

The Invisible Hand and Some Thoughts on the Non-Existent in What We Study

By Karl Mittermaier*

1.

My original intention was to call this paper “What’s the point of studying something that doesn’t exist?”. But that was likely to be understood as a rhetorical question and a bit of flag-waving for the view that surely there can be no point in it at all. Actually, I want to argue the opposite thesis, not on the familiar *as if* basis nor on any other nominalist basis, but nevertheless in a way in which the non-existent will be open to the interpretation of “existing in the mind only.” Such a thesis would seem to be uncongenial to what in my private terminology I call the *New Realisms* (scientific, transcendental, critical and so on). My understanding of these positions is very limited indeed, but it seems to me that what I intend to say is not incompatible with them. In fact, the suggestion to which these remarks will lead may even be quite useful in a Realist campaign.

In order to have something to hang my remarks upon, I shall begin with an interpretation of a major, if not the major, theme of Adam Smith’s *Wealth of Nations* and some of its antecedents and consequences. It is a fairly novel interpretation and may be of some interest in itself. Adam Smith’s writings are of course notoriously open to many interpretations.¹ I believe that this one is in fact correct, but since the aim is not to produce a piece of hermeneutics but rather to illustrate how the non-existent may be used to discover and get a handle on the existent, not much effort will be spent in defending it against rivals.

From a detailed analysis of the context in which Adam Smith used the invisible-hand expression in the *Wealth of Nations*, the argument of the paper leads in stages to

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¹ Viner’s well-known remark about this was: “Traces of every conceivable sort of doctrine are to be found in that most catholic book, and an economist must have peculiar theories indeed who cannot quote from the *Wealth of Nations* to support his special purposes” (1983 [1927], 149).

the conclusion that fictions may play a vital, or even essential, role in economic analysis, provided that fiction and reality are clearly distinguished. Section 2. discusses the wide variety of interpretations that the invisible hand has been given. Section 3. examines the context in which the expression was used and, on the basis of its apparent function there, section 4. proposes another interpretation of the invisible-hand argument in the *Wealth of Nations*. Section 5. indicates how this argument fits into Smith's wider vision of a market economy and suggests the rationale of his analysis of natural prices or value. Section 6. outlines this analysis and characterizes it as a case of heuristic reasoning, while section 7. tries to indicate the wide scope of such reasoning. Section 8. relates my argument to the New Realism and indicates why I call this realism *new*. The final section argues that not all theoretical constructs are descriptions or models and that non-descriptive theories may be more useful for obtaining fuller and more detailed descriptions of reality. It also urges that theory and reality be more clearly distinguished.

2.

It is surely curious that Adam Smith's invisible-hand expression has had the impact that it has had. It is not a particularly felicitous expression nor does it seem to have much literary merit. Yet almost everyone with any kind of education has heard of it and recognizes it, each according to inclination, as an aphorism or catchphrase for anything from a grand harmony of human interests through various, sometimes rather mystical, ideas on markets and the reconciliation of private and public interests to the optimum allocation of resources or simply general equilibrium theory. The following are some recent comments on the matter:

No simile, metaphor, or phrase of any kind in Smith's published works has been the object of more inquiry than his reference, which seems to be based on his natural religion, to an "invisible hand." Smith believed that under a system of natural liberty a society is enriched by its individual members, who advance the social interest without intending or even knowing that they are doing so. He attributed this reconciliation between individual and social interests to leadership by an invisible hand of Providence.

In Smith's system an invisible hand of Providence is involved in the reconciliation of individual and social interests. In a sense this invisible hand is the instrument used to forge harmony. Smith's system is thus a doctrine of harmonious order in nature, under divine guidance (Davis 1990, 341 and 352).

As modern economists, we use Adam Smith's "invisible hand" metaphor confident that we all know what it means in our discourse: it reflects our admiration for the smooth functioning of the market system as a coordinator of autonomous individual choices in an interdependent world. But in Adam Smith's moral philosophy, the invisible hand has a much broader responsibility: if individuals are to enjoy the fruits of a classical liberal society, the invisible hand must not only coordinate individuals' choices, it must shape the individuals into constructive social beings – ethical beings" (Evensky 1993, 197).

And the same author in another paper:

Adam Smith constructed the foundation of modern economics with the master metaphor of the classical liberal language. That metaphor represents an unconstrained invisible hand as guiding autonomous individuals through a competition that allows each to derive the greatest benefit from his initial endowment, and that is most fruitful for society as a whole (Evensky 1992, 61).

In what appears to have been a popular exposition of his and his friends' work, Hahn used the invisible hand simply as a synonym for general equilibrium theory, both throughout the text and in the subheadings. There is a subheading "The Pure Theory of the Invisible Hand" and the problems of equilibration or dynamic analysis are discussed under the subheading "The Invisible Hand in Motion" (Hahn 1982, 2 and 13). Finally, in a review article on "Arrow and General Equilibrium Theory" the authors make the following statements:

The first welfare theorem concerns the Pareto optimality of Walrasian equilibrium allocations. It offers the modern expression of Adam Smith's declaration that individuals acting in their own interest will promote the social good.

And a little further on:

It is tempting to conjecture that the proof of the first theorem that Arrow and Debreu devised was so trivial that it was a little while before they realized what they had: no convexity, no separating hyperplane theorem, but the kernel of Adam Smith's declaration concerning the invisible hand in a few short lines (Duffie and Sonnenschein 1989, 576 and 581).

The variety and profundity of meaning attached to two rather ordinary words is quite amazing. The point is made by Syed Ahmad. After noting that "Adam Smith is best known to economists, and even more so to the noneconomists who know of him" by these words, he says: "This is an amazing success for a catchy phrase, since it was used by Smith on only three occasions..." and one of these was not noticed (at least in the literature) until 1971 (Ahmad 1990, 137). Ahmad (*ibid.*) and Davis (1990), appearing in the same year and in the same journal, discuss the three places in Smith's work where the invisible-hand expression is used. Its first use was in the *History of Astronomy* (if scholarly opinion on when that tract was written is correct). Smith there says that the ancients ascribed to the powers of their gods only the irregular events in nature, like storms and floods, eclipses and comets. The very ordinary course of nature was not ascribed to them, to which he added: "nor was the invisible hand of Jupiter ever apprehended to be employed in those matters." It would surely be far-fetched to suggest that this was an "invisible-hand doctrine" later to reappear in the *Wealth of Nations*.

