

Chapter 2

Logical Gaps: Path A—Theory to the Real World

Abstract Many claims are widely accepted because they have been demonstrated to be valid according to some theory. However, while theories are, hopefully, internally consistent, they can be considered no more than analogies for the real world. This chapter explores this dimension, including discussion of rhetoric used in support of preferred theories. Perfect competition and Tversky and Kahneman's 'systematic reversals of preference' are used to illustrate these points, including the limitation of consistency as justification for acceptance of a theory. The importance of groups to create and establish dominant conventions is also covered.

Keywords Theory · Analogy · Framing · Counterfactual · Groups · Rhetoric

Controversially, in his classic essay, 'The methodology of positive economics', Friedman (1953) talks of the realism of assumptions not being important. It is only necessary that the resulting models 'predict well'. In other words, given behavioural assumptions of rational, utility maximising individuals, for example, it is enough that they behave 'as if' they are rational and utility maximising. This influential essay has been used to support a possibly damaging development, the use of theories based on unrealistic assumptions. In his Preface to *The general theory of employment, interest, and money* Keynes wrote:

For if orthodox economics is at fault, the error is to be found not in the superstructure, which has been erected with great care for logical consistency, but in a lack of clearness and of generality in the premisses. (Keynes 2007, p. xv)

Path A suggests that theory does not describe the real world. Theory presents a simplified structure that, hopefully, is a suitable analogy for certain aspects of the real world. Extra thought is required for the application of theory. This point was illustrated in October 2008, when there was a coordinated international response to what had been recognised as a global financial crisis. On 23 October in the US, the former chairman of the Federal Reserve, Alan Greenspan., appeared before the House Oversight and Government Affairs Committee, where he read a statement (Greenspan 2008) and answered questions. In the statement he described, his understanding of the reasons for the 'once-in-a-century credit tsunami' arising from

the subprime mortgage crisis. Here is an extract from an exchange between him and the chairman of the committee, Rep. Henry Waxman:

- WAXMAN** You found a flaw in the reality
GREENSPAN Flaw in the model that I perceived as the critical functioning structure that defines how the world works
WAXMAN In other words, you found that your view of the world, your ideology was not right
GREENSPAN Precisely

(F. James 2008)

Greenspan was treating his chosen theoretical perspective as if it were representative of the real world. In general, people's perceptions of their environment can be shaped by many things, including their education, the views of their discipline, beliefs within a discipline, commonly promoted views in the news media, and concepts of acceptable reasoning. Issues are not analysed simply on the evidence presented for that particular issue. The analysis is shaped by numerous other influences that individuals bring with them to interpret that evidence, with theories being an important component.

While theory is important in shaping understanding, its influence can be misplaced. This suggests a need to investigate the nature and function of theory as a means of understanding real world events.

2.1 What Is Theory?

Theory, and in particular economic theory, can be seen as a tool for analysing issues and presenting criteria for evaluation of alternatives. It has limitations, so the nature of theory should be recognised. Any theory involves simplification, giving a partial view based on a particular perspective. It is at best an approximation of reality. Alternative theories highlight different aspects and give differing results. This difference in emphasis can be most apparent when comparing theories across disciplines, but differences are more commonly identified and debated between competing schools of the same discipline. A possible outcome of these differences is described in the poem about the blind men and the elephant, where each man felt a different part of the elephant, drawing their own conclusions as to the appearance of the animal (like a wall, like a tree...) (Saxe 1878). The image is significant, especially in the way that each person in the poem attempted to describe the elephant in terms of some other object that they knew, that they could use as an analogy. Any specific issue can be considered by several disciplines, schools within disciplines, and professions. Each one applies its own existing body of knowledge, perspectives, and tools of analysis. It also focuses on the use of its own set of potential instruments or policy variables. They are looking at the same thing, but in different ways and with differing conclusions.

