BEYOND MISBEHAVING
By the same author

Money Matters: A Keynesian Approach to Monetary Economics, with Sheila C. Dow (Martin Robertson, 1982)
The Economic Imagination: Towards a Behavioural Analysis of Choice (Wheatsheaf Books, 1983)
Behavioural Economics (2 Volumes), editor (Edward Elgar Publishing Limited, 1988)
Microeconomics for Business and Marketing: Lectures, Cases and Worked Essays (Edward Elgar Publishing Limited, 1995)
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Economics as an Art of Thought: Essays in Memory of G.L.S. Shackle, co-editor with Stephen F. Frowen (Routledge, 2000)
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Information, Opportunism and Economic Coordination (Edward Elgar Publishing Limited, 2002)
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BEYOND MISBEHAVING

An Evolutionary Approach to Behavioural Economics

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The title of this book is an allusion to the 2015 intellectual autobiography of the eminent American behavioural economist Richard Thaler, winner of the 2017 Nobel Prize in Economics (formally known as the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel). Thaler’s book was published under the title `Misbehaving` and the subtitles `The Making of Behavioral Economics` (on the cover) and `How Economics Became Behavioral` (on the title page). `Misbehaving` is a disarmingly frank and engaging account of how Thaler developed his ideas and how his career eventually blossomed despite him going against the economics establishment. Its title refers to both Thaler’s behaviour and how he portrayed many everyday choices that are at odds with standard economic thinking, choices that he catalogued and set out to explain. It is very clear from `Misbehaving` that, unlike so many economists these days, Thaler has no rocket-scientist pretensions; he just wants to understand why people do what they do and is happy to call upon psychology and conduct experiments in order to find out and derive novel policy messages.

I like `Misbehaving` immensely, both as a guide to key themes in modern behavioural economics and as a contribution to the history of economic thought. From 2016, I listed it as the required text for students taking my University of Queensland course on Behavioural and Evolutionary Economics. It is far easier to read than typical textbooks on behavioural economics and its first-hand account of a leading scholar’s struggle to escape from traditional ways of economic thinking is hard to beat as a means of getting into modern behavioural economics. My students loved it, too, and many rapidly became adept at applying lessons from it.

Thaler’s work had first attracted my attention 35 years earlier. One afternoon, as a very young lecturer at the University of Stirling in Scotland, I found on my mail shelf a sample copy of the first issue of the new `Journal of Economic Behavior and Organization`. It was being passed from colleague to colleague, along with the latest economics discussion papers: this was how one kept abreast of the latest research in those pre-Internet days. That first issue included the article in which Thaler (1980) first set out some of the anomalies that he had noticed and how he sought to make sense of them. He did so with the aid of Kahneman and Tversky’s (1979) ‘Prospect Theory’, which he had come across
ahead of its publication and which has since become a core part of modern behavioural economics. Thaler’s paper was fascinating and very different from the behavioural economics that I had studied previously: that work had been focused on the behaviour of firms, whereas Thaler was focusing on consumers’ choices. Previously I had only seen anything akin to a behavioural approach to consumer choice in the marketing literature, which I had started reading a few months earlier, beginning with Nicosia (1966), Engel et al. (1968), and Olshavsky and Granbois (1979). A few years later, when I was asked to put together an anthology of papers on behavioural economic (Earl, ed., 1988), I included Thaler’s article (and Kahneman and Tversky, 1979) without hesitation. In 2000, when I began a stint as co-editor of the Journal of Economic Psychology, it was natural to invite Thaler to join its Editorial Board: by then, partly due to attention given to papers he had published in marketing and finance journals, he had become a major figure amongst those interested in bringing economics and psychology together. His acceptance of the invitation was a valuable endorsement of the Journal.

I was absolutely delighted when, a quarter of the way into writing this book, I heard of his Nobel award.

So, why Beyond Misbehaving? The aim of this book is not to criticize Thaler’s contributions but to show how it is possible to gain even more insights by taking a more pluralistic, integrative approach to behavioural economics than has been common in the past quarter century. The kind of behavioural economics whose development is described in Misbehaving, and for which Daniel Kahneman was a co-recipient of the 2002 Bank of Sweden Prize in Economic Sciences in Memory of Alfred Nobel, is what Esther-Mirjam Sent (2004) labelled ‘New Behavioural Economics’ (NBE). It is very different from what Sent called ‘Old Behavioural Economics’ (OBE), whose most famous contributor was Herbert Simon (1916–2001), winner of the 1978 Alfred Nobel Memorial Prize in Economic Sciences. This book sets out to integrate compatible aspects of NBE and OBE to provide a richer approach to behavioural economics than either offers on its own.

This has not been done previously, and even in my own writing and teaching I have tended to keep them separate. Simon’s work is given little more than passing mention in Misbehaving, and it is clear that Thaler and other practitioners of NBE (henceforth labelled as NBEs) are unfamiliar with much of the literature that this book seeks to integrate with aspects of NBE.

