

Heterodox Economics: A Common Challenge to Mainstream Economics?

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Abstract

There is evidence of an increasing coherence, and openness to communication, among the different strands of economics. The purpose of this paper is to address the questions this raises as to whether or not there is still a useful role for the concept of schools of thought. We explore first the categories of orthodox economics and heterodox economics and how we can expect them to develop in the future. In particular, is the relationship between orthodoxy and heterodoxy dualistic, and if so where does this leave pluralism in general and schools of thought within heterodox economics in particular?

The meaning of pluralism is explored further with respect to heterodox economics, and the notion of structured pluralism is developed. Structured pluralism can be understood in terms of categories, connections and absence of connections, which, like pluralism, can be applied at a variety of levels. Categories are necessary for knowledge, and some (incomplete) connectivity is necessary for the process of building up new knowledge. The social system, similarly, functions by means of the categorisation of institutions, and (incomplete) connections between them. In the same way, schools of thought are a necessary part of the process of building up and communicating economic knowledge, within a pluralist framework. It is concluded therefore that schools of thought will continue to play an important role in terms of different communities and approaches within heterodox economics. But it is in the nature of structured pluralism that the structure is partial, and thus not all-encompassing. It is also provisional and therefore subject to change. In this way schools of thought are enabling rather than constraining.

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Introduction

There appears to be an increasing willingness of a large number of economists of different stripes to engage in communication, as a basis for promoting constructive developments in the discipline. An increasing number of organisations are bringing together economists who identify with different groupings, suggesting that there is a growing cohesion within heterodox economics. Further, I have been increasingly aware that much of the interesting new work among young scholars is synthetic in nature, exploring the middle ground between schools of thought and developing new ideas as a result of cross-fertilisation. Indeed, arguably, the greatest developments in economics have been the result of new connections being made between formerly separate sets of ideas.¹ This biological metaphor of cross-fertilisation is one that can be extended more generally in the case for pluralism, that there is strength in biological diversity, in contrast to reliance on isolated strains.

This is a new development; heterodoxy has until recently been understood more in terms of internal differences, apparently with a common thread of rejection of orthodoxy. It could be argued, therefore, that the future of heterodox economics lies in moving further away from traditional groupings around schools of thought, and engaging in much more open interchange. It would be natural to look for strength (in the sociological sense as well as the epistemological sense) in larger numbers. These are the positive arguments for moving away from thinking in terms of schools of thought. There have also been positivist arguments. There has long been an argument from orthodox economists that schools of thought simply reflected ideological differences, which should be kept separate from positive economics.

A case may nevertheless be made, from a pluralist perspective, for retaining the notion of schools of thought in heterodox economics. The purpose of this paper is to consider the future role for schools of thought explicitly in terms of the case for pluralism. We will be focusing particularly on methodological pluralism, that is, the advocacy of a plurality of methodologies.² But in the process we consider the counterarguments noted above. Does continuing to think in terms of schools of thought stand in the way of pursuing the collective purpose of a pluralist agenda?

We will find that different understandings of terms will be very important for how we discuss schools of thought, since they reflect different theories of knowledge. There is no escape from this reflexivity. Further, language is not just a surface phenomenon. The way in which we understand words and concepts has ontological roots. These understandings in turn have real consequences for action. Since one use of language has to be chosen, we couch the case for the continuing importance of schools of thought in terms of the language of heterodox pluralism.

We start by considering the concept of schools of thought, drawing particularly on Kuhn's analysis of paradigms and the emphasis he placed on the role of language. We then explore further the concept of pluralism as it applies to different levels, as a way of understanding heterodoxy. In the process we therefore refer to the ontological, epistemological and sociological arguments for pluralism. From a heterodox perspective these arguments are all interconnected and mutually-

¹ The significance of new connections between ideas was a key element of Adam Smith's epistemology, and has been central to much of Brian Loasby's work; see most recently Loasby (2003).

² Pluralism can apply at a range of levels (see Dow, 1997): at the ontological level (a plurality of being); at the epistemological level (a plurality of ways of building knowledge); at the methodological level; at the level of method (a plurality of methods); at the level of theory (a plurality of theories); and the level of policy (a plurality of policies).

reinforcing; at the same time they demonstrate the incoherence of the orthodox espousal of pluralism.

