regarding ontology and, more generally, the reflexive interaction between the varied outputs of economic theorists and the conceptual tools of realist philosophy used in this analysis.

In concluding this preliminary evaluation of Mäki's and Lawson's work it is helpful to return briefly to the basic difference in critical content and scope thereof. Mäki's application of the tools of analytical philosophy to the subject matter of economics with the more neutral aim of conceptual and terminological clarification has been (mostly) well-received by the mainstream and many of his ideas and suggestions, such as the distinction between realism and realisticness in economic discourse, have been taken on board by the mainstream. Also, because Mäki defends a weak version of realism which can accommodate most mainstream and alternative approaches to economic theory he is less open to criticism than Lawson. Lawson is far more ambitious in this regard and is thus more open to critical attack. His wide-ranging claims and criticisms of mainstream economics, especially from the specific transcendental perspective he adopts, have in turn invited far more critical responses and rejoinders from various quarters. Two selected criticisms of his work are explained here briefly to give some idea of these responses to his work and to round off the discussion.

Lawson's idea of econometrics as the (misguided) search for Humean constant conjunctions is central to his general critique of mainstream economics and thus a selected criticism of his basic argument is not out of place here. Hoover (2002) argues that despite the grand claims of the Cowles Commission the workaday practice of econometricians is far removed from the search for strict empirical generalisations along the lines of the covering law model of deductive inference. Hoover argues that econometrics is not incompatible with realism in the sense that it presupposes the objective existence of underlying causal mechanisms at work in the world that produce the observed event regularities estimated by regression equations. Unlike the natural sciences, in a social science like economics such causal mechanisms (or, as Hoover refers to, in Cartwright's terminology 'nomological machines') cannot be isolated and manipulated ('engineered') by experiment in a laboratory. Because of the nature of its subject, economics must necessarily content itself with 'representing' rather than 'intervening' (see also Hacking 1983). In economics, observation and estimation of the strength of association between the variables of interest using an econometric model replace the laboratory experiments of the natural sciences.

Although such regularities are partial and less precise over time and place compared to the empirical generalisations and laws of the natural sciences, Hoover argues that it is wrong to say that useful predictions derived from such rough and ready empirical regularities are impossible. Hoover suggests that econometrics is consistent with 'local realism'. The relationships estimated by the regression equations may change over time and place but are nevertheless useful guides to policymakers and other decision-makers in their specific local context: "Robust, but imprecise, relationships are routinely made more locally precise. This is what Pacific Gas and Electric does when it estimates electricity demand on the basis of temperature, time of day, price, and other variables. The relationships are well known qualitatively, but its business decisions require more

quantitatively precise information. They do not regard it as a threat to those decisions if the price relationship they estimate for California in 1998 is not the same as for California in 1958 or for Holland in 1998. Academic economists too easily forget that business and government employs large numbers of their peers in part because of the practical and monetary value that they correctly assign to their quantitative conclusions” (Hoover 2002: 161).

Could an estimated empirical regularity as regards, say, electricity demand, temperature, time of day, price and other such variables possibly count as a ‘demi-reg’ in Lawson’s terms (see section 3.6)? If so then it would appear to undercut Lawson’s critique of econometrics – at least at the micro or ‘local realism’ level suggested by Hoover: “Lawson (1997, esp. chapter 14) recognizes the existence of ‘demi-regularities’, precisely the sort of local, temporally specific regularities that I have illustrated in the preceding examples. But the existence of demi-regularities sits uneasily with the uncompromising rejection of econometrics in the earlier parts of his book. Similarly, Lawson (1997, 69) says that he does not question the use of means, growth rates, or other summary statistics which are legitimate where feasible. A substantial part of my argument. . . is that much of econometrics is in fact more sophisticated versions of these ‘legitimate’ activities and investigation into the conditions of their ‘feasibility’. One strategy open to Lawson would be to define econometrics as the search for constant conjunctions so that it necessarily fails if there are no such constant conjunctions; but this would do little justice to the reality of econometrics as it is practiced” (Hoover 2002: 161).

Whether one is persuaded by Lawson’s account depends very much on accepting his portrayal of mainstream economics as a misguided failure. In concluding his review of Lawson’s 1997 book, Alan Nelson argues that such considerations lead us inevitably to “be drawn again into the morass of evaluating the success of the mainstream and the orthodox. The mainstream is rarely prepared to acknowledge any undue degree of disarray. And surely the mainstream would explain its own persistence by appeal to its success, utility and (when waxing methodological) by appeal to its closeness to the truth. It would seem that the mainstream economist and the economist inspired by Transcendental Realism are once more reduced to simply gainsaying each other on this point. Those who come to Lawson’s book already deeply disaffected with the mainstream might be glad to learn of a methodological ‘-ism’ to counter any mainstream claim to superior methodology. Those who come to this book well satisfied with orthodoxy will not find much to undercut their practice” (Nelson 2003: 423–424). Despite the elaboration and refinement of Lawson’s arguments and his carefully considered responses to critics and misunderstandings of his earlier book, it does not seem that his later work (such as his book *Reorienting Economics*) has, thus far, done that much to change Nelson’s basic conclusion in this regard. Of course, Lawson might argue that it is hardly his intention to persuade die-hard adherents of the mainstream and that his efforts are primarily directed to a younger generation of economists more open to alternative ideas in this respect. Lawson’s attitude seems to be one of ‘Old soldiers never die, they just fade away.’ However, at this stage, notwithstanding Lawson’s inventive critique, the extent to which the mainstream is indeed fading and unable to rejuvenate or reinvent itself is debatable.

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