The separation between OBE and NBE is entirely understandable. NBEs have been getting on with doing interesting, policy-relevant work that takes its lead from a particular set of inspiring contributions from within psychology, particularly from the research of Daniel Kahneman and Amos Tversky, whose own history is charted in Kahneman’s (2011) book Thinking, Fast and Slow. The NBEs are not historians of thought and are busy enough trying to keep up with their own burgeoning literature, so it is not surprising that they appear largely unaware of OBE. To bring elements of OBE and NBE together in this book, it is necessary to limit the coverage of NBE and focus on potential synergies between the old and new approaches; those who want the most comprehensive coverage of NBE should turn instead to the extraordinary mega-book by Dhami (2017).
PREFACE

Even if they had been aware of what OBE had to offer, New Behavioural Economics (henceforth, NBEs) would have been strategically wise to avoid engaging with it. OBE does not differ merely by being interested primarily in decision-making in organizations; it also commits the cardinal sin of rejecting the core proposition of mainstream economics, namely, that every act of choice should be viewed as an act of constrained optimization. Although Herbert Simon received his Nobel award for proposing an alternative, non-optimizing view of decision-making in organizations, the modern economics establishment quietly buried his thinking. NBEs likewise did not follow Simon’s lead; instead, they accepted rational choice theory as providing the benchmark for analysing what people should be doing when choosing and then confined their attention to making sense of cases in which people behave in ways that are at odds with this view of rational choice. As a young economist, Richard Thaler was ‘misbehaving’ by highlighting anomalous behaviour, not by challenging outright the core idea of constrained optimization. He did not throw a huge tantrum and claim that economics was rotten to its core. This gave the impression that it just had blemishes. People were trying to maximize their utility but sometimes they did less well than they might have done because they succumbed to various human fallibilities.

By ‘misbehaving’ in this rather limited way, Thaler eventually succeeded in making his version of behavioural economics acceptable. He may have diverted some of his peers from doing economics in the established way but, overall, his contributions, and those of scholars who followed his lead, have probably served to protect the established approach. Where anomalies are not being noticed, economics can continue to be done with ‘as if’ models of constrained optimization, but where anomalies are acknowledged, NBE comes to the rescue. Allowing NBE academics and their courses to flourish was a win–win arrangement for NBEs and those working with arcane, mathematical models at the core of the discipline. The core theorists were able to get the protection of NBE merely by conceding that they could not explain all choices. Because of their status, they could continue to operate as if they could explain most choices. No one tried to quantify how much they could claim to explain, versus how much NBE explained, versus how much could be effectively be understood by neither of these approaches. The high theorists’ status could be compromised if it turned out that behavioural methods had greater explanatory power than theory built from the established core. So far, the core has not changed fundamentally, despite economics ‘becoming behavioural’.

This book has been written in the belief that the time has come when behavioural economists can, and should, start getting seriously naughty and cease pandering to those who tolerate NBE but are wedded to the traditional core of economic theory. Nowadays, there are many behavioural economists in established positions and those who fund universities are increasingly expecting deliverables that take the form of policy impact and social engagement. The relationship between NBE and modern ‘core’ economic theory that has enabled NBE to get established is inherently likely to limit what a behavioural approach to economics is able to achieve in the longer terms. It is time for behavioural
economics to play the academic game differently and use their growing strength to redefine the core of what economics is seen to be, thereby marginalizing those who do not build their analysis on what is known about how real people behave as consumers and in organizations.

The problem with the relationship between NBE and the established core of economics is the impact it has on how NBEs see the world and hence on their capacities for identifying where economics might benefit from taking a behavioural approach. For example, take the fact that most consumers will never buy even a single unit of most products. From the established core position, one would see this in terms of mathematical corner solutions and/or transaction costs that impede the division of access to indivisible products via short-term rental arrangements. The transaction cost point may indeed be worth keeping in mind when we are thinking about the functioning of markets for indivisible products, but the corner solution idea points towards a presumption that relative price changes can, in principle, always induce switching between products. This may not always be the case; instead, it may be that, much of the time, people are actually choosing in ways that preclude substitution. The presumption in favour of substitution typically is so ingrained that even those who call themselves behavioural economists do not notice how widespread case of unwillingness to substitute are and hence they fail to reflect on what this means for how economic systems function. Were behavioural economists armed with alternative perspectives from OBE, they would see a far wider range of research opportunities and areas where new policy insights could be needed.

In short, the aim of this book is not to downplay the achievements of Thaler and other NBEs. Rather, it is to promote the development of a new core for doing economics, at the heart of which lies the rule that economics should be based on what is known about the nature of the human predicament and how people try to deal with the world in which they find themselves. This methodological rule can accommodate the contributions of both OBE and NBE. It is very different from one that says—as has increasingly become the case despite the rise of NBE—economic analysis must be done in terms of formal mathematical models even if this entails making assumptions that are clearly at great variance with what is known about reality. Basing analysis on what is known about reality need not preclude formal mathematical modelling, but such modelling may not be necessary in order to derive logically robust insights of real-world relevance without making potentially misleading, descriptively false assumptions. From the perspective that underpins this book, the analytical strategy is to be consistent about employing behavioural foundations rather than only reaching for them to address or exploit anomalies. Insofar as we do end up labelling some behaviour as dysfunction, we will not be self-constrained to apply such labels always with reference to what an idealized economic agent would be expected to do. Often, it turns out to be impossible to specify what the best way of behaving would actually be, but where optima are elusive it can still be possible to identify ways of choosing and/or choices that it would be wise to avoid.