The second use was in *The Theory of Moral Sentiments*. Smith there says: "When Providence divided the earth among a few lordly masters, it neither forgot nor abandoned those who seemed to have been left out in the partition." The reasoning behind this rather Panglossian view was that the capacity of the landlords' stomachs was no greater than that of the "meanest peasant" and that for this reason the selfish and rapacious rich were forced to distribute food through the purchase of the "baubles

and trinkets” and other things with which the appearance of greatness must be supported. Smith added:

They are led by an invisible hand to make nearly the same distribution of the necessaries of life, which would have been made, had the earth been divided into equal portions among all its inhabitants, and thus without intending it, without knowing it, advance the interest of the society... (Smith 1976 [1759], 184–5).

The theistic and somewhat mystical interpretations of the invisible hand undoubtedly stem from this passage, which is more or less in tune with the tone of the whole book.² But is this the same invisible hand that makes a single appearance in the *Wealth of Nations*? This question runs into the so-called Adam Smith problem, namely, the observation first made by certain German commentators about a century ago that Smith’s two major works contradict each other in their fundamental principles. Viner, in his celebrated paper on the matter, said that the later book “could not have remained, as it has, a living book were it not that in its methods of analysis, its basic assumptions, and its conclusions it abandoned the absolutism, the rigidity, the romanticism which characterize the earlier book” (1983 [1927], 145). Smith had simply changed his mind. But others say that one cannot proceed on the assumption of the inconsistency of a renowned author (see for instance Prasch 1991, 338). But is it inconsistent to change one’s mind? (If so, Bertrand Russell would have been the most inconsistent philosopher ever.) There is a further difficulty. Smith brought out a sixth edition of *The Theory of Moral Sentiments* in 1790, the year he died. Would he have done so if he had radically changed his mind? Would one be questioning his probity if one supposes that he did? But here again, Evensky points out that Smith took the revisions seriously and that the changes do in fact reflect his new language, that of the civic humanism of a social critic (Evensky 1989, 139; but see Davis 1990, 351, for the contrary view).

Even if one were to accept the continuity of the two books, could one then extend this to the mere combination of two words? Davis states what is probably the more usual view: “His full and classic statement of an invisible-hand doctrine was given in *The Theory of Moral Sentiments* and carried forward to *The Wealth of Nations*” (1990, 352). Ahmad (1990, 142–3), on the other hand, concludes that the various uses of the expression seem to have next to nothing in common. And why should they? It seems clear (at least to me) that Smith did not, in any of the three cases, use the words aphoristically, as is the rule nowadays. They may not have been altogether incidental to his intentions, but they were nevertheless in the nature of throw-away expressions. Had Smith been asked what exactly his invisible-hand doctrine was, he would surely have been puzzled by the question. If no great significance was attached to the choice of the particular words originally, then it seems fair enough that we may nowadays make them mean whatever we think they ought to mean. In the following we shall

² See Evensky (1989) for a discussion of how the tone, or as it is put there, the languages used by Smith, evolved from his earlier to his later writings. See also section 4. below.

have a fairly close look at the context in which the invisible-hand expression occurred in the *Wealth of Nations*.

3.

The celebrated words are to be found in the ninth paragraph of a chapter on import controls and tariff protection (Book IV, Chapter II). The general context is well that of an efficient allocation of capital. But a careful reading shows that the invisible hand is not a symbol for the mechanism that is thought to bring it about. That matter is dealt with in common-sense terms in the tenth paragraph. Every individual in his “local situation” can judge much better than a distant “statesman or lawgiver” how his capital may be best employed – which is not an optimization claim.

The first paragraph of the chapter mentions some protected industries and generalizes with the statement: “Many other sorts of manufacturers have, in the same manner, obtained in Great Britain, either altogether, or very nearly a monopoly against their countrymen.” The second concedes that such protected industries are likely to grow faster than they would without protection, but questions whether this increases the overall product. The third alludes to the wages-fund idea; that employment is in any case limited by the amount of working capital so that a “regulation of commerce” can only divert, but not increase, “the quantity of industry.” The fourth paragraph sets out the general form of the argument of the next five paragraphs:

Every individual is continually exerting himself to find out the most advantageous employment for whatever capital he can command. It is his own advantage, indeed, and not that of the society, which he has in view. But the study of his own advantage naturally, or rather necessarily leads him to prefer that employment which is most advantageous to the society.

The correction of “naturally” to “necessarily” is interesting. Had it been an ordinary correction in the course of writing a long book, one might have expected Smith simply to delete the word “naturally.” By displaying the correction to the reader, Smith seems to have wanted to stress that he was thinking of something like logical necessity. Perhaps one should not read too much into a few words, but it does seem that in this paragraph the individual is led to promote the interests of society not by some mechanism in the grand scheme of things but merely by logical necessity. In the invisible-hand paragraph, which serves as a summary of paragraphs four to eight, the word “necessarily” recurs in a similar context and the matter is then reworded in terms of an invisible hand.

The fifth and sixth paragraphs make the point that, “upon equal or nearly equal profits,” every individual endeavours to invest his capital “as near home as he can” because he feels more secure when “his capital is never so long out of his sight” and when he is familiar with the law, custom, language and so on. The seventh and eighth paragraphs state, in modern terms, that the product of manufacturing industry is the value added and, presumably with an implied *ceteris paribus*, that the higher “the value of this produce” the higher profits would be. The investor therefore has an

incentive to make the value (which to Smith, as we shall see, is not necessarily the same as price multiplied by quantity) of the product as great as he can.

We come now to the invisible-hand paragraph. It begins with the national accounting identity of income and product:³

But the annual revenue of every society is always precisely equal to the exchangeable value of the whole annual produce of its industry, or rather is precisely the same thing with that exchangeable value.

The next sentence runs as follows: “As every individual, *therefore*, endeavours as much as he can...” to invest locally and make the value of the produce as great as he can (i. e. the matter of paragraphs five to eight) “...every individual *necessarily* labours to render the annual revenue of the society as great as he can” (emphases added). Now, these first two sentences surely can only be taken to say that the total income/product is the sum of the individual products, so that where everyone is trying to make the individual products as great as he can, everyone is trying to make the total income/product as great as he can. This is indeed (on a certain understanding of “product”) *necessarily* if somewhat trivially the case. The third sentence states: “He generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it.” One must presume here that Smith took it for granted that wealth creation is in the public interest.⁴ The first three sentences make up half the paragraph. In the second half, Smith simply reiterates in different words what he had said in the first half. Remarking again that by local and efficient investment every individual intends only his own security and gain, he continued:

...and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for the society that it was no part of it. By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it.

Far from referring to some deity or natural order, it seems that the invisible hand of the *Wealth of Nations* refers merely to a seemingly trivial logical necessity.