Discussing pluralism in terms of open systems then allows us to develop the idea of *structured pluralism* (see further Dow, 2004) whereby open systems are segmented in a provisional, partial and incompletely specified way. Schools of thought may then be seen to involve categorisation within an open system of economic thinking, but in an open, provisional way which enables communication rather than impeding it. The term 'school of thought' is thus yet another one which means very different things depending on methodological perspective.

The Concept of Schools of Thought

The second half of the twentieth century saw an evolution from a relatively pluralist orthodoxy to a formalist monism in neoclassical economics (see Morgan and Rutherford, eds, 1998 on this process in the US). With the coalescing of orthodox economics around a strict formalist methodology, with all that entails, the fault lines between orthodox economics and heterodox economics became more evident. Meanwhile, in philosophy of science, Thomas Kuhn (1962) provided an account of science which demonstrated that empirical falsification was not definitive in choice of theory, and explained why that was, historically, the case. By analysing the community-specific nature of scientific knowledge, he concluded that dominant paradigms could not claim superiority in any absolute sense; alternative paradigms could reasonably claim their own legitimacy. Focusing on the physical sciences, Kuhn identified a historical pattern of one dominant paradigm replacing another; he identified the co-existence of several paradigms as the sign of an immature science, which was not his primary concern. Nevertheless, we can use Kuhn's ideas to illuminate our understanding of a multi-paradigm discipline.³

The concept of paradigm provides a framework for thinking in terms of schools of thought. Paradigms represent the shared beliefs of a scientific community about their subject matter (their *Weltanschauung*), and the set of tools employed to build knowledge about it. Beliefs are of fundamental importance, since these determine the view taken of the subject matter, the way of thinking and the value system applied to the content and appraisal of scientific activity. Paradigms are conveyed by means of exemplars. Further, language is used in a way particular to that way of thinking. The importance of language was central for Kuhn⁴, although it took some time for this to be the focus of study in economics. The upshot is that paradigms are incommensurate. What drew early attention to Kuhn was the implication of incommensurability, that there is no absolute set of appraisal criteria by which to judge theories - appraisal is always, necessarily, paradigm-specific.

This set of ideas empowered heterodox economists to set up institutional arrangements (journals, conferences, etc) as a focus for building up alternative paradigms, more commonly referred to as schools of thought. These schools could trace their origins to historical ideas and figures, but these new institutional arrangements provided the capacity for increasing international interchange and socialisation within particular groupings, which generated growth and development within each school. As a result of this strategy, a range of schools could readily be

³ It can be argued that it is in the nature of social sciences that they are more likely to have co-existing paradigms than physical sciences.

⁴ For Kuhn (1990) it was the realisation, as a graduate student studying Galileo and Aristotle, that language was used differently in different eras which alerted him to the importance of incommensurability.

identified, documented and analysed (see for example Dow, 1985, Mair and Miller, 1991, Snowden, Vane and Wynczyk, 1994). The basis for distinguishing schools of thought was increasingly understood, within heterodox economics at least, to be methodological.

But the concept of school of thought was not restricted to heterodox economics. There was reference to schools of thought within orthodox economics itself. Phelps (1990) for example discussed seven schools of thought within orthodox macroeconomics. These were different theoretical approaches up to a point but, in Lakatosian terms, they all shared the hard core of orthodox economics, which specifies that analysis be conducted in terms of equilibrium, on the basis of the axioms of rationality, and so on (see Weintraub, 1985: 109); the common method is mathematical formalism. The domain for identifying schools of thought, from Phelps's perspective, is thus limited to different theories within a common methodological framework. The limited idea of difference evident in Phelps's account therefore also applies to the orthodox understanding of pluralism. It is understood at the level of theory and (to a limited extent) method, not the level of methodological approach. This reflects the unwillingness of most orthodox economists to engage at the level of methodology (Lawson, 1994a). Methodological difference is thus not allowed for.