There are two reasons why the word ‘evolutionary’ appears in this book’s subtitle. The first is to signal that I will be reflecting upon how human
evolution—both biological and social—affects the choices that modern consumers make. Modes of behaviour that looks dysfunctional from the standpoint of conventional economics may reflect ways of operating that would have contributed to the evolutionary fitness of humans in the past. If we can appreciate the evolutionary underpinnings of modern behaviour we may be better equipped for discovering any upsides of ways of behaving that seem dysfunctional from the standpoint of rational choice theory. Secondly, the analysis offered here is ‘evolutionary’ in that its focus is on how consumers and decision-makers in business organizations both generate and try to cope with change in the economic environment. This emphasis on change contrasts sharply with the focus on equilibrium conditions within conventional economics. It helps in seeing why the conventional core can be a dysfunctional reference point for economic analysis. In terms of OBE, there is nothing unusual about taking an evolutionary approach. From the early Darwin-inspired contributions of Alfred Marshall (1890) and Thorstein Veblen (1898, 1899), much of the thinking that could be called OBE focused on economic evolution. Having been ignored by the academic economics establishment in the decades that NBE has been taking off, OBE morphed into modern-day evolutionary economics, with Richard Nelson and Sidney Winter adding Schumpeterian ingredients. Like Thaler’s contributions, their work deserves a Nobel Prize: according to Google Scholar, their seminal book An Evolutionary Theory of Economic Change has amassed over 35000 citations since its publication in 1982. However, it is a contribution of which few mainstream economists and NBEs are aware. It is time to move beyond the creationist view of economics that portrays people ‘as if’ they born with fully formed preferences and who choose between a given set of products made with a given set of technologies. The chapters that follow provide a guide for how NBEs can convert to evolutionary ways of thinking and integrate their work with that in the OBE style. The time is ripe for them to do so.
WHAT IS BEHAVIOURAL ECONOMICS?

1.1 INTRODUCTION

Behavioural economics is not straightforward to characterize. As will be evident if you examine Heukelom’s (2014) history of the field, or compare my 1988 characterization (in the introduction to Earl, ed., 1988) with those offered later by Tomer (2007) and Thaler (2015), or if you contrast the coverage in textbooks such as Baddelle (2013), Cartwright (2014), Dhami (2017) and Wilkinson (2012), what behavioural economics has been taken to be has changed over the years. There is also lack of consensus about when the first ‘behavioural’ contributions to economics were made.

In this book, the oldest sources referred to are Adam Smith’s *Theory of Moral Sentiments*, published in 1756, and his history of astronomy, published posthumously in 1791, but otherwise the earliest sources come from the period 1870–1910. However, it was not until after World War II that the term ‘behavioural’ started being applied to some contributions to economics, most notable with George Katona’s pioneering attempts to apply psychology to understanding macroeconomic phenomena (e.g. Katona, 1951) and Herbert Simon’s (1955) work on decision-making. Simon’s contributions earned him the 1978 Alfred Nobel Memorial Prize in Economics Sciences, but nowadays it is common to see his work being completely ignored by those who call themselves behavioural economists. Simon’s focus was on decision-making in organizations and it led to the development of a ‘behavioural theory of the firm’ by his colleagues Richard Cyert and James March (1963) that was widely known in the mid-1970s when, as a Cambridge undergraduate, I was first introduced to behavioural economics. But today Cyert and March’s book receives scant attention from most behavioural economists. This is despite it having notched up over 27,000 citations on Google Scholar.

Modern behavioural economics has become largely focused on consumer behaviour rather than organizations, with much attention given to the work of psychologist Daniel Kahneman, co-recipient of the 2001
Bank of Sweden Prize in Economic Sciences in Memory of Alfred Nobel (which he shared with experimental economist Vernon Smith). It was Kahneman, together with the late Amos Tversky, who did much of the research on which modern behavioural economics builds. That research became widely known in relation to economics due to Richard Thaler using it as a means for making sense of patterns of behaviour that he had noticed as being at odds with conventional economic thinking. Neither Kahneman nor Thaler have sought to promote earlier behavioural economics alongside more recent work. Instead, they give the impression that behavioural economics started around 1979–1980 with the publication of Kahneman and Tversky’s (1979) article on ‘Prospect Theory’ and its use by Thaler (1980). All in all, this is a very curious state of affairs: a cynic might suggest that it looks rather as if the earlier work has been airbrushed from the history of economic thought by the strategic redefinition of what constitutes behavioural economics. A more charitable and reflexive view would see the situation as resulting from insufficient familiarity with the earlier literature, as a result of the way that scholarly search processes work in the face of information overload (cf. Earl, 1983a).