The words “in many other cases”, “[n]or is it always” and “frequently” in the above quotation suggest that the invisible hand does not operate in all cases. If it is in the nature of a logical necessity, it cannot of course have exceptions. But it may be that it applies only under certain conditions. We shall see that this is in fact so. A consideration of these conditions will lead us to two important points that one should notice about the nature of invisible-hand arguments. It will also show that such arguments are

³ This identity had been dealt with early in the book in the chapter starting with the beaver and deer example (Book I, Chapter VI). It has not always been recognized as such because of the fuss made ever since Ricardo about Smith and a labour theory of value. Its title is: “Of the component Parts of the Price of Commodities.”

⁴ As usual, however, the matter is not quite as simple as that. See for instance Young (1990) and Prasch (1991). Prasch’s argument that Smith’s ideal was a civilized classical liberal society – and that gradually increasing wealth was no more than an aid towards that goal – is not incompatible with the argument of the present text.

far from trivial. They are, as is usually thought, at the heart of what is arguably the major theme of the *Wealth of Nations*, but in a way that is a little different from what is usually thought.

4.

The passages we have scrutinized in such detail appear, as mentioned already, in a chapter on import controls and tariffs. Smith took such regulations to be just one manifestation of the “wretched spirit of monopoly.” Later in the chapter, he went on to say that merchants and manufacturers had most to gain from protection and, living in towns, were “accustomed to that exclusive corporation spirit which prevails in them” and therefore “naturally endeavour to obtain against all their countrymen, the same exclusive privilege” (*WN*, 426). “Country gentlemen and farmers” whom he considered to be “least subject to the wretched spirit of monopoly” had nevertheless attempted “to put themselves upon a level with those who, they found, were disposed to oppress them” and had also demanded exclusive privileges (*ibid.*, 428–9). While discussing the disruptions likely to be brought about by a repeal of protective measures, he made the plea: “[B]reak down the exclusive privileges of corporations, and repeal the statute of apprenticeship, both which are real encroachments upon natural liberty, and add to these the repeal of the law of settlements, so that a poor workman, when thrown out of employment either in one trade or in one place, may seek for it in another trade or in another place...” (*ibid.*, 437) However, he saw little chance of that being done:

To expect, indeed, that the freedom of trade should ever be entirely restored in Great Britain, is as absurd as to expect that an Oceana or Utopia should ever be established in it. Not only the prejudices of the public, but what is much more unconquerable, the private interests of many individuals, irresistibly oppose it (*ibid.*, 437–8).

Evensky (1989, 132–7) has suggested that Smith’s attitude to these matters changed when he moved to London in 1773 in the middle of a period of British history particularly marked by political factions and “interests.” There he could observe at close quarters the power and influence wielded in a mercantilist state. Much of the *Wealth of Nations* was rewritten in London, delaying publication for several years, and to the “language of civil jurisprudence” of Smith the moral philosopher was added the “language of civic humanism” of Smith the social critic. The supposition certainly seems plausible. One could imagine an American who had been writing starry-eyed articles on democracy coming into close contact with the lobbying industry in Washington. His ideals might not change, but the tone of his voice surely would (and he might well become a disciple of James Buchanan). In Smith’s case it may account for the strident invective against merchants and manufacturers to be found throughout the *Wealth of Nations*, such as when he said of a politician able to frustrate their intentions that almost nothing “can protect him from the most infamous abuse and

detraction, from personal insults, nor sometimes from real danger, arising from the insolent outrage of furious and disappointed monopolists” (*WN*, 438).

It is important to have a picture of Smith’s mind-set when he penned the invisible hand for the third and last time. At one place in the book he speaks of monopolists who “by raising their profits above what they naturally would be” are enabled “to levy, for their own benefit, an absurd tax upon the rest of their fellow-citizens” (*ibid.*, 250). We would now say that they were engaging in rent-seeking, though for Smith’s rather wider conception we could also say that they were engaging in predatory activity. Let us now imagine a country in which all individuals, in studying their own advantage, are continually exerting themselves and endeavouring as much as they can to levy, for their own benefit, an absurd tax upon the rest of their fellow citizens. Would they still be promoting the public interest without intending it? Would the logic of the invisible hand still apply? Surely not. Rent-seeking is in the nature of a zero-sum game, what the rent-seekers gain, others lose. The basis of the invisible-hand logic is that the total income/product should be the sum of all individual products – and this does not seem to be the case where people play zero-sum or even negative-sum games. The product would somehow have to be defined in such a way that the gains of successful rent-seekers are excluded, as also the earnings of those who help them, such as lobbyists, lawyers and accountants.

The first point that one should notice about the invisible-hand argument is that it is not about an agency that brings about equilibrium and is only indirectly about the optimum allocation of resources. It is about rent-seeking, or rather, about a situation marked by the absence of rent-seeking or predatory activity.⁵

The second point that one should notice about the invisible-hand argument is that Smith was apparently not describing the British economy of his day when he wrote about individuals who promote an end which was no part of their intentions. Nor, as is implied by the treatment of the question by some of his modern followers, was he referring to a mechanism just below the surface of reality, where it is kept by the misguided actions of governments. It is always a problem for the reader of the *Wealth of Nations* to know when Smith is writing about an actual state of affairs and when he is writing about an ideal state of affairs. But he is not completely obscure. One may take him to be making a generalization about the “real world” when he wrote: “The interest of the dealers, however, in any particular branch of trade or manufactures, is always in some respects different from, and even *opposite* to, that of the public” (*WN*, 250, emphasis added). But when he wrote about a world in which there is no rent-seeking, no predatory activity, so that *no* interest is *opposite* to that of the public, he could not have been writing about the same world; he was writing about an ideal state

⁵ Rent-seeking in the *Wealth of Nations* has featured in some recent discussions of Adam Smith as a public-choice theorist, especially in response to Stigler’s (1982) remarks, in his article *Smith’s Travels on the Ship of State*, that Smith was a rather poor public-choice theorist. See Anderson (1989) and West (1990, chapters 8 and 9). On somewhat broader issues, see also Moss (1991).

of natural liberty. The invisible hand operates in an invisible world that “exists in the mind only,” or, at most, exists in the “real world” only in the sense that out there somewhere there may be people who hold the ideal.

5.

The art of living at the expense of others, of getting others to do the dirty work for you, presumably has been practised over many millennia. As Marx was to see it, the various techniques for doing so divided history into stages. But in the very long line of thought of an emerging classical liberalism, in which Adam Smith was quite a latecomer, the ancient unsavoury art inspired a utopian vision of a market economy. No doubt, this reading of history is altogether too cosmic. But it allows me to state in the simplest terms what I believe was the core of Smith’s vision of a market economy in the ideal state of natural liberty.