Theories are commonly presented in terms of variables and the relationships between them, so that, at their core, there is a model. This would fit a conventional view of theory in economics. A model is a simplified representation that is intended to highlight the main elements of a phenomenon. Except for possible differences in the level of formalisation, it is not unlike the approach that a person might take on any issue, as in adopting a stylized, simplified or heuristic representation of the real world.

From one perspective, the use of theoretical findings might be considered as merely a ‘mode of argumentation’, such as Dunn’s Mode No. 5, reasoning from cause, ‘For example, a claim may be made based on general propositions, or laws of economics that state invariant relations between cause and effect’ (Dunn 2004, p. 395). The following discussions of models illustrate this alternative, considering them as forms of **analogy**, **metaphor** and **attribute agenda setting** or **framing**.

Klamer, in an economics context, describes a model as, ‘an explicitly, and in economics often formally, articulated **analogy**. A model is typically characterised by “as if” reasoning’ (Klamer 2007, p. 123). It was not by accident that the blind men each interpreted their impression of the elephant by means of analogy. Lakoff and Johnson, from a linguistic perspective, focus on the use of metaphor to describe the way that people develop an understanding, where, ‘The essence of **metaphor** is understanding and experiencing one kind of thing in terms of another’ (Lakoff and Johnson 2003, p. 5). With economic models, economic phenomena are commonly expressed in terms of mathematical/mechanical systems. Lakoff and Johnson speak more generally:

In all aspects of life...we define our reality in terms of metaphors and then proceed to act on the basis of the metaphors. We draw inferences, set goals, make commitments, and execute plans, all on the basis of how we in part structure our experience, consciously and unconsciously, by means of metaphor. (Lakoff and Johnson 2003, p. 158)

They distinguish between direct and indirect experience, where indirect experience involves some additional processing or interpretation of information in order to derive meaning. Hence feelings of pain, or hot and cold, are direct, but interpretation of a remark as a complement or an insult requires some assessment of context and point of comparison. Consequently for indirect experiences people are, ‘understanding *one kind* of entity or experience in terms of *another kind*—that is, understanding via metaphor.’ (Lakoff and Johnson 2003, p. 178) Broader policy issues can be entirely indirect, lacking any direct personal experience at all, so metaphors or analogies are important. A metaphor highlights certain aspects, ‘and what is not highlighted is downplayed or hidden’ (Lakoff and Johnson 2003, p. 179). So models and theories could be considered as metaphors which shape perceptions and understanding, with many aspects being hidden.

Communication literature refers to **frames**. Hence Severin and Tankard, discussing the news media, write (emphasis added), A frame can be defined as ‘a central organising idea for news content that supplies a context and suggests what the issue is through the use of **selection**, **emphasis**, **exclusion**, and **elaboration**’

(Severin and Tankard 1997, p. 320).¹ As with analogy and metaphor, framing can be widely observed. In fact, theories and models could be considered as frames, involving these four components of selection, etc. Similar points are made in a political context by Cobb and Ross (1997). They describe agenda setting and denial, whereby groups attempt to set the agenda to attend to their issues and ignore those of other groups. Weaver (2007) takes this approach with an additional distinction between the selection of issues (what) and the choice of perspective on the issues (how), the latter being likened to framing. Fairclough (1995) on discourse analysis identifies ‘ideological-discursive formations’ (IDFs) with which groups may use a choice of language to favour their perspective, given that the terms used, and their associated connotations, shape perceptions. Mainstream economists have their own IDF, including the concept of ‘market failure’, which is the product of framing in terms of it being a failure to achieve the claimed optimality of a society experiencing perfect competition everywhere.

To summarise, various bodies of literature have their own terms for very similar phenomena. They all suggest that understanding is influenced by the perspectives taken, and theories and models perform this function also. As they affect perceptions, they may result in distorted understanding. Rhetoric may have an undue influence, as discussed by Dunn. It is inevitable that theories and models will be used to aid understanding, but they are not accurate representations of the real world. They are alternative structures which, it is hoped, may bear some resemblance to, and provide some insight into real world phenomena. However, they are partial, they may distort, and they may mislead. It is important that the nature of theories and, in particular, their limitations be understood. Otherwise, the theories might be considered, wrongly, as definitive descriptions of real world situations. In short, theories should be treated as analogies for, not representations of, the real world.