This book is unusual because it adopts a pluralistic approach, blending elements of both pre- and post-1979/1980 approaches to behavioural economics. Given this, one possible way of introducing behavioural economics would be via a focus on the distinction that Esther-Mijam Sent (2004) drew between ‘old behavioural economics’ and ‘new behavioural economics’ when she was trying to make sense of the growing interest in behavioural economics that was evident at the turn of the 21st Century. I have sometimes adopted this strategy in the past, comparing and contrasting the ‘old’ and ‘new’ approaches (as in Earl and Peng, 2012). On this occasion, however, the emphasis will be on things that would characterize the modus operandi of someone who wants to practice a pluralistic way of doing behavioural economics with a view to achieving a powerful grand synthesis of compatible aspects of approaches to behavioural economics that have hitherto not been integrated. So, what follows is an introduction to the kinds of things you may find yourself doing if you become the kind of behavioural economist that this book has been designed to produce. Along the way, I highlight debates that there have been about the benefits of, and need for, some of the unusual things that such a behavioural economist may be open to doing.
WHAT IS BEHAVIOURAL ECONOMICS?

1.2 AS IS, NOT ‘AS IF’

The theories that economists build are like maps: they help us by presenting a simplified picture of reality. The simplifications that theories and maps entail need to be consistent with their purpose. Consider, for example, the famous London Underground Map. The purpose of the map is to show users of the Underground which routes are possible. It was a challenge to do this clearly, but the map’s designer, Harry Beck, did not overcome any of the difficulties by assuming the existence of links that did not actually exist between stations, changing the sequence of stations, or ignoring the existence of some stations. What Beck designed was a clear, fit-for-purpose map that works by not making the relative distances between stations accurate. It was thus an abstraction but not a misleading one, since its role was to enable people to work out routes rather than accurate journey distances.

When economists construct their models and analyse aspects of the economy, they do so by applying methodological rules that differ depending on what kind of economist they are. At its core, behavioural economics entails constructing economic analysis on foundations that embody knowledge of the challenges that human decision-makers face and how they actually behave in trying to deal with them. This knowledge can come from a variety of sources, as will become evident as this chapter proceeds. The Golden Rule for behavioural economists is that they do not try to make their own lives easier by making false assumptions about how people make their choices or about what people have to grapple with when choosing. For example, we know that there are limits to human attentive, information processing, imaginative and short-term memory capacities. These limits impede attempts to take rational decisions: in Herbert Simon’s (1957) phrase, humans suffer from ‘bounded rationality’. Knowing this, behavioural economists try to see what these limitations imply about behaviour in the situation they are trying to analyse. In other words, despite the problems that these limitations pose for their own work, they do not assume them out of the way to make it easier to construct economic models. If the use of an analytical tool would require us to make assumptions that we know to be false, it is the tool that has to be set aside, not what we know about the nature of real human decision-makers.

The Golden Rule means that if we find ourselves unable to use the kinds of mathematics that economists normally use, we will have to find and learn forms of mathematics that can accommodate what we know about reality (for example, graph theory or fuzzy set theory), or we will have to confine ourselves to doing our analysis in words, not symbols.
Although mathematical methods are not used in this book, this is not to say that the material cannot be given a mathematical treatment. For example, the theory of the workings of the mind that underpins the arguments in Chapter 4–6 lends itself to being represented mathematically with the aid of graph theory, as has been done by my former doctoral student, Brendan Markey-Towler (2018).

To insist on doing economic analysis on the basis of how things actually are goes against the arguments in a classic paper by Milton Friedman (1953) that conventional economists have used frequently to justify building economic models with patently unrealistic assumptions. Friedman argued that the usefulness of an economic model lies in its ability to predict something about how the economy works. In his view, models are mere instruments for getting predictions; hence what counts is whether our predictions are realistic, not how we arrive at them. It can thus be OK for economists to theorize ‘as if’ something is true even if they know it is patently false, so long as this leads to a realistic prediction.

Behaviour economists reject this defence of unrealistic assumptions on several grounds. For one thing, although Friedman’s paper is frequently referred to as a means of justifying ‘as if’ theorizing, economic models often have no testable predictions and the only proof offered for their validity tends to be a mathematical proof. A core part of intermediate economics teaching, namely, the indifference curve/budget line analysis of consumer behaviour, epitomizes this problem: it does not even predict that a rise in price will result in a reduction in sales. Secondly, a theory that seems to predict correctly despite being based on patently false assumptions is, in essence, getting the right answer for the wrong reasons. If conditions change, it may cease to predict accurately and thereby cause major embarrassment for those who have used it as a basis for policymaking. A theoretical framework based on knowledge of how things really are is less likely to cause such embarrassments. Finally, it has been evident that, in the face of evidence that contradicts the predictions of their models, economists have been prone to cling to the models rather than start trying to build models with more plausible assumptions. Rabin and Thaler (2001) likened this behaviour to that of the pet shop proprietor in the famous Monty Python ‘dead parrot’ comedy sketch, who used all manner of arguments to deny that the parrot he had sold was dead—but they pointed out that, unlike die-hard conventional economists, the pet shop proprietor did, in the end, agree there was a problem and offered the customer something else. The ‘as if’ justifications continue but the inconvenient evidence, in effect, gets swept under the carpet. Fortunately, such behaviour has become less acceptable as knowledge of empirical anomalies has become more widespread:
WHAT IS BEHAVIOURAL ECONOMICS?

behavioural economics owes much to Richard Thaler for his work (with a number of co-authors) on exposing embarrassing anomalies in conventional economics via the articles collected in his (1992) book The Winner’s Curse.