Therefore, in those cases where orthodox economists do recognise schools of thought outside of orthodoxy (that is, recognise heterodox economics), the notion of schools of thought is understood in terms of ideological pluralism rather than methodological pluralism. But, within the orthodox approach, which distinguishes between positive and normative statements, ideology is separable and indeed should be separated. If ideology is separable from economics-proper, then economics should be developed as a value-free science, and can stand alone, to be used, in its application, in conjunction with different ideologies. For example Hahn (1984: 8) refers to the 'strident commitments of faith' of different schools as standing in the way of (theoretical) pluralism. From this perspective, the whole idea of schools of thought, that is dividing economics according to ideology, is unhelpful. Adherence to a heterodox school of thought is tantamount to admission that the economics is tainted by ideology.

The understanding of ideology, as of pluralism, thus differs between orthodoxy and heterodoxy (Fine, 1980); for heterodox economists, ideology is not separable from economics. But Goodwin (2000) argues that discussion of ideological difference in any case is no longer relevant. He sees economics as a whole as becoming more homogeneous as a result of a general fragmentation into pluralism, implying that the differences between orthodoxy and heterodoxy are on a par with the differences within orthodoxy (that is, theoretical rather than methodological). What might be identified as different schools of thought therefore, as in Phelps's treatment, refer to different theories and methods, not methodologies.

A similar reluctance to think in terms of schools of thought has come from the rather different direction of the rhetoric approach. McCloskey is concerned to promote 'good conversation' as the basis for development of economic knowledge and is concerned that the categorisation of schools of thought impedes good conversation; indeed she also refers, approvingly, to the same passage from Hahn (1984). (Weintraub, 2002, makes a similar argument for historians of economics.) Adherence to a school of thought is identified with prescription, or 'big m' Methodology. But McCloskey recognises that it is not just a matter of ideology. She has acknowledged the issue of differences in use of language among economists of different approaches,

and how these differences themselves impede conversation (McCloskey, 1990). She therefore advocates heightened awareness of language (school of thought?) differences in order to overcome these problems. This view accords well with Kuhn's emphasis on the incommensurability of uses of language in different paradigms.

Finally, there has been a revised reading of Kuhn from heterodoxy which calls into question at the same time the notion of schools of thought. Fullbrook (2003) argues that Kuhn's framework has been taken by orthodox economists as legitimising the persistence of a dominant paradigm. For Kuhn, reality has a fundamental influence on science only when an anomaly between reality and theory can no longer be denied, and a new paradigm which addresses that aspect of reality takes over. Fullbrook argues that orthodox economics is vulnerable to the charge of failing to address the nature of reality, and should be challenged by the heterodoxy. Orthodox economists have however engaged in (successful) paradigm defence to ward off any scientific revolution. Similarly, as Sent (2001) explains, Fuller (2000) has argued that Kuhn himself was motivated to legitimise a particular research program in physics. These readings apparently adopt the same (dualist) relativist interpretation of Kuhn as orthodox economists.

Fullbrook's realist methodology can in fact be understood well as a paradigmatic alternative to the orthodox paradigm. The challenge then is to ensure that the anomaly between orthodox theory and reality is recognised widely enough to support a scientific revolution. Those of us who share this approach of course see it as a preferred basis for knowledge; Kuhn's framework involves spirited defence of the chosen paradigm. But the orthodoxy's understanding of Kuhn as relativist reflects the orthodoxy's dualist mode of thought - either there are universally-accepted appraisal criteria or there are none. Fullbrook's argument highlights the question as to whether heterodoxy might also fit into such a mode of thought - whereby, put crudely, orthodox methodology is wrong and heterodox methodology is right. Does methodological pluralism stop at the door of orthodox economics, or is it more widely inclusive?

Before we proceed to address this issue, it is necessary to be clear as to how terms are going to be used. We have seen, as Kuhn had emphasised, that the terms 'school of thought', 'ideology' and 'pluralism' are used very differently within orthodox economics and heterodox economics. For orthodox economics, diversity in economics is only admissible within the orthodox methodological approach; any other diversity is regarded as beyond the pale. The scope for confusion is aggravated by the fact that the orthodox methodological approach does not encourage awareness of the possibility, and potential legitimacy, of different meanings.