2.2 Limits of Theory

As mentioned above, mainstream microeconomic theory focuses heavily on the concept of ‘market failure’. It plays an important role in economic arguments for policy selection. As the underlying assumptions and theory are questioned by heterodox economists (Earl 1995; Hodgson 2001; Keen 2001; Komlos 2014; Lawson 2003; Mearman 2007; Stretton 1999; Tomer 2001) and non-economists

¹ Note that the term ‘frame’ has been used in a different context to mean a ‘conceptual frame’ (Bateson 1972; Goffman 1974). Bateson (1972, p. 182) describes fighting that is not intended to injure, suggesting that this could be seen as ‘play’ or as ‘ritual’. The nature of the relationship between a doctor and a patient might be perceived differently when framed as one between a health care provider and a consumer of health care. Depending on their conceptual framing of the situation, the parties each have perceptions of their respective roles and hence expected behaviours. Particular problems can arise when perceptions do not match.

(Bosso 1994; Considine 2005; Dunn 2004), the issue merits some attention.² More generally, given that there may be several possible explanations of observed phenomena, care should be taken about any conclusions that rely on evidence being ‘consistent with’ theory. There may be numerous alternative explanations of the observed phenomena that can be presented. These two points, perfect competition and consistency, are considered here.

2.2.1 *Perfect Competition and Counterfactuals*

Market failure is defined in comparison to the ideal of perfect competition. An alternative is needed for comparison, and value judgments must be applied to justify one situation being considered superior to another. This raises two questions:

- (i) Is perfect competition the right ‘ideal’?
- (ii) If it is, then given that the counterfactual is an important aspect of any policy analysis, should economic analyses compare a real situation with an unattainable ideal such as perfect competition?

Theory is, in essence, an intellectual exercise, whereby structures are presented and implications drawn. There is no *a priori* reason to assume that they in any way accurately reflect, or even closely approximate, the real world.³ Sen summarised the situation in his paper on ‘Rational Fools’ (Sen 1977). In it he described Edgeworth’s analysis on the possibility of egoistic behaviour achieving general good as an abstract query, not intended to reflect reality. Economists have taken something that was intended as an intellectual exercise, paradoxically extending it to become a combined answer to questions of ‘how people actually behave’ and ‘how people should behave’.⁴

Its origins aside, why should there be a reluctance to take the perfect competition model as the basis for an ideal structure in society? There are several reasons:

² Note also that there are older, more specific critiques such as criticism of the ‘postulational method’, theory built on postulates (Koopmans 1957; Kurien 1970). In addition, a reading of the classics, not least Smith (2007), indicates a highly nuanced assessment, much of which has been lost in current textbook expositions.

³ At a most basic level, considering the distinction between ontology and epistemology, any description relies on the classifications afforded by the mode of expression, as with the use of language. There is not a one-to-one correspondence between words in different languages. Even if there were, the link from language to the phenomena that the words describe is not precise, if only because of the aggregation and discrete distinctions implicit in language. Consequently, descriptions cannot precisely reflect the real world.

⁴ This is a serious paradox. Is no education required to improve people’s economic decision making? If so, why is it accepted that education is required to increase understanding in other areas of activity? In any event, can economic decisions be considered in isolation?