Following Thaler’s critiques, economists working on policy design and chasing research funds have increasingly become open to models based on knowledge of how things are. However, old habits have proved hard to shake off: some of the work that is being presented as behavioural economics is still pretty much in the ‘as if’ mould (see Berg and Gigerenzer, 2010), whilst much of the core of conventional economics, where predictions are in short supply, continues to consist of models that are justified using the ‘as if’ argument. From the behavioural perspective, the core needs to be changed, too, in line with the Golden Rule. A more realistic approach may require junking traditional models but it also may open up new areas for analysis: for example, those who insist on theorizing ‘as if’ people have ‘given’ preferences that provide them with a basis for choice in any situation are denying themselves the opportunity of engaging in research to understand how people develop the capacity to make choices as they find themselves in new territory.

It needs to be stressed that the behavioural approach leaves room for keeping economic analysis manageable by leaving out some aspects of reality. At any moment, we may opt only to focus on the significance of some of the things we know about the human condition. For example, we may know that people tend to suffer from ‘seasonal affective disorder’—in other words, they are prone to get somewhat depressed during the winter due to fewer hours of daylight being available—and we may acknowledge that this could affect the kinds of choices they make in the winter. But we may leave it out of our analysis where it seems peripheral to the problem at hand. If we are trying, say, to design long-term policies that might result in more people paying off their mortgages before they retire (an issue raised in Thaler, 2015, ch. 9), we can feel comfortable about leaving out this aspect of human behaviour. Even though depressive moods may affect spending-and hence mortgage balances in winter months, it may be of no relevance for whether or not a policy will work as the years run by. But in other contexts—for example, if we were modelling stock prices or the demand for different kinds of TV programmes over the course of the year—we might want to include it. (For a study of the impact of hours of daylight on stock prices, see Kamstra et al., 2002.)

Being selective about the behavioural knowledge that we use as ingredients in analysis is a different kind of abstraction from that normally evident when the ‘as if’ approach is being employed in
conventional economic analysis. In the behavioural approach, we limit the predictive or explanatory power of our analysis by opting not to include some things we might have included; we do not proceed by bringing in things we know to be false. However, it needs to be acknowledged that behavioural economists are more prone simply not to refer to things they potentially might have included in their analysis rather than explicitly drawing them to the reader’s attention in the way that economists conventionally do by making heroic assumptions and adding ‘other things equal’ clauses. With a mass of knowledge on which to base analysis, behavioural economists will try to avoid getting bogged down by always noting the knowledge they are not deploying. It is thus important to be alert to what is possibly being left unsaid, as well as to what has been said, in a piece of behavioural analysis.

1.3 DECISION-MAKING AS A PROCESS

Behavioural economists find it useful to build their analysis of decision-making around the idea of a ‘decision cycle’. John Dewey, an American philosopher, proposed this concept in his 1910 book *How We Think*. For Dewey, the process of making a decision begins with the recognition of a problem, necessitating the discovery of possible solutions, which in turn need to be evaluated for how well they might serve as means for solving the problem without causing other problems to arise. It is only after the process of search and evaluation has finished—a sometimes-lengthy activity that the traditional economic models ignore—that the decision-maker is in a position to choose what to do. Implementing the decision will not always turn out to be possible and sometimes the decision-maker will need to resort to ‘plan B’ or resume the search process. Sometimes this will occur because it is discovered that a mistaken view has been taken of what the product that was initially preferred has to offer or what needs to be done to solve the problem. But sometimes the extent of success of the choice only becomes apparent after it has been implemented and a hindsight review has been conducted. Such a review may lead to the start of another decision cycle, due to the original problem not having been fully solved, or a new problem having been generated by the chosen solution (for some excellent examples, see Loasby, 1976, ch. 5).

Clearly, the search and evaluation stages of a decision-making process sometimes take virtually no time whereas in other contexts the process is drawn out over weeks, months, or even years and entails the use of multiple sources of input for assessing the options that get discovered. In
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the latter cases, the decision cycle may involve many sub-cycles en route to the final choice, such as decisions about how to try to find potential solutions and whose input to use when assessing them, with disappointing options forcing a rethink about how to find some better contenders. So, although this book’s early chapters are organized using Dewey’s decision cycle idea, it will be emphasized repeatedly that context matters for how decisions get made. This means that our behavioural analysis contrasts sharply with the view of choice presented traditionally in economics: we do not have a ‘one size fits all’ view of choice and we emphasize the search and evaluation processes that precedes the choice stage; we do not simply assume that the decision-maker already knows what the available options are, along with what they each have to offer. Moreover, we recognize that in cases where decisions are reached rapidly it may be most unwise to theorize ‘as if’ the decision-maker is able to arrive at a decision quickly due to already knowing about all the available options: choices can also be made rapidly by selecting a default option, or following the recommendation of a trusted friend, without considering alternatives.