So, to be clear, we proceed now to think of schools of thought as reflecting fundamental methodological differences (where these are integrated in ontological beliefs) and to consider pluralism particularly in the sense of allowing for such differences, that is, methodological pluralism. Some ontological beliefs in turn support pluralism also at the level of theory and method (a particular, pluralist, methodology within the plurality of methodologies). And indeed that sense of pluralism is promoted by ICAPE. But we are concerned here particularly with methodological pluralism, the advocacy of a plurality of methodologies.

Orthodoxy, Heterodoxy and Pluralism

We start for simplicity by considering heterodox economics as a single school of thought which adopts methodological pluralism, and orthodox economics as the other school of thought which does not. For the sake of argument we are therefore thinking

in terms of methodological dualism, the only possibilities being heterodoxy and orthodoxy. (How far this is a gross simplification is the focus of the next section.) The defining methodological characteristics identified in terms of general equilibrium theory still apply within orthodox economics. There is a plurality of theories and a plurality of methods, but these are unified by the positive heuristic to derive conclusions from the assumption that (atomistic) individuals optimise subject to constraints according to a particular notion of rationality, and to analyse in terms of equilibrium, in such a way as to be amenable to mathematical expression and, even if only in principle, empirical testing. There is a certain incoherence in terms of the concepts of rigour being applied, in terms of whether consistency of internal formal logic, or testing against the 'facts', is to be given priority (Dow, 2003). Indeed it is not clear how far plurality of theory and method is coherent with orthodox methodology (see further Sent, forthcoming). Ultimately the methodology of orthodox economics is not purposefully pluralist.

The methodological divide between orthodox and heterodox economics has been explored, not only in terms of pluralism, but also in terms of closed and open systems (see Dow, 1996, Lawson, 1997). These concepts, like pluralism, can be understood at a variety of levels. Lawson makes the critical realist case that the orthodox methodological position can only make sense if the subject matter – the real world – is a closed system. Then it would be capable of revealing law-like behaviour at the empirical level, such that empirical testing would provide a definitive answer to the question of theory choice. Closure would need to apply intrinsically – the objects of theory (individuals) are invariant and independent, with interrelationships which can be identified. It would also apply extrinsically – there is no scope for unaccounted-for outside influences. Exogenous variables, and randomness in error terms, having been pre-identified, do not affect closure in this sense; they reflect a very limited sense of openness of a model, but not openness of a system. (We discuss [somewhat] closed models within open systems in the next section.)⁵

Orthodox methodology is monist in the sense that it is understood that there is one best way to build knowledge (which might involve a range of methods and theories) within the constraints posed by closed-system theorising. At the deeper philosophical level, orthodox thought is dualist, involving either-or categories, such as certain-uncertain, known-unknown and exogenous-endogenous. Dualism in turn encourages the reaction to alternative approaches of rejection (the other possible reactions are containment, paradox and synthesis; see Chick, 1995).

If however the real world is an open system, then it is subject to change, both from within and without, which cannot feasibly be anticipated. The social system is made up of individuals and groupings which change both in their nature and in their interrelations, and there are external forces for change which, being outside the system, cannot be predetermined. This calls for a different approach to building knowledge: if the world is too complex to capture in a knowledge system, then knowledge may be built up in a variety of ways. In explaining what is involved in a pluralist approach to knowledge, Wimsatt (1981) argues that multiple arguments provide a more robust basis for making propositions. He quotes Peirce's use of the metaphor of a rope, whose strength depends, not on any one strand, but on the combination of strands. While a chain is broken if any one link fails, a rope's strength is in a sense over-determined. Further, where the weakness of each link in the chain is

⁵ We could elaborate further on conceptual differences between orthodoxy and heterodoxy, and indeed within heterodoxy, in terms of different understandings of the terms 'open', 'closed' and 'system'; see Chick and Dow, 2004, for such an exercise.

probabilistic, the weakness of the chain as a whole is multiply probabilistic, and therefore greater than the weakness of the weakest link. In contrast, the strength of the rope is stronger than the strength of the strongest link.