1. It is static analysis. It does not consider a starting point. While there are initial endowments, these have yet to be allocated. Consequently, it overlooks issues of adjustment paths and the cost and time of adjustment. It also provides an optimum, on the given criteria, for that scenario. This is not the same as an optimum path through time. Such an optimum path may not equate to a series of static optima. For example disequilibria are associated with plans not being realised, and therefore some people having an incentive to change. Consider change through innovation, for example and Schumpeter's competition through 'creative destruction':

A system—any system, economic or other—that at every given point of time fully utilises its possibilities to the best advantage may yet in the long run be inferior to a system that does so at no given point of time, because the latter's failure to do so may be a condition for the level or speed of long-run performance. (Schumpeter 1976, p. 83)

Conversely, the idea of change under perfect competition is simply in terms of adjustment to a static optimum. It is actually very brutal. If demand falls, in the long-run firms leave the market, with any costs of exit being ignored. If demand rises, it is assumed that there are always entrepreneurs able and willing to enter the market. In other words, there is free and costless entry and exit, which is simply not the case in reality. The effects of change should be considered, and in some circumstances, the result of disequilibria may be superior to that from a static equilibrium position.

2. Comparisons are based on comparative static analysis, comparing two static situations. This does not include consideration of whether it is actually possible to move from one position to the other, or that there is a starting situation from which change is required.
3. It has a very narrow perspective on people's objectives, with individual utility maximisers where utility comes solely from the consumption of goods and services and is funded through the supply of factors of production.
4. The focus is solely on the end result rather than any consideration of the ways in which the end result is achieved. This is an example of consequentialism, where 'the end justifies the means'. However, in reality there may be justified concerns about the nature of the operations through which an outcome arises. Much of our time is spent in the attainment of goals rather than the enjoyment of the goals once they are reached.
5. It is assumed that all interactions will be by law-abiding individuals accepting property rights with no political influences and no prejudices and no strategic behaviour. It excludes the possibility of behaviour as might be found, for example when some countries impose sanctions on another for doing something that they disagree with. There are issues with the use of law to enforce agreements, and problems with the choice of laws and jurisdictions that apply in international contexts. There is the cost of administering and enforcing compliance with the structures that are set, and difficulties in determining contracts. All these issues are assumed away, with compliant behaviour costlessly achieved.

6. It assumes that society can be viewed as a system of markets, ignoring any other dimensions of decision-making and resource allocation, such as the public, political or social. For an alternative view, consider:

Markets and governments are both facts of economic life, and they interact in complex ways. We cannot find feasible improvements by wishing away one of the components. (Dixit 1996, p. xv)

For some case studies on the sometimes significant but unrecognised role of the state in private sector activity, see Mazzucato (2013).

Now let us consider the issue of counterfactuals. Aristotle (350 B.C E.: Part 1) discussed the limitations of unattainable optima, and Demsetz. makes a similar point, using the term ‘nirvana approach’.⁵ In epidemiology, four alternatives have been suggested as counterfactuals in relation to risk of disease. These are *theoretical minimum risk*, *plausible minimum risk*, *feasible minimum risk* and *cost-effective minimum risk* (Murray and Lopez 1999). These represent, in turn, the lowest risk imaginable, even if highly unrealistic; the lowest risk that might be considered possible, even if not currently realistic; the lowest risk that has been achieved somewhere, and thus is known to be attainable; and the lowest risk that could be achieved using all cost-effective means available. The economic ‘ideal’ as a counterfactual would roughly parallel the theoretical minimum risk, containing no distortions, while the others reflect the best that one might ever expect to achieve, or the best that has been observed elsewhere, or the best that could be currently achieved using approaches that are known to be cost-effective. When the choice of counterfactual is framed in this way, perfect competition stands out as an extreme option.

Additional dimensions could be considered in a policy setting when selecting counterfactuals. For example the timing of the alternatives, political acceptability, distribution of costs and benefits and certainty of outcome may be relevant. Nor should the Theory of Second Best (Lipsey and Lancaster 1956) be overlooked. This theory effectively means that the elimination of a distortion (such as a market failure) does not necessarily result in an improvement. Keen (2001) illustrates this point well in his example of an economy with a monopolist and a trade union. It may not be desirable to eliminate one only, leaving the other in place. In other words, perhaps some other goal should be chosen, as suggested by the alternative counterfactuals, although there may be significant information requirements that would have to be met to achieve second best outcomes.