The decision-cycle perspective necessarily entails bringing in psychology and an appreciation of the nature of knowledge. A traditional economist sees the occasion for a choice as a self-evident ‘shock’ to which the decision-maker needs to re-optimize his or her actions. But what we know is that two people in the same situation may view it very differently: one may see many problems, whilst the other may see no cause for concern and may even see an opportunity to improve his or her situation. The nature of things—including problems and potential solutions to problems—is not self-evident; rather, it is something that the individual has to construct in his or her mind. As behavioural economists, we take an interest in how people do this: how they allocate their attention to competing incoming stimuli and decide what to make of the stimuli that capture their attention. Hence behavioural economists make considerable use of the literature from psychology; indeed, the phrase ‘psychological economics’ has in the past often been used as a synonym for behavioural economics. However, we may also need to follow the lead of Brian Loasby (2000) and call upon what philosophers say about the challenges of knowing what is going on and knowing when to change one’s model of an aspect of the world.

Once we starts viewing choice as a process that is linked to what the decision-maker knows and how that knowledge changes, it becomes necessary to start viewing the rationality of a choice in terms of the process of deliberation that it entailed rather than in terms of whether the outcome was the best the person could achieve in the circumstances. A
behavioural economist thus finds it useful to borrow Herbert Simon’s (1976) distinction between ‘procedural rationality’ and ‘substantive rationality’. The former term refers to what constitutes ‘appropriate deliberation’ in a particular context, whereas the latter captures the traditional economist’s concern with whether the strategy or object that was chosen was consistent with the decision-maker’s goals and constraints. Much of ‘new behavioural economics’ has implicitly been about procedural irrationality, i.e., how humans may miss opportunities due to doing inappropriate things—such as using bias-inducing heuristics—as they go through decision cycles, and what this implies for policymakers. However a more pluralistic approach to behavioural economics recognizes, via the work of Gigerenzer et al. (1999) that other heuristics that decision-makers use may actually be ‘fast and frugal’, enabling good decisions to be made in a very simple manner, possibly with even better success rates than more elaborate ways of choosing would have achieved.

Conventional economics focuses on substantive rationality purely in relation to the goal of maximizing utility or profits. Much of the ‘new behavioural economics’ research on bias-inducing heuristics has continued to have this view in mind as the benchmark for unbiased, fully rational choice. However, optimal choices may be impossible even for the economist to work out in complex and changing choice environments, or where the decision-maker’s view of the world evolves during the process of addressing a problem. In this book we recognize that, where optimal choices are problematic to identify, the goals that people strive to achieve may be rather arbitrary, open to revision and capable of being met in multiple ways, and/or have a social dimension that focuses on what they achieve relative to the attainments of other people. For example, goals may focus on meeting particular sets of performance standards or achieving better-than-average outcomes. The discovery that others have moved ahead can thus pose a problem, kick-starting a new decision cycle. If choices thereby result in something akin to an arms race, it is hard to view them as substantively rational but that may not preclude us from making an assessment of the quality of the processes of deliberation that resulted in the choices being made.

1.4 THE ROLE OF INTROSPECTION

Although inputs from psychology are used widely in behavioural economics, they are by no means the only sources of insight into how people behave in the economic system. This section and the two sections
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that follow it cover some other sources that behavioural economists employ from time to time but which are seen as out of order in terms of the rules of conventional economists. We begin by considering introspection. This technique entails the behavioural economist exploring the implications of accounts of his or her own behaviour in a particular kind of situation and/or in respect of a particular kind of product. These accounts may range from short vignettes to something more Proustian that runs to many thousands of words (for examples, see Earl, 2001, and the 'much too long' version of Earl, 2012, respectively).

Potential for using introspective in economics was recognized over a century ago by early writers in the deductive, anti-empirical ‘a priorist’ tradition that is often associated with the ‘Austrian’ school of economic thought. They called it the ‘psychological method’. As Terence Hutchison (1977, p. 159) notes, those who worked in this tradition saw the economist as having a great advantage compared with a natural scientist since the economist can observe the process of economizing from within, whereas the natural scientist can only observe natural phenomena from the outside. Despite this, introspection came to be frowned upon as a tool of economic analysis. This had much to do with what Hutchison (1938) wrote shortly before World War II in his inquiry into economic method. As a visitor to Nazi Germany, the young Hutchison had been dismayed to see what could happen if policies were based on misguided subjective beliefs. He was thus keen to make economists focus on ideas that were capable of falsification and then to subject these ideas to empirical tests.

In his critique of the early followers of the ‘psychological method’, Hutchison (1938, pp. 131–7) was careful to keep ‘introspection’ separate from ‘a priorism’. Despite his critical remarks (1938, pp. 137–141) about the dangers of economists generalizing their own perspectives as if these applied to all economic agents, Hutchison argued that introspection does have a place in economics. That place is at the early stages of theory formation; unlike the a priorists, he did not see it as obviating a subsequent stage in which theories are tested. Unfortunately, to judge from what happened subsequently, economists failed to read Hutchison’s writings closely. Despite his very clear (1938, p. 163) summary remarks, they ended up conflated introspection and a priorism. Thus began the prejudice of economics against using introspection about their own lives as a source of ideas for theories about the economic behaviour of people in general.