It amounts to the following: If the common law of the land, or possibly some other institutions of society, made all manner of predatory practices so hazardous and harassing, so unpleasant, perilous and even painful that the irksomeness of work would seem the lesser evil, then all the people in the land would be forced, as a last resort, to produce things themselves and exchange them for the things they want. A sensible, even if not an optimal, allocation of resources would result simply because the incentives for doing things sensibly would be very strong indeed.⁶

This vision reappears again and again throughout the *Wealth of Nations* and infuses a hopeful tone into the discussions of a myriad topics. It is hard to show that this is so in a book of probably some four hundred thousand words. But it may be seen in a particular turn of phrase which, unlike the invisible-hand expression, recurs in many places. Here are some examples:

The increase of the quantity of gold and silver in Europe, and the increase of its manufactures and agriculture, are two events which...have arisen from very different causes... The one has arisen from a mere accident... The other from the fall of the feudal system, and from the establishment of a government which afforded to industry the only encouragement which it requires, some tolerable security that it shall enjoy the fruits of its own labour (*WN*, 238).

The improvement and prosperity of Great Britain, which has been so often ascribed to those laws [establishing subsidies to industries], may very easily be accounted for by other causes. That security which the laws in Great Britain give to every man that he shall enjoy the fruits of his own labour, is alone sufficient to make any country flourish...” (*WN*, 508).

⁶ In our day of huge corporations, massive capital investments and large-scale unemployment, one could turn this argument around. The difficulties of producing something on individual initiative are now so great that people find it easier to become political predators, to seek a share of whatever rent there is through political action, and thereby, without intending it, bring about a nonsensical allocation of resources.

[T]hat irregular and partial administration of justice [in Spain and Portugal], which often protects the rich and powerful debtor from the pursuit of his injured creditor, and makes the industrious part of the nation afraid to prepare goods for the consumption of those haughty and great men...from whom they are altogether uncertain of repayment...[as opposed to]... that equal and impartial administration of justice which renders the rights of the meanest British subject respectable to the greatest, and which, by securing to every man the fruits of his own industry, gives the greatest and most effectual encouragement to every sort of industry (*WN*, 576).

The attention of the landlord is a particular and minute consideration of what is likely to be the most advantageous application of every inch of ground upon his estate. The principal attention of the sovereign ought to be to encourage...the attention both of the landlord and of the farmer; by allowing both to pursue their own interest in their own way...; by giving to both the most perfect security that they shall enjoy the full recompence of their own industry; and by procuring to both the most extensive market..." (*WN*, 785).

Imagine now that I have swapped places with Adam Smith. I (Adam Smith by name) am sufficiently *bourgeois* to want to make the world a better place, not only for myself but for everybody. From having read the works of learned men and in some cases from having conversed with them, I have picked up a vision of a market economy in a setting of an ideal state of natural liberty. Some features of the world I actually live in, such as the British administration of justice, are quite agreeable to my vision. But I am acutely aware that this *existent* world, by and large, is very different from, and I think inferior to, the *non-existent* world of my vision. I know, like many others, that an ideal may serve as a guiding conception in so far as one may read off it how the existent world would have to be constructed to make it approximate more closely to the non-existent world of the ideal. (I can feel Hayek tremble in the future.) But this does not help me much because I am in no position to restructure the existent world.

If my vision is to make any difference in this inertial world, I shall have to persuade others of the merits of my non-existent and the follies of the existent world. But these others have little inkling of my vision and most of them appear not to have seen the things that I have seen, or rather, *as* I have seen them. For instance, they see apprenticeship, my pet aversion (cf. *ibid.*, 119–23 and 126–27), as an essential institution for imparting skills whereas I see it as an institution for enriching some at the expense of others. The New Realists will be saying more than two centuries from now that the institutions of the Britain of my time are what they are (social structures) quite independently of how I see them and think about them. In fact, they are what they are irrespective of whether I think about them or not. I quite agree. But that does not help me much either. I want to say to the people of my time: "You are making a mistake." I want to urge them: "Repeal the statute of apprenticeship." But these would be just cold and bare words to them. I want to explain myself to them; I want to make sense to them. For that, I need to find words whose *connotations* are embedded in the whole of my vision.

While I ponder over these matters, my mind turns to that laudable judgment and triumph for the common law in the case of the playing-card monopoly some one hundred and seventy years ago. I wonder whether the judges then had been influenced by the extensive literature on the *Just Price* that stretches back through mediaeval times to antiquity. I think also of the term “natural price” that more recent writers have used. Then I sit down and write what Samuel Hollander will one day call “the remarkable chapter ‘Of the Natural and Market Price of Commodities’” (Hollander 1973, 117)⁷ and about which it will also be said one day that it contained a rudimentary general equilibrium theory.

I (having reverted to my true self) am not suggesting that the above is a reasonable conjecture of the thought processes of the historical Adam Smith. In fact, I do not think it is, even if the references to the future are removed. I am, however, suggesting that the above is a reasonable allegory of the role and function of *natural prices* (which we are about to consider) in Smith’s book. How consciously Smith assigned this role to natural prices is hard to say. Probably, in the form of just prices, they had acquired it long before his time.⁸ My purpose is to show how the non-existent has been tacitly invoked to discover the existent.

6.

Book I, Chapter VII of the *Wealth of Nations* is quite short (about three thousand eight hundred words) and the essentials of its argument have been stated by the middle of the chapter. The claim that it contains a rudimentary general equilibrium theory must be understood broadly. Its thesis is that factor mobility in a state of “perfect liberty” (and by implication its corollary, the free movement of goods) bring about natural prices – which may be understood as equilibrium prices.⁹ Perfect factor mobility, between different places and between different trades, establishes natural rates of wages, profits and rent, the actual levels depending on the circumstances of the society. The natural price of a commodity then is simply the sum of the wages, rent and

⁷ Smith, however, had prepared the gist of this chapter already for his lectures.

⁸ That there is some lineage connection between just prices and equilibrium prices is another matter and is fairly widely recognized. See for example Schumpeter (1972 [1954], 112).