To summarise, there is a possibility that economics is using as an optimum something that would not be meaningful, desirable, or widely accepted. Even if the chosen optimum is suitable as an ideal, that may not be a useful criterion for

⁵ ‘The view that now pervades much public policy economics implicitly presents the relevant choice as between an ideal norm and an existing “imperfect” institutional arrangement. This nirvana approach differs considerably from a comparative institution approach in which the relevant choice is between alternative real institutional arrangements’ (Demsetz 1969, p. 1).

judging failures and interventions. Given the rhetoric of economics, it is necessary to explain these potential weaknesses. Recognition of them then opens up the possibility of other criteria and consideration of other aspects to be considered. Also, to avoid Type A errors, it is necessary to investigate issues beyond those assumed within particular theoretical models.

2.2.2 Accepting or Rejecting a Theory

Theories serve as tools that may aid in attempts to understand the real world environment and to make decisions. As with any tools, care must be taken in their use. There are alternative views on how those who favour a theory can or should react to criticisms of that theory. Three arguments that are sometimes used in response to such criticisms are described below. They all have flaws and can lead to problems. A fourth option is then discussed. The four options are:

- (1) Accept current theory as a matter of faith;
- (2) Do not look outside current theory as long as it can give SOME explanation of an observed phenomenon;
- (3) Do not reject a theory, even if flawed, unless the challenger can present a superior alternative;
- (4) Take a more pragmatic approach.

We can consider these four views in turn.

- (1) Accept current theory as a matter of faith

Several writers have voiced concern at a perceived debasement of academic standards. Mishan talked of ‘the stringent requirements of scholarship’ being set aside where, ‘the doctrines of... ideologically inspired “studies” are not regarded by their proponents as provisional and refutable hypotheses’ (Mishan 1993, p. 202). This suggests the possibility of a higher level of academic discourse. Mishan was referring to studies based on gender and ethnicity. However, similar criticisms could also be made against other academics, even without clear political motivation, or rather, through acknowledging the politics of academia. Economics may also fit this description. Hence, ‘Factual evidence to the contrary, and arguments, however convincing, are unlikely to destroy faith in the “validity” of a theory widely accepted for a long time’ (Kurien 1970, p. 34).

A possible explanation lies in the effect of the framing of economic theory. The suggestion in this context would be that, while economic theory may be based on ‘provisional and refutable hypotheses’, the basis may seldom be questioned, and it may even be considered that the issues have been fully debated and resolved, or, at least, so well entrenched as to be accepted as a starting point for any analysis. This would match the concepts of a ‘dominant IDF’ (Fairclough 1995), ‘normal science’ (Kuhn 1970), and ‘conventional wisdom’ (Galbraith 1999) and has been described specifically for economics (Robinson 1970; Rosen 1972).

It could be said of the dominant mainstream theory that economic theory provides frames that have come to be widely accepted among economists, and these shape perceptions of economic phenomena. Being accepted, they both enlighten and restrict the aspects that are observed. Taking a step back, one could consider whether economic theory has tended to set the agenda itself. In other words, dominant perspectives in economics have determined not only the approaches to issues, but also the selection of issues and questions to be considered (and those to be overlooked) by economists.

- (2) Do not look outside current theory as long as it can give SOME explanation of an observed phenomenon

Normal science has been described as, ‘a strenuous and devoted attempt to force nature into the conceptual boxes supplied by a professional education’ (Kuhn 1970, p. 5). Similarly, ‘conservative conventionalists attempt to preserve existent theories by building onto them ever more elaborate (critics would label them ad hoc) peripheral systems’ (Caldwell 1980, p. 367). Even if successful, it should not be considered as an end to discussion. Not only is the presence of alternative consistent hypotheses possible, but, according to Milton Friedman, it is inevitable:

Observed facts are necessarily finite in number; possible hypotheses, infinite. If there is one hypothesis that is consistent with the available evidence, there are always an infinite number that are. (Friedman 1953, p. 9)

This criterion for acceptability of an established theory, simply being consistent with the evidence, sets the bar at such a low level that many theories would be virtually impossible to reject. This could lead to an inflated view of the level of understanding, and may be one reason why economists are sometimes thought of as arrogant.