When a behavioural economist nowadays presents results of extensive introspection (as I did in Earl, 1986, section 7.2, 2001, 2012) this is not done as an attempt to construct a generally applicable a priori analysis. Rather, and consistent with Hutchison’s perspective, it is in order to
suggest empirical research opportunities that might otherwise go unnoticed. Via introspection, behavioural economists may notice areas where the conventional wisdom seems to misrepresent how they take their own decisions. Further reflection on what they view themselves as doing may result in testable hypotheses that counter the conventional wisdom. The presentation of introspective analysis may also be useful if it provokes readers to do some introspection of their own in the same context and thereby add to the list of issues that it may be worth researching systematically in that area. This way of using introspection and the style of papers that employ it are borrowed from researchers such as Gould (1991, 1993, 1995) and Holbrook (1995) in marketing. Their use of introspective methods for analyzing consumer behaviour was inspired by literature from philosophy and psychology extending back as far as confessional essayist Michel de Montaigne (1533–1592).

Source credibility is a major issue in introspective research. Devious researchers might deliberately write partly fictional accounts of their behaviour, while well-intentioned researchers might unwittingly include fictional content due to memory lapses that result in them creating false connections between elements that they recall with accuracy (Wallendorf and Bruchs, 1993, pp. 343–5). Cognitive dissonance theory (Festinger, 1957) and the ‘sour grapes’ phenomenon (Elster, 1983)—both of which are employed later in this book—suggest that the mind tends to twist perceptions to remove inconsistencies or downplay the attractive aspects of rejected options. Even the observable elements of an introspective account may be hard to verify: witnesses may be impossible to trace and may have had little incentive to remember the events in question or may have incentives to concoct alternative accounts (e.g., when the potential witness is an estranged former partner). Fortunately, there are three things that behavioural economists can do to help their introspective work to be taken seriously.

First, they should apply the technique an area of high involvement (in the sense of Laaksonen, 1994). In other words, they should choose an area of major significance to them personally. This may be an area about which they can display an abnormal level of knowledge and where they can reveal painful connections between their use of that knowledge and the state of their personal relationships and finances. Involvement reduces the risk of memory decay if it results in frequent reflection about past choices and experiences.

Secondly, behavioural economists should use introspective techniques in an area in which the complexity and richness of detail they provide may be taken to imply fact rather than fiction. This is because it would take far longer to flesh out a largely fictional account around the skeleton of an
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actual experience than it would to write an account that flows freely from memory.

Finally, behavioural economists can enhance the credibility of their introspective contributions by choosing their areas of analysis so that they can play the economics equivalent of the ‘Humiliation Game’ that figures in David Lodge’s (1975) novel Changing Places. The game described by Lodge is played by English Literature academics at a party. To win, a player has to confess to having not read a work of English literature that no one else will confess to having not read. In other words, it requires one-upmanship in being poorly read, something that professors of English Literature would rationally be reluctant to do in the presence of their peers. By analogy, behavioural economists can win credibility for their introspective reflections by confessing to choices that economists would not view as rational in prospect or by revealing errors of judgment that were discovered in hindsight and which could have been avoided by operating more like a ‘rational economic agent’/‘econ’. Claims that introspective accounts are accurate will be more credible if such accounts publicize potentially embarrassing aspects of researchers' lives (cf. the confessions regarding sexual energy and draft evasion in Gould, 1991).

1.6 THE ROLE OF ANECDOTES, SCREEN DATA AND TEXT

Similar issues arise in respect of the use anecdotes, i.e., stories or vignettes that refer to particular instances of behaviour. Self-knowledge derived via introspection can be a source of anecdotes that one behavioural economist shares with others, but anecdotal evidence about behaviour can also be sourced from social networks, historical accounts and the media. In the past, economists who tried to use anecdotal evidence as a basis for challenging received wisdom would face a hostile reaction from their peers, The latter would typically argue that the source of the evidence might be questionable and that it was ‘just’ an anecdote that did not necessarily say anything about the behaviour of the wider population. Such reactions are understandable: an anecdote could be, say, a myth that has spread around a social network and even if the event it describes actually did occur, it might be utterly unrepresentative of what happens in that class of situations, rather like a statistical outlier. However, some anecdotes may be hard for economists to dismiss because they do seem to encapsulate behaviour that is common but which had not previously been noticed as problematic for established theoretical perspectives; moreover, at some point, a growing portfolio of anecdotes that point in the same direction starts to carry evidential weight akin to
that of data set gathered systematically using statistical principles.

Richard Thaler’s relentless use of anecdotes in his critiques of orthodox economics (described in Thaler, 2015) has probably played a major role in making anecdotes much more acceptable within economic analysis. Nowadays, it is common for introductory anecdotes to be used to ‘motivate’ (the readers of) journal articles. It seems that a well-chosen anecdote can now be deployed as a representative case for a wider class of behaviour that needs to be explained. Some behavioural economists have noticed potential for using other informal sources of evidence about how people behave or view the process of choice. They are open to examining the economic content of product reviews that consumers post online, the ways in which professional product testers reach decisions (as in Earl, 1986 ch. 10; 1995, ch. 4), or the ways that novelists, and writers for the stage and screen portray consumer behaviour, career choices and the behaviour of firms and other organizations (as in Earl, 2011). Some of us use clips from movie and TV drama to generate discussions in our classes, whilst Art Goldsmith even ran an entire course on ‘Socio-Economic Themes in Literature and Film’ in his role as Professor of Economics at Washington and Lee University. (Richard Thaler actually appeared in the fact-based 2015 movie The Big Short, breaking the fourth wall by providing a brief behavioural perspective on what was going on.)