It may seem therefore that we have an, ultimately, monist orthodox school of thought and a pluralist heterodox school of thought. But is the pluralism of heterodoxy in fact monist at the level of theory of knowledge (arguing that pluralism is undoubtedly the best way to build up knowledge) and also philosophically dualist (rejecting orthodoxy)? (see further Davis, 1997). I would argue not. The crucial element of the heterodox pluralist approach is its conscious fallibilism. The term 'fallibilism' is being used in its more general sense: given the recognition of the complexity of the subject matter, there is no expectation that we can ever identify truth (or know that we have identified it).⁷

While an orthodox economist might also subscribe to fallibilism, it is presented differently. Either the approach is subjectivist, effectively allowing for several versions of the 'truth', or else the issue of truth is regarded as one which can in principle be resolved, by internal logic or by empirical testing.⁸ What logic and/or testing can reveal, in principle at least, is understood as objective truth, independent of value systems and beliefs. What heterodox economists identify as distinguishing schools of thought – beliefs about reality, and values – are regarded by orthodox economists as 'ideology' which, by their understanding of what is involved in economics, is outside economics. It does not even merit rejection because it is not economics.

Heterodox fallibilism, arising as it does from an open system of thought, is based on an acceptance that no one school of thought has claim to truth. This does not preclude arguing (very!) strongly for the preferred approach, and heterodox economists do indeed argue strongly for their approach relative to the orthodox approach. But it is based on respect for the potential legitimacy of any alternative approach in its own terms. Heterodox economists take orthodox economics seriously enough to argue carefully why they choose not to adopt that approach. There is thus an important asymmetry between orthodox economics and heterodox economics in terms of engagement. Heterodox fallibilism legitimises attempts to engage to some degree with the other approach – even if the engagement takes the form of contrary argument - while orthodox fallibilism does not (see further Lawson, 1994a). It is a matter of recognition, or not, of 'otherness'.

This in itself is a significant issue for heterodox economics – how far this engagement with orthodox economics is seen as constructive. Heterodox economics has clearly developed, both in terms of theoretical content and in terms of scale of activity, such that the balance of research has shifted away from critique of orthodoxy to internal development. But I have argued elsewhere for pluralism in terms of strategy, with active engagement with orthodoxy by some as an important strand of a pluralist strategy (Dow, 2000). Indeed, for most of us who work in departments where heterodoxy is in the minority, engagement is an essential part of working life. Further, it is possible that some of the fragmentation within the orthodoxy reflects dissatisfaction, but no known basis for significant methodological challenge. It is

⁷ The term is not being used in the more narrow sense of Popper's falsificationism (see Nuiniiluoto, 1998).

⁸ This is difficult to sustain in practice, so that policy makers and those advising them, for example, may explicitly avoid any association between theory and truth. See for example Pagan (2003).

important that some heterodox economists attempt to provide a bridge, given the paradigmatic gulf of meaning between orthodoxy and heterodoxy.

The asymmetry between orthodoxy and heterodoxy of willingness to engage has had a paradoxical outcome, which perhaps explains the misperception by orthodoxy of heterodox schools of thought as being defined by ideology. Because heterodox economists are keen to argue at a deeper level than theory and technique, and indeed to argue with passion, heterodoxy is seen by orthodox economists to be unduly prescriptive. The refusal of most orthodox economists to engage, which is based on a stricter, monist prescription, is put forward as a withdrawal from prescription (sanctioned by a particular [mis?]understanding of the rhetoric/science studies argument against 'big m' Methodology). The 'rejection' of heterodoxy is real, but reflects an absence of engagement with the issues.

As heterodoxy matures, there is bound to be more and more attention paid to internal development. But, whether or not explicit attention is paid to it, the heterodox approach is methodologically distinctive. Further it would be undesirable for heterodox economists to move so far from considering the methodological basis for heterodoxy that it lost its fallibilism and fell into the same kind of monism as orthodoxy. Indeed to do so would be inconsistent with the basis for methodological pluralism. It is for this reason that Kuhn's framework continues to be of central importance, reminding us that, just like orthodox economics, heterodox economics cannot claim superiority in any ultimate (extra-paradigmatic) sense. We can produce arguments for its superiority, but it is not demonstrable in any absolute sense.