- (3) Do not reject a theory, even if flawed, unless the challenger can present a superior alternative

Writing on econometrics in *The Economic Journal*, Phillips quotes Hoover, who makes a claim about scientists: ‘even accumulated falsifications or anomalies do not cause scientists to abandon an approach unless there is the prospect of a better approach on offer’ (Phillips 2003, p. C27). The point is made for economics, ‘... you can’t beat something with nothing, and so it is not enough to show that some given rational choice model does not fit the data, it is necessary to show that some other perspective leads to a model with better fit and predictive power’ (Grofman 1993, p. 240). This approach would support the use of something that is known to be misleading in preference to admitting ignorance. Criticisms of a theory or the presentation of contrary evidence have been dismissed on the basis that a superior alternative has not been presented. However, while this is effective rhetoric, it is not a valid reason for ignoring flaws in a theory. Socrates, 2,400 years ago, made the point that it is important to recognise the limits of one’s understanding (Plato, Approx 380 B.C.E.). Disciplinary boundaries, where adhered to and where this

rhetoric is used to dismiss criticism, can serve to perpetuate misconceptions and to limit fruitful imagination.

(4) Take a more pragmatic approach

The three views above could be considered as being logically flawed. Alternatively, they could be described as rhetorical arguments that are persuasive for their target audiences. They are widely used by people who want to maintain a particular position. However, there is another option available. The information for the public on the 2008 award of the Nobel Prize to Krugman includes the statement, ‘The truth, as in so many other instances, is that reality encompasses features of both theories’ (The Royal Swedish Academy of Sciences 2008, p. 2). Similarly, Tullock writes, ‘I have given you a number of theories on how regulatory agencies act and I regret to say that instead of telling you now which one of them is true, I think all of them are partly true’ (Tullock et al. 1983, p. 10). There is a danger that a focus on simple explanations, automatically assuming they are valid, not looking beyond a narrow, accepted perspective, or rejecting valid criticisms unless alternative superior solutions are presented, results in an inflated sense of the extent to which issues are understood.

A pragmatic approach would result in a qualified use of theory-based understanding. Alternative evidence can result in two key qualifications that should be recognised:

- (a) Valid criticisms should be recognised as limitations of current understanding (and hence on ability to intervene to bring about desired changes);
- (b) All theories should be recognised as being partial, and they are analogies for, rather than representations of, the real world. They result in the framing of issues, so it is prudent to use a mix of theories and to acknowledge the aspects that are assumed away in a particular theoretical approach. There are additional reserves, qualifications, and adjustments to be considered in any application of theory (note Keynes 2007, p. 297).

These points can be expressed in another way. Rather than considering that there are ‘theories’ that may ‘explain’ the evidence of the real world, it should be recognised that there are ‘analogies’ that may be ‘consistent with’ the evidence of the real world (and may then in addition possess some explanatory power). To take the latter to be the former is to overstate the level and value of perceived understanding.

2.2.3 Evidence Consistent with Theory

Tversky and Kahneman are well known for a celebrated finding in behavioural economics which is considered to show that a basic assumption in economics does not hold. They suggest that people violate rational choice requirements of consistency and coherence due to ‘psychological principles that govern the perception of

decision problems and the evaluation of options', such that, 'We have obtained systematic reversals of preference by variations in the framing of acts, contingencies, or outcomes' (Tversky and Kahneman 1981, p. 453). The use of the term 'framing' is worth noting. In their summary, they suggest that, 'The dependence of preferences on the formulation of decision problems is a significant concern for the theory of rational choice' (Tversky and Kahneman 1981, p. 453).

Their finding is illustrated by their now classic example of the outbreak of an unusual Asian disease which is expected to kill 600 people. Two scenarios are given. First, the options are:

- Program A, 200 people will be saved
- Program B, there is 1/3 probability that 600 people will be saved, and 2/3 probability that no people will be saved

There is a strong preference for option A. For the second scenario, another group is given options C and D:

- Program C, 400 people will die
- Program D, there is 1/3 probability that nobody will die, and 2/3 probability that 600 people will die.