⁹ Movement towards equilibrium has of course been a troublesome area for general equilibrium theorists and one about which they have made modest claims. At the time of his inaugural lecture at Cambridge, Hahn said: “The first important point to understand about this construction [Arrow-Debreu equilibrium] is that it makes no formal or explicit causal claims at all. For instance, it contains no presumption that a sequence of actual economic states will terminate in an equilibrium state. However it is motivated by a very weak causal proposition. This is that no plausible sequence of economic states will terminate, if it does so at all, in a state which is not an equilibrium... It will be seen that this is not a strong proposition in that no description of any particular process is involved. It is also clear that weak as this claim is, it may be false” (1984 [1973], 7). In the light of this, it is strange that he used the invisible-hand expression to refer to general equilibrium, even in a popular exposition.

profits, at their natural rates, incurred in producing the commodity and bringing it to market.¹⁰

The market price of a commodity, established by supply and demand, need not be the natural price. If it is either above or below the natural price, at least one and possibly all the factors involved are earning either more or less than their natural rates. In a state of perfect liberty, factor mobility comes into play, natural rates are re-established and therefore also natural prices. Smith commented: “The quantity of every commodity brought to market naturally suits itself to the effectual demand.” And later: “The whole quantity of industry annually employed in order to bring any commodity to market, naturally suits itself in this manner to the effectual demand” (*WN*, 57 and 58). Smith did not say that the quantities demanded of all commodities had something to do with the sum of all factor earnings, but presumably he took that for granted. Saving, investment and credit extension and repayment did not enter the argument.

The chapter is usually read as though it were descriptive of actual economies, at least in that vague way that economic theories are usually taken to be descriptive of any and all economies with some sort of markets. Certainly, Smith did very little to discourage that impression. The often quoted statement that “[t]he natural price, therefore, is, as it were, the central price, to which the prices of all commodities are continually gravitating” (*ibid.*, 58) may surely be read that way. A clue that it may be otherwise comes in his references to perfect liberty. His first reference was in the grammatical indicative. A dealer may sometimes sell below natural price (below cost) but not for very long “at least where there is perfect liberty, or where he may change his trade as often as he pleases” (*ibid.*, 56). In his next two references he had changed to the subjunctive. “This at least would be the case where there was perfect liberty” (*ibid.*, 62). At the beginning of chapter 10, which is informed throughout by the natural price theory, he gives a brief summary of it and adds:

This at least would be the case in a society where things were left to follow their natural course, where there was perfect liberty, and where every man was perfectly free both to chuse what occupation he thought proper, and to change it as often as he thought proper (*ibid.*, 99).

A further clue appears in the second half of chapter 7 where Smith seems to give a preview of how the natural-price idea would be used in discussions on very obviously “real world” topics in the rest of the book. Where a dyer has found a way of making a colour with cheaper materials, his earnings will be above their natural rate. He will be careful to keep the process a secret and so his earnings may be above their natural rate throughout his lifetime or even longer if he leaves the secret to his heirs (*ibid.*, 60). Where the soil of a vineyard and the climate of its district yield a particularly delectable wine, the rent will be above its natural rate because the wine will fetch a price above its natural price. “Such commodities may continue for whole centuries together to be sold at this high price” (*ibid.*, 60 and 155–56). Commenting on this last

¹⁰ Rashid rather strangely says about this that “Smith has provided us with a dichotomy between factor pricing and goods pricing” (1992, 135).

statement, Rashid says that it “should give one pause to consider whether the distinction between natural and market prices is even worthwhile in such cases” (1992, 138). Rashid had told his readers that he took “the modern neoclassical version of microeconomics to be ‘correct’” (*ibid.*, 132) and since he was judging Smith as a price theorist, he would judge him on the basis of how closely he approached “correct theory.”

But Adam Smith was not a neoclassical economist and the influences on him were very different from those on such a person. When he called a natural price “the price of free competition” and said that a commodity sold at its natural price is “sold precisely for what it is worth” (*WN*, 61 and 55) (i. e. for its value and not merely at its price), he was clearly harking back to the literature on the *Just Price*, which was definitely prescriptive rather than descriptive and often directed against commercial exploitation.¹¹ The next example of a “deviation” of market from natural price (at the end of chapter 7) was, in fact, that of monopoly and the “sort of enlarged monopolies” such as apprenticeship. This is also the area to which the natural-price idea is most often applied in the rest of the book, such as in the part already quoted on the issue above. The monopolist raises his profits above what they naturally would be and the “absurd tax” amounts to the difference between the value of his product, or what his revenue would be at the hypothetical natural price, and his actual revenue. The method does not allow a numerical estimate but it connects certain actions with the invisible-hand argument and the classical liberal vision of a market economy and thus identifies the effects that such actions can have on society as a whole.

There does not appear to be much agreement on the originality of Smith’s contributions, especially with regard to the more technical aspects of the analysis of “the market mechanism.” Rashid (1992), for example, concludes that Smith had nothing to add to what already existed, and from a neoclassical point of view there was even retrogression. Hollander rated Smith rather more highly, saying that the sophistication in these matters especially of the late scholastics (Molina, Lugo, Lessius) has been overrated. He added, significantly in the present context:

Above all, it must be emphasized that the fundamental concern of the Scholastic authorities was to assure the avoidance of monopsonistic and monopolistic exploitation. If this end could be achieved by means of the market, then well and good. But upon occasion there existed preferable criteria... (Hollander 1973, 31).

Adam Smith thus was by no means the originator of the analysis of restrictive practices. He must have known the just-price literature and he was probably also aware

¹¹ This literature is long and obviously varied and can be traced back via Hutcheson, Smith’s teacher, to Pufendorf, various late scholastics and earlier schoolmen, Aquinas and Aristotle. See for instance Schumpeter (1972 [1954], 60–2; 93–4; 97–9; 359–60) and Hollander (1973, 27–33). An idea that recurred in many of these writers is that a just or fair price is one established under free competition, *i. e.* where no coercion is exercised and neither buyer nor seller acted under duress. Since this price *has* to be paid while these (morally desirable) conditions are maintained, it is also the value.

of a number of important cases in the English common law courts in the early 1600s in which the essentials of the invisible-hand logic were already applied. The best known of these concerned a grant by the Crown to one Edward Darcy of the sole right to import, manufacture and sell playing cards. The monopoly was challenged in court in 1602 and declared void by the Chief Justice and the entire court. The reasons given, as Commons pointed out, amounted to saying (in a good Puritan spirit) that riches attained by industry and frugality added to the common wealth whereas riches attained by a monopoly were partly a subtraction from the common wealth.¹² There is a long history to the notion we still have that tax consultants, lobbyists and people of that ilk do not really add anything to the national product and, since they often have quite opulent lifestyles, they must be taking things away from productive people.