But let us turn now to the question of methodological pluralism within heterodoxy, and how far it is helpful to think in terms of schools of thought within heterodox economics.

Structured Pluralism

Within heterodox economics, the arguments for methodological pluralism have themselves been diverse (see for example King, 2002). We focus here on the argument which derives explicitly from open-system ontology. I have argued elsewhere (Dow, 1990, Dow, 1996, Dow, 2000) that heterodox economics shares a general open-systems ontology (the social world is an open system), but that there are different understandings of the nature of that reality. Schools of thought are identified according to whether their vision of reality is primarily individualist (neo-Austrian), class-based (Marxist), etc. The concept of schools of thought is therefore a descriptive tool which identifies different, open system, ontologies (with respect to the one reality). From these ontologies follow the different methodologies of each school of thought.

The fact that we can identify different ontologies with respect to what is agreed to be an independent reality which is an open system suggests that complete openness cannot be sustained once we come to knowledge about that reality: boundaries emerge in how we conceptualise reality. The argument to be developed here is that any conception of openness requires some form of closure. Applied at the meta-methodological level, this argument implies that methodological pluralism does not require (nor can sustain) complete openness. Put another way, methodological pluralism does not require (nor can sustain) infinite plurality. Methodological pluralism needs to be limited on the one hand (a finite number of categories), but not so far as to be methodologically-dualist (two mutually-exclusive, all-encompassing

categories), on the other. In other words, the argument will be made for what we call 'structured pluralism'.⁹

Critical realism places considerable emphasis on the open-system/closed-system distinction, downplaying differences between schools of thought. This follows from a different, dualistic, understanding of openness and closure than the one to be considered here; for critical realism, closure is associated with event regularity and the conditions which generate it (see the exchange between Dow, forthcoming, and Lawson, forthcoming). Critical realism therefore maintains a duality between closed-system and open-system theorising, identified with the distinction between orthodox and heterodox economics.

The basis of critical realism in open systems ontology requires an open systems epistemology. This is put forward as a unifying principle of heterodox economics. Critical realists thus pose a challenge to heterodox economists to provide the basis by which to identify schools of thought (Lawson, 1994b). Since open-systems epistemology entails pluralist methodology – multiple different, possibly incommensurate, strands of argument using a range of methods – the implication is that there is no particular need for schools of thought. There is no particular advocacy of methodological pluralism, and thus continuing to think in terms of schools of thought. Indeed this position can be considered alongside the other arguments we considered in the last section – that schools of thought put up barriers to discourse, not least because of the force of ideological differences.

But let us return to the level of ontology, and the nature of social reality. Let us consider how an open-system reality, namely an economy, actually functions in order to consider the open-system reality of knowledge systems and the social structure of the economics discipline. Brian Loasby (most recently, 2003) draws the explicit parallel between firms as knowledge systems and economics as a knowledge system. The rationale for the formation of firms is the need to form systems based on imperfectly-specified contracts in order to facilitate decision-making under uncertainty. Knowledge is inevitably uncertain in an open-system world, where preferences, behaviour and institutional structures evolve. He argues that the operation of large systems requires some decomposability. Rather than the complete interconnectedness of the orthodox economy, real economies function on the basis of incomplete connectedness (see further Potts, 2000). Complete connectedness would mean an absence of system. Similarly, Raffaelli (2003) emphasises the importance of routines, and their pairing with innovation in the process of economic evolution.

But the closures created by routines, or categorisations which rule out some connections, are provisional; they are based on conjectures which are subject to refutation. A firm following a strategy which involves a range of assumptions about technology and markets can, in an uncertain world, find these assumptions challenged by events, most noticeably poor profit performance, which require alteration of some defining characteristics. A convention as to pricing may be challenged and changed, or the categorisation of which that firm consists may itself be challenged: the firm may be taken over, or dissolved.