There is then a strong preference for option D.

Tversky and Kahneman suggest that the outcomes in the two problems are actually identical because the numbers living and dying in each option are the same. They then assume that the framing is distorting because it shapes perceptions differently. This assumption is key to their finding. Their interpretation of result has been widely accepted. For example, 'Tversky and Kahneman's 1981 study...is the gold standard for demonstrating the effects of framing on behavior: identical events, different metaphors, flipped decision' (Pinker 2007, p. 244). However, there are other possible explanations. Consider, as a basis for these alternatives, that the pay-offs to the decision maker may not be specified in terms of lives saved or lost (under which the two problems are identical), but are linked to perceptions of the choices. These may differ over the two problems. To illustrate, in the first scenario, the focus is on the 200 who could be saved with certainty, in which event option B would involve risking the lives of these people. In the second scenario, by contrast, the focus is on the 400 who would face certain death under program C, but who might be saved under program D. The choice of the risky option is then one of possibly saving these 400 from otherwise certain death. Here are two alternative hypotheses, others are discussed by Altman (2008).

For one hypothesis, Tyler (2000, p. 123) has suggested that people may accept different treatment of people according to group membership.⁶ In this case, two groups are defined, with one group emphasized in the first formulation and the other emphasized in the second. If the decision makers are led to identify with the first

⁶ Others have found groups to be important for perceptions and behaviour (Weng and Yang 2014). This point is discussed further in Sect. 2.2.4.

group, the certain survivors, they may not wish to risk their lives. If they identify with the second group, the certain fatalities, they may choose the risky option in an attempt to save them.

For a second hypothesis, participants may interpret the difference in the framing of the options as reflecting society's preferences, and hence the pay-offs they would face. Pay-offs depend on other people's perceptions, and are measured in terms of these other people's responses. A choice of the risky option could then result in being seen by others (their superiors, or public opinion, say) as risking the lives of the 200, and possibly being blamed for causing their deaths. Alternatively, it could be seen as trying to save 400 from certain death, and being praised if the gamble pays off. Should they risk the lives of 200, or take a risk to try to save 400? There could be a difference in terms of praise or blame in the perceived pay-offs for the two problems.

Tversky and Kahneman write of the importance of the 'reference outcome' against which other outcomes are 'perceived as positive or negative'. 'The reference outcome is usually a state to which one has adapted; it is sometimes set by social norms and expectations...' (Tversky and Kahneman 1981, p. 456). It is only a short step from there to suggest that the decision makers will also be judged, and rewarded or penalised, according to those norms or expectations. Consideration of rationality should then focus not only on the decision-maker, but also on the society and the institutions. It should be defined not within the simplified world of the theory, but in the actual context in which the decision-makers are operating. As a general point, when it is found that evidence 'supports' a theory, it should be considered as indicating that the theory is one possible explanation of the evidence, but the analysis should not stop there. There may be numerous alternative explanations also.

2.2.4 An Additional Consideration: The Importance of Groups

Various social sciences may take different approaches to the analysis of the same phenomena. Members of a discipline (economists included) are likely to be subscribing to partial assessments that are inconsistent with those of other disciplines. Group cultures, understandings and accepted reasoning and behaviours may be significant influences on outcomes. In economics, Galbraith (1999) writes of the significance of 'conventional wisdom'. Williamson (1975) notes the importance of 'atmosphere' and 'informal group influences', and Laffont and Martimort (2001) refer to interactions between private incentives and cultural norms of behaviour. There are some well-known examples of ordinary people displaying extreme group behaviour, including the Stanford experiment where students played the roles of guards and prisoners (1999), and the Milgram experiment, where subjects were instructed to administer increasingly severe electric shocks (Milgram 1974). If such

extreme behaviour can be readily engineered in these experiments, might not milder forms of attitude and behaviour formation also be common in the real world?