Moreover, the method of using a fiction to investigate the effects certain institutions have on society was much used in the eighteenth century. A romantic vision of the American Indian as man in his natural state was especially popular but probably bore little relation to the actual state of affairs in North America.¹³ Adam Smith himself used a different kind of fiction (though he did not regard it as such) in Book III of the *Wealth of Nations*. He said that economic development following a natural course would start with agriculture, then proceed to manufacturing in towns and then go on to international trade. As he saw it at the time, the development of Europe had proceeded in the reverse direction. He could then analyse the effects on development of a host of institutions, such as primogeniture and the entails which prevented land from being sold.

One could regard a fiction in this kind of reasoning as a general counter-factual. The inference is always that the state of affairs would be thus if it were not for this, that or the other. Of course, it is not monopolies, apprenticeships, entails and so on that are being identified. They are identified already. The effects that these institutions may on occasion have on the whole of society are being identified. Dispositions are being discovered and identified, or, as the New Realists say (I think), *tendencies*. The tendencies are taken to be in the realm of the existent but they are discovered and identified by means of fictions, the non-existent. I shall call a fiction of this sort a *heuristic*. The Oxford English Dictionary defines heuristic as “serving to find out or discover.”

7.

Now it seems to me that heuristic reasoning is by no means confined to the context in which I have tried to explain it. It is found in modern economics, though rather rarely, but is very common in the ordinary business of life. One may read in a report by

¹² The cases are set out and discussed in Commons (1924, 47 and 225–8) and Commons (1934, 27–33).

¹³ This vision may be seen in John Locke’s essay “Of Property” in his *Two Treatises of Civil Government*.

an international agency on a “less developed country” in Africa that it is beset with “factor price distortions.” If someone asks what on earth these prices are distorted from, the answer can only be that they are distorted from the purely hypothetical prices that would prevail in a hypothetical world in perfectly competitive general equilibrium – which is here used as a straightforward heuristic. The idea of distortions in this context cannot make sense to anyone who has never come across the economist’s constructs.

Yet to those in the know, the distortions are very much in the realm of the existent. Furthermore, this particular bit of the existent is imbued with the ideological bias that came with the heuristic and is reflected in the choice of the word “distortion.” If someone does not like the ideology, he can of course come up with his own heuristic and infer the tendencies of the society (or social structure) with it. We would then be inclined to speak of different *aspects* rather than of different *realities* for the vast majority of us, I am convinced, subscribe to a one-reality ontology. An interesting question then is how we could possibly know whether we are dealing with different aspects of the same social structure or with different social structures.

Chicago economists are reputed to regard optimization techniques and standard price theory as instruments for prediction. Also according to their reputation, they are determined to save the theory rather than the phenomena, that is to say, they are reluctant to countenance any exceptions to the theory and are prepared to “swell their ontology” (in Quine’s memorable phrase) in order not to have to do so. But these two attitudes do not go well together. On many occasions, therefore, it seems that the instrument for prediction became a heuristic and, ironically, it has been on such occasions that they have made their most notable contributions, at least as far as the wider community of academic economists is concerned. As one commentator has put it: “Chicago-type innovations are ‘paradigm preserving’ or ‘paradigm extending’ rather than ‘paradigm shattering’” (Reder 1982, 22; for the following, see also 13 and 23–4). When anomalous findings appear and the anomaly is not resolved by some tinkering with the model (which in Chicago parlance is not the theory but a kind of interface between theory and statistics), then the situation has sometimes been saved by such paradigm preserving and extending innovations as human capital, time as a scarce resource, search costs and multiple prices and so on. In so far as Chicago economists really are true instrumentalists, such innovations have no implications for what there really is. But in so far as they have come into the hands of economists in general, they may be said to be products of heuristic reasoning.

In a now rather aged book on general equilibrium, the author, Robert Kuenne, undertook to give an operational view of consumer choice analysis in which utility had been eliminated just as the ether was eliminated from physics. Here the “consumer cannot be said to be consulting his preference function to attain some optimum; rather, the economist has constructed the function to be at a maximum” when the consumer does whatever he does or said he would like to do.

The preference function thus becomes a repository of observed behaviour, or of response to questions... The process of maximizing is a convention adopted for convenience by the economist, and the purpose of the models of consumer choice... is seen as the *definition* of the consumer's choices, not their prediction... (Kuenne 1963, 54–5, emphasis in original).

So far here, optimization is a heuristic. Assumptions are then introduced, such as transitivity, convexity and above all stability of tastes, and, on the basis of these heroic assumptions, the heuristic is turned into a hoped-for instrument for prediction.

The neoclassical consumer is of course rather a cardboard figure. Let us allow him to have, in the manner of the Austrian School, not only preferences but also knowledge and expectations, and to act purposefully, *i. e.* to think in terms of means and ends. *Mutatis mutandis*, Kuenne's heuristic then becomes something like von Mises's *category of action*. Of course Mises did not regard that as a fiction. He thought of it as an *a priori* category derived by reason. But whatever its ontological status, and though Mises was no lover of operationalism, he did use it as a heuristic and also said that we put a construction on what we see people do (Mises 1981 [1976], 149).¹⁴

It seems to me that von Mises's heuristic comes very close to the heuristics that we are most familiar with in our ordinary everyday lives. In our dealings with other people we are forever having to infer what they intend to do, how they intend to do it, what they know, what they expect to happen and so on. With so many elements in the heuristic, an immense number of mutually exclusive inferences are usually possible. But if we are interested enough, we shall follow the matter up so that with new evidence (*i. e.* corroborating inferences) many of the possibilities may be eliminated. And even if, in a particular case, we eventually have to give up the process of heuristic reasoning because of conflicting inferences, we are still left with an ontological inference of a tendency, namely, that the person in question is an idiot.

8.

I want to turn now to a few remarks about how my contentions in this paper may relate to the New Realism, in particular to that variant of it which stems mainly from Bhaskar. I do it with trepidation because, as I have said, I do not understand the matter very well.

While I can see that what I have dubbed heuristics must be a little distasteful to new realists, I cannot see that they can have serious objections to it, provided that I confine myself strictly to the transitive dimension. Most of the literature that goes under the

¹⁴ He said: "What we know about the fundamental categories of action – action, economizing, preferring, the relationship of means and ends, and everything else that, together with these, constitutes the system of human action – is not derived from experience. We conceive all this from within, just as we conceive logical and mathematical truths, *a priori*, without reference to any experience" (*ibid.*, 13–14).