Another way of looking at segmentation of organic systems is in terms of constraints. In orthodox theory, impediments to full information, or to perfect price flexibility, or to perfect substitutability through market exchange are constraints which limit the capacity to achieve a socially optimal solution. Constraints in heterodox theory, in contrast, may be enabling, for constraints in the form of

⁹ Davis (1999a) has made a similar argument, against the postmodernist position, for boundaries between discourses (using the term 'principled relativism').

conventions which fix prices provide some element of certainty as a basis for planning, and thus enable the economic process. (See Hawkins, 2003, chapter 1, for a fuller account of this argument.) The full freedom of the general equilibrium world can only work under a system of central planning. Complete interconnectedness would be chaotic; society would seek mechanisms to segment the social system to make it workable. Even in a closed-system world, there is no mechanism for handling infinite information.

Loasby argues that knowledge systems themselves require some decomposability; according to Adam Smith (1795), knowledge systems consist of connecting principles, and the development of knowledge is a process of making new connections. This follows from a recognition of the essential incompleteness of human knowledge about a complex reality, that is, from fallibilism. Indeed Loasby points out that it was Smith's notion of the decomposability of scientific knowledge which produced his concept of the division of labour, and the benefits to be derived from it.

Schools of thought may thus, up to a point, be considered as evidence of division of labour in economic thought. One school of thought may be dominant (as in orthodox economics). But, unlike Kuhn's framework which emphasises the succession of one paradigm after another, this perspective supports the view that a discipline may at any time consist of multiple paradigms. At any particular time, each school can be characterised by its configuration of connectedness and lack of connection. These configurations are necessary for the operation of the knowledge system, some schools of thought exploring some connections while closing off others. But the closures are provisional. Changing the configuration of connectedness allows for a synthetic development of ideas across paradigms, and is suggestive of possibilities for different categorisations. Thus the categorisation of schools of thought, within an open-systems approach, should be seen as provisional and subject to change.

The same argument follows from a more explicitly Keynesian view of knowledge, which was itself built on an open-system ontology (Keynes, 1921/1973). Keynes built his theory of the reasoned grounds for belief under uncertainty on the basis that the social world is organic, so that there is little scope for certain knowledge. An organic system is one which is intrinsically and extrinsically open (that is, there is scope for complex, non-deterministic change in internal and external relations). Keynes explained how ordinary logic could provide a basis for knowledge about organic systems, even if classical logic (which requires premises to be held with certainty) cannot. Ordinary logic proceeds pluralistically, building up knowledge under uncertainty by means of provisional theories (conjectures) based on available evidence, combined with conventional judgements and the application of imagination and intuition.

Theories with respect to an open-system reality require some segmentation of the subject matter (see further Chick and Dow, 2001). They require judgement as to relative degrees of connectedness, such that each aspect of reality is the focus of different enquiries, and indeed some aspects of reality may be omitted from enquiry. These categorisations are provisional. Keynes (1936) chose to emphasise the influence of current income on consumption, although he noted other influences; it was open to others to choose other emphases as appropriate: the segmentation was provisional. Similarly he chose to take the money supply as given, while elsewhere he investigated the causal mechanisms in the banking system behind the money supply: the segmentation in the *General Theory* was partial. The rationale for constructing

theory in this way is that the organicism of the real world is not absolute or uniform – there are categorisations in the real world (institutions, conventions etc) which allow for categorisation in theories.

Finally, beyond partial application and provisionality, the segmentation of open systems takes the form of the setting of vague, rather than precise, boundaries.¹⁰ This was a key feature of Keynes's philosophy; ordinary logic required ordinary language. It was the organic nature of reality which required vague language (see further Coates, 1996, 1997). As Davis (1999b: 504) puts it, through ordinary language, 'concepts achieve their efficiency by embodying tacit knowledge that necessarily escapes formalisation'. If the reality we are studying evolves in nature, then the boundaries we impose in the segmentation we employ to theorise about it should be vague enough to allow ambiguity of meaning, and evolving application. Klaes (2003) makes a similar argument in the context of institutional economics, analysing concepts as social institutions. In a closed system, with well-defined terms with fixed meanings applied to atomic elements with deterministic interrelations, crisp boundaries are possible. The language of orthodox formalism is an idealist language suited to classical logic. But in an open system, with segmentation in reality and in knowledge systems which are partial, provisional and changing, ambiguity of boundaries is positively helpful. Fuzzy logic, accordingly, has found widespread application in complex engineering systems (Dow and Ghosh, 2005).