There is other evidence that group dynamics may be important in determining collective views and behaviour. Numerous examples were given over 150 years ago in the book, *Extraordinary popular delusions and the madness of crowds* (Mackay 1995). Even among economists, and for economics as a discipline, there may be common acceptance of the conventions despite cause for unease. Might commonly held views be as much the result of a collective group dynamic as a logical, reasoned, and regularly reviewed and revised, assessment of theory and evidence? New entrants are educated as to the established conventions, and their acceptance into the group depends on a demonstrated competence according to those conventions. Given the emphasis given to peer review, it could be asked whether it serves as quality control, or as a device for gatekeeping (Gillies 2006). This would be consistent with ‘street-level epistemology’ (Hardin 2002), whereby people accept the information conveyed by those around them.

Groups can be found in many places, including academic disciplines, professions, institutions, social organisations, and political parties. The previous sections of this chapter suggest that they may each have their own culture and beliefs, including unquestioned assumptions, perspectives on issues, and inertia limiting change. This affects understanding and communication across groups. It can be important both for economists as a group (or a collection of groups), and as a phenomenon which affects the operation of the economy and the political environment in which policy is made and implemented. A theoretical framework based on individuals with exogenous preferences cannot incorporate these influences.

2.3 Conclusions

The direct application of theory to real world issues requires more than just the use of logic within a theoretical structure. There are additional questions to be addressed, disregard of which results in a rhetorical dimension to the resulting advice. Central to the application of theory to the real world is the recognition that theoretical representations serve only as analogies of the real world. These are simplified and incomplete, and different approaches or perspectives may see the ‘elephant’ quite differently. The nature of ‘theory as analogy’ should be acknowledged.

This raises several concerns. One specific to mainstream economics is the use of a theoretical ‘ideal’ as a basis for real world policy recommendations. Such an ideal is defined within the bounds of the theory. It may not result in realistic decision-making if the theoretical relationships do not match the real world, if the theory is based on a poor measure of society’s objectives, or if the theoretically derived optimum is an unattainable position. Another concern is the recognition that theories may be merely ‘consistent with’ the evidence. A theory that appears to explain

some evidence may simply give one of numerous possible explanations, and so should not be thought sufficient to definitively resolve an issue.

There are several positions that may be observed in response to evidence that appears to conflict with a theory. Three that are described here are that a theory could be accepted as a matter of faith, it could be accepted as sufficient as long as it can be adapted to give some explanation of the evidence, or it should be retained unless an alternative explanation is provided that is considered superior. Each of these overlooks the nature of theory as an analogy, and results in limiting the investigation and probably presenting an inflated impression of the prevailing level of understanding provided by a theory.

Recognition of the limitations of the theoretical approach in general would be helpful. Any particular theory considers a limited range of factors and interactions, overlooking much of the available evidence and the thinking and analysis that exist elsewhere. The best that can be done with a theory is to demonstrate consistency with the selected observations. There may be numerous possible alternative explanations. Relaxed or changed assumptions or consideration of alternative evidence may suggest very different conclusions. Given the diverse perspectives available, all of them partial, a combination or synthesis of theories and concepts may yield a superior understanding to that of one theory alone. At the least, it could indicate the contradictions in and limitations of the diverse attempts to understand issues. These limitations should also be recognised. An analogy for the real world does not describe the real world itself.

The environment also plays a part in determining which theories are proposed and accepted. This can be seen in terms of groups and group beliefs. Group membership, including that for an academic discipline or sub-discipline, requires acceptance of a body of knowledge or beliefs and its associated perspectives and findings. These may be slow to change, and they may differ from those of other groups focusing on similar issues. Alternatively, this could be described in terms of differing agendas and framing. Consequently, there is a rhetorical dimension to positions that are taken.

This chapter indicates that caution should be exercised in the application of commonly accepted theories. Similar issues can be found in consideration of the empirical representation of theory and in the application of empirical findings to real world issues. That is the subject of the next two chapters.

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