(rather inappropriate) name of “growth of knowledge” seems to be acceptable in this dimension,¹⁵ and heuristic inferences are a species of the theory-laden facts which feature in some of this literature. Heuristically inferred aspects clearly are *not independent* of our inquiries and our conceptions, but they are aspects of entities that are taken to have an existence *totally independent* of our inquiries and conceptions. Our conceptions of reality *do* depend on how we conceive reality. I cannot see how it could possibly be otherwise.¹⁶

Though I would prefer to confine myself to the transitive dimension, I want to say a little, by way of digression, about the intransitive dimension, partly to explain why I refer to a *new* realism and partly because heuristics seem to be involved there too. Classical realism is about the one and the many, about all sorts of questions of how the general relates to particulars, such as (in its epistemological form) how theory relates to facts. While the new realism allows for a realism of universals or a predicative realism, it seems to accord this a minor role, it is not principally about it, whereas classical realism was all and only about it. It was called *Realism* not because it asserted the existence of real things but because it asserted the real existence of universals.

From a classical realist point of view (and one does not have to take that point of view), it is rather unclear (at least to me) whether the things in the new realists’ intransitive sphere are particular or general or somehow both. There are things with causal powers or tendencies which may or may not be exercised and may or may not be seen, they are the enduring generative mechanisms or structures. Clearly, these are general terms, but language necessarily forces one to use such terms. The question is whether one is to visualize a world containing only particular things (including “social structures”) which have these dispositions, each unique at the least to a natural kind, or a world in which there are both general generative mechanisms and particular things in which the mechanisms are instantiated. On balance I think it is the former. Bhaskar, for example, giving (a rather Parmenidean) ideal of reason that must nevertheless hold if science is to be possible, says:

Things cannot pass clean out of existence or events happen for no reason at all... This entails that it must be a world of enduring and continually acting things (1975, 205).

Also:

If science is to be rendered intelligible the world must be seen as one of persisting things, of differing degrees of structure and complexity, to which powers and tendencies are ascribed...” (*ibid.*, 184).

¹⁵ See for example Bhaskar’s statement: “To be fallibilist about knowledge, it is necessary to be a realist about things” (1975, 43). See also chapter 3, 143–228 *passim*.

¹⁶ One may easily get into metalinguistic muddles in these matters. The sequence – There is a reality. That is a statement of a belief. Beliefs are held in the mind. Therefore reality is in the mind – reaches a conclusion which is exactly what the original statement does *not* mean. The last statement in the sequence should be: Therefore “There is a reality” is a belief held in the mind.

But he also says:

Generative mechanisms... must be analysed as the ways of acting of things; and their operations must be understood in terms of the exercise of tendencies and causal powers. Tendencies may be possessed unexercised, exercised unrealized, and realized unperceived... (*ibid.*).

The necessary connections that bind some but not other events together (which are the enduring mechanisms of nature) are quite independent of our knowledge of them (*ibid.*, 200).

But the universals of interest to science are real: they are the generative mechanisms of nature which account, in their complex determination, for the phenomena of the world, including (upon analysis) the genesis and behaviour of ordinary things (*ibid.*, 212).

Perhaps it does not really matter. The point is that the issues central to classical realism do not appear to be so important here.

It is this as well as the frequent attacks on David Hume,¹⁷ the way Hume comes across as the major influence on modern scientific thought,¹⁸ and minor matters, such as that “real essences” seem to be those of John Locke,¹⁹ which give me the impression that this realism is not a continuation or revival of classical realism but emanates rather from a revolt in the ranks of nominalists. There is nothing wrong with that, of course. It is just that it is a different animal. Let me make it quite clear that I agree entirely with the central proposition: that there are things out there whose ways of acting may be obscure to us but which we groping creatures are trying to get to grips with. The odd thing about insisting on this proposition so much is that it seems to be about the most basic presupposition by which everyone lives; everyone except perhaps a few cranks and then only when they are switched into academic mode.

Was Hume such a crank? Perhaps he was. Let me also make it quite clear that I think that the new realists’ criticism of Hume’s *constant conjunctions* and the whole analysis of *open* and *closed systems* is an extremely valuable contribution and well worth insisting upon, especially among economists (Bhaskar 1975, chapter 2, 63–142; see also Lawson 1989b, especially 241–44 and Lawson 1989a, 63–65). Hume’s part in creating the problem in the first place must be seen against an academic background. In antiquity and later in the Islamic world and from the eleventh century onwards in Europe, intellectuals had tried to resolve the question of how the general related to particulars. The *nominalist* solution, basically that only particulars existed, was quite an enterprising innovation. Hume was not the innovator; perhaps Ockham was. Hume inherited it, as also the notion of a *sense impression*. Now this was (and is) a most unfortunate notion, having some sort of ontological status and at the same time having to perform a logical function which we would now assign to metalanguages, which do not carry the implication of solipsism and of experience that comes in

¹⁷ For example, Bhaskar (1975, 14–5, 34, 175, 226). Also Bhaskar (1986, 285–92).

¹⁸ For example, Bhaskar (1986, 38–50). Also expressions such as “post-Humean philosophy” or “Humean ontology” in Bhaskar (1975).

¹⁹ For example, Bhaskar (1975, 209–15).

discrete little bits.²⁰ But this was the philosophical milieu in which Hume found himself. It is then not surprising that a clever man should conclude:

It will be easy to conceive of what vast consequences these principles [of the association of ideas, resemblance, contiguity and causation] must be in the science of human nature, if we consider, that so far as regards the mind, these are the only links that bind the parts of the universe together, or connect us with any person exterior to ourselves...and as these are the only ties of our thoughts, they are really *to us* the cement of the universe... (Hume 1739, 337 – 53, emphasis in original).²¹

It should be noted that care was taken to state the matter epistemologically. The ontological question was left open. But still, did Hume actually believe in a practical way what he said? Let me give my opinion as follows: I once read a newspaper article for which I seem to have found many uses. According to it, anthropologists had come across a tribe in a remote part of New Guinea who had never seen a connection (it is after all not a constant conjunction) between sexual intercourse and childbirth. Let us suppose now that Hume had for some reason accompanied Captain Cook on one of his voyages and that they had been blown by a storm into the region of this tribe. Would Hume have thought: “Here the association has not been made. Here there is no connection. Here women have babies rather like strawberries have runners. Back home, though, the association has been made and there is a connection. But it is in the mind and not lower down the female anatomy?” I hardly think so. He would have switched out of academic mode when he boarded the ship. On the other hand, he could simply have said that the generative mechanisms are there whether we notice them or not – but he would have been ahead of his time.