We can therefore think of heterodox schools of thought as a segmentation of the heterodox system of thought. Were there no segmentation, all interconnections of complex social reality would need to be studied simultaneously. But each school of thought understands reality differently, or chooses to emphasise different aspects of reality, and so chooses different segmentations for study – some focus on market relations, some on long-term relations between macroeconomic aggregates, and so on. But these segmentations are partial, provisional and with the boundaries not precisely defined. This form of categorisation, a structured pluralism, provides the ideal basis for the development of knowledge. Schools of thought build up theoretical systems based on their own categorisations, connections and lack of connection. But the partial, provisional and vague nature of these categorisations creates an openness to cross-fertilisation across schools of thought,¹¹ and facilitates the evolution of the schools of thought themselves.

None of this precludes discourse at the level of heterodox economics as a whole, on the basis of shared views about open-systems economies and economics. But without schools of thought, heterodox economics would be unmanageable, just as, without firms, the economy would be unmanageable. As Adam Smith (1795) pointed out, knowledge is built on the basis of identifying patterns, emphasising some connections while disallowing others. Segmenting economics into schools of thought is an exercise in pattern formation. In Kuhnian terms, it allows normal science to proceed within in each paradigm. Knowing the characteristics of each school of thought aids rather than impedes conversation. Rather than a Tower of Babel where communication breaks down, we know which dictionary to reach for. A dictionary never provides enough to really understand meaning, but it is a start.

The key is not to regard schools of thought as set in stone. To pursue the linguistic metaphor further, language evolves, and each borrows from the others. So

¹⁰ Mearman (2005) provides a fruitful analysis of categorisation by polarity along a spectrum, rather than in terms of strictly-defined, mutually-exclusive, all-encompassing duality or plurality.

¹¹ Examples would be the incorporation of Post Keynesian endogenous money theory in institutional economics, or the application of Keynesian theory of uncertainty to the behavioural theory of the firm.

the boundaries of schools of thought are vague, and they require updating from time to time.

Conclusion

We have considered here the various arguments against continuing to think in terms of schools of thought. From the heterodox perspective, they may be seen to fragment the power of heterodoxy, or that they impede discourse. From the orthodox perspective, schools of thought may be seen to reflect ideological differences which have no place in economics, or that they are part of a larger, benign pluralism which requires no methodological scrutiny.

The most powerful arguments in favour of thinking in terms of schools of thought refer to open-system ontology and epistemology. But open systems (of economic relations or of knowledge) are only manageable if they are segmented in some way. These segmentations, as befits open-system thinking, are provisional and vaguely defined. Put another way, knowledge is built by means of imperfect connectedness which is both imperfectly specified and provisional.

Seen in this light, schools of thought play an enabling role by representing patterns, in terms of the ontological vision of the economy, and the consequent segmentations employed to construct theory, and the range of methods employed. But each school of thought needs to be thought of as itself an open system, with vague boundaries, and scope for external and internal change. This has been termed here a 'structured pluralism', which applies equally to economic thought and to open-systems methodology.

Further, structured pluralism can encompass orthodox economics as much as heterodox economics. The boundaries of orthodox economics have been shifting, often as a result of incorporating ideas from heterodox economics, translated in terms of orthodox methodology. The notion of structured pluralism thus serves to draw thinking away from a dualistic separation into heterodoxy and orthodoxy. The boundaries between orthodox and heterodox economics, while different from those within heterodox economics, may likewise be seen as provisional and partial, enabling some communication.

With economics categorised in this (open, potentially fluid) way, inter-paradigmatic communications are facilitated rather than impeded. Better understanding of schools of thought leads to better understanding of the possibilities for cross-fertilisation. The notion of heterodoxy, in particular, united in its open-system approach, and of schools of thought co-existing within that large category, are not simply non-contradictory, but rather highly compatible.

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