There is one further point I should like to deal with. The existence of generative mechanisms, as far as I can tell, is inferred from either the *intelligibility* or the *possibility* of scientific activity. But what may be inferred from intelligibility? When the Plymouth Brethren (or is it another religious sect) go chasing about a room, as I have been told on poor authority, trying to catch the holy ghost (or is it Holy Ghost) in a plastic bag, their actions may be perfectly intelligible to me. I know what they are trying to do. But can I infer that therefore there must be a holy ghost to be caught? What would the heuristic involved in this be? In one place, Bhaskar (1975, 106) explains in brackets what he means by science being possible. He says we know it is possible “because as a matter of fact it occurs.” With this kind of possibility, the same questions arise as above. If *possibility* is understood more pragmatically – science has

²⁰ I once spent some days perusing works containing this notion to find out whether we were supposed to have a sense impression of change or only a change of sense impression, like the frames of a film. I did not arrive at a conclusion.

²¹ The closing words of the anonymous *Abstract of A Treatise of Human Nature* in Hume. The editor of this volume explains that the existence of the Abstract was at one time known only from Hume’s letters and it was thought that it had been written by Adam Smith at the age of 17. In 1933 a copy of it was found and subsequently bought by Keynes. He and Sraffa, who edited an edition of it published in 1938, concluded for a variety of reasons that it had been written by Hume himself.

found theories that actually work – then what may be inferred when science ranges from the conceptual, like relativity theory, to the extremely empirical, like biochemistry or genetics? If stratification is meant to accommodate these circumstances, can one really maintain that a stratified reality is independent of our inquiries and conceptions?

Be all that as it may. I shall now return to the more familiar sphere of fumbling groping human creatures.

9.

It appears to be almost a universal presumption among economists that the purpose of theories, or of theoretical constructs in general, is to describe or, to accommodate the instrumentalists, to be a model of something. From what I have said about the invisible-hand argument, it is obvious that in my opinion description is not always the purpose of theorizing. In some cases, and perhaps especially in formalizations of old ways of thinking, theories have served a heuristic purpose. I want to argue in this last section that it is a pity that theories are viewed in such a narrow perspective. It is especially when we are eager to have a fuller, a more detailed knowledge of what there is in a particular economy – when we want to know what it consists of – that it may be good to be aware that theories may serve not only a descriptive but also a heuristic and a guiding function.

The relationship between models and what they model is usually quite a fuzzy affair, at least in economics. For positivists or instrumentalists the relation is predictive success only and the models must be judged on that basis. Predictive success would be wonderful, but perhaps someone should draw up an inventory of the useful rules of thumb that all the *as-iffing* has found. Then there are a number of realist versions of the relationship. Platonic *idealization* sees the modelled as an imperfect version of the model, such as when a wheel is an imperfect version of a circle. Walras indicated in the opening chapters of the *Eléments* that he saw theory in this light. It is possible that Adam Smith saw the natural-price analysis this way, the actual heuristic use being something tacit and inherited from previous generations, but he was certainly no Platonist. The disadvantage of idealization is that here the relation between model and modelled is extremely fuzzy. Its advantage is that it is closely related to, or really the same as, theory as a guiding conception.

Then there is the Aristotelian cousin of idealization, namely, *abstraction* and its inverse *successive approximation*. No doubt this is a very common view of theories, but is actually far more problematical than is often supposed. Lawson (1989a, 71–3) has pointed out that abstracting *essential* features presupposes finding something that is actually there and not selecting merely for convenience. Cassirer (1953 [1923], 4–9), dealing with the same issue, said that sensible abstraction presupposed the whole hierarchy of genera and species that Aristotle believed existed. A class of red, juicy and edible things, including cherries and red meat (an example used by Lotze),

would probably not have had a place in that hierarchy. Thus for sensible abstraction, one not only has to believe there is such a hierarchy but one actually has to know it. Austrian school economists could argue, for instance, that modern general equilibrium theorists have selected certain features of the physical world and of real economies and arrived thereby at a conception which has about as much significance as the class of red, juicy and edible things has.

Lawson (1989a) has suggested a new-realist newcomer to the realist versions of the relationship between models and modelled. A model would be stated in tentatively surmised tendencies of generative structures. Since these dispositions would not always be in operation and, when in operation, their effects would be intermingled and perhaps offsetting, one could account for the fuzzy relation between model and modelled. The interesting thing about this version is that models would not be regarded as finished products but rather as programmes for research in which one would attempt to identify the generative mechanisms *et al.* at work.

This brings me back to the role that heuristics might play. Let us suppose that we had a large inventory of particular things that exist in the universe. What could we do then? We could, like good nominalists, tie a little tag on each and write on it the name we have given to the thing. Then we have the problem John Locke came up against, namely, that to “heap up names of particular things” would not be to use language. We could walk out amongst our tagged things and call out their names, perhaps with an awe-inspired religious intonation, but we could not think, talk, reason and come to conclusions about them because there would be no logical connections between them.²²

Now, the heuristics I have tried to describe are in the nature of (possibly invented) linguistic devices, networks of interlinked words where each word therefore has many connotations and statements have implications. So, for example, we may have observed the doings of, say, an adversary and after a long time have inferred something about his knowledge and expectations, his goals, intended methods and so on. We are now able to reason and come to conclusions about the person because these inferences are interlinked in the notion of action. In themselves, *intention, knowledge, expectation etc.* are mere interlinked empty shells. But in a particular context, the inferred reality so to say efforms or crystallizes itself around them, filling the shells but maintaining the links.

One could go a step further. The word *paradigm* is increasingly coming into use, at least among the more intellectual, following the use made of it by Thomas Kuhn. But Kuhn wanted the word to designate something tacit, values and unarticulated skills, a “group-licensed way of seeing,” even after he split the notion up into disciplinary matrices and exemplars (1970, 174–210). It is good to have a word for this important

²² Bhaskar notes: “Natural necessity is not logical necessity. Natural connections hold between things, events, states of affairs and the like; logical connections between propositions” (1975, 200).

side of human beings, but as something unarticulated its use ought to be restricted to a rather narrower context. As it is now being used by economists, it seems to add to the general haziness of discussion. One can never tell with any precision whether this or that really belongs to the same or different paradigms or whether two paradigms claimed to be different really are; and since they are unarticulated there is no way of deciding these questions. Now, heuristics (it must be obvious what I am getting at) may be articulated and perhaps with a great deal of rigour. Therefore, it may be well worth our while to study and formulate the non-existent, though probably never to the extent that the mathematical development of general equilibrium theory has now been taken.

There is, however, a proviso. We have to learn to differentiate between the non-existent and the existent. We fumbling groping human creatures must see that what we grope *with* is not what we grope *for*. If a proffered heuristic, a pure fiction, were immediately presumed to be, and accepted as, some kind of description or model, it would surely make economics even more like economics.

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