Given the issue of source credibility, it might seem odd for a behavioural economist to be prepared to engage with works of fiction when searching for insights about economic behaviour. However, the writers of works that deal with economic issues can be viewed as having reflected on how people would likely behave in the situations about which they are writing, so the drama is potentially a useful guide to what ordinary people may do; it seems hardly likely to have been twisted with a view to supporting or challenging any particular piece of economic theory. In some cases, works of fiction may actually be based on inside knowledge of the industry at the heart of the drama or insights gleaned via contacts with people who work there. For those who are nervous about making use of fiction, an alternative way of employing textual sources in behavioural research is to make use of company archives, as business historians do. Indeed, for those working on a behavioural approach to the firm, works in business history can prove an invaluable source of insights, as I found when writing *The Corporate Imagination: How Big Companies Make Mistakes* (Earl, 1984).
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1.7 QUESTIONNAIRES AND ETHNOGRAPHIC RESEARCH

It is natural for behavioural economists to be partial to the use of interviews and questionnaires to find out about the choices that people make and how they make them: if we want to find out why people behave as they do, why not ask them? One reason for not doing this is the cost of conducting such research, especially on a large scale. There is also the problem of ‘respondent fatigue’ whereby the reliability of answers starts to become compromised if a survey takes longer than about 25 minutes to complete. However, today’s behavioural economists would probably be wise to proceed mindful of the reception that awaited pioneering work of this kind in the 1930s and 1940s. This research arrived at findings at odds with conventional economic thinking and it was not well received. In the UK, members of the Oxford Economists’ Research Group (OERG) studied issues such as how prices were set and the responsiveness of investment decisions to changes in interest rates by interviewing small samples of managers and having them complete questionnaires. They published their findings in a new journal, *Oxford Economic Papers*, which was swiftly reviewed by Cambridge economist Austen Robinson (1939). He acknowledged that their methods gave them flexibility for dealing with the unique situation of each manager that they interviewed, but he was concerned that he could not judge whether leading questions had been asked to steer responses in particular directions. He pleaded that in future articles reporting such studies should include full details of the questionnaires that had been used. Until the recent advent of ‘supplementary online materials’ at the websites of journals, this could be problematic due to its impact on the length of an article, especially if the length of a questionnaire had ballooned out due to attempts to explore particular issues from various directions in order to check for consistency in responses and ensure that the analysis could not be accused of ‘leading’ the participants in particular directions.

The OERG’s work, along with subsequent questionnaire-based research conducted in the US by Richard Lester (1945) on how managers took their decisions about how many workers to hire, also became the target of a full-blown critique by Fritz Machlup (1946). He was concerned about small-scale studies being reported and about the risk of semantic differences between researchers and their subjects leading to erroneous inferences being drawn by the former about the validity of conventional economic theory. Interestingly, though, despite emphasizing the case for large-scale systematic studies, Machlup seemed also to signal the potential of adopting an ethnographic approach to studying economic behaviour: as Lavoie (1990) notes, Machlup took the view that if these
researchers had spent more time in close contact with their research subjects, they would probably have come to realize that the managers were actually doing something akin to the marginal trade-offs predicted by conventional economic theory, even though their replies in interviews and questionnaires gave the opposite impression. However, the effect of Machlup’s critique was to pave the way for Friedman’s (1953) ‘as if’ approach to economic method, rather than to encourage economists to start operating more like anthropologists and mingle closely with the subjects of their research or operate like a proverbial ‘fly on the wall’.

As with interview-based behavioural research, ethnographic research clearly can be very time-consuming and challenging to write up in the compact format of a journal article. However, it can be especially effective for understanding the thinking of particular groups and how this affects their behaviour. So far, behavioural economists have done little research of this kind, but its potential is evident from work done by sociologists and marketing scholars in areas as diverse as the New York bond market (Abolafia, 1996, 1998), behaviour in shopping malls (Underhill, 2001), the Harley-Davidson Owners’ Group (Schouten and McAlexander, 1995), high excitement leisure experiences such as white-water rafting (Arnould and Price, 1993) and skydiving (Celsi et al., 1993), and how the Internet is changing the process of buying a car (Barley, 2010).

1.8 EXPERIMENTAL STUDIES OF BEHAVIOUR

The use of experiments has become widespread in economics in recent years, largely as a result of the pioneering work of Vernon Smith (1991). Behavioural economists make extensive use of research involving experiments, but their view of the role of experiments and of what constitutes an acceptable experiment is different from that of the conventional experimental economist. There is considerable potential for confusion here, since Smith shared the 2001 Bank of Sweden Prize in Economic Sciences in Memory of Alfred Nobel with psychologist Daniel Kahneman: Smith is not a behavioural economist, whereas Kahneman has had a huge impact on behavioural economics via experiments that do not follow Smith’s recipes for how experimental economics should be done. Potential for confusion is increased by Smith’s (2008) use of the term ‘ecological rationality’ in a way that differs markedly from its use in behavioural economics via the work of psychologist Gerd Gigerenzer and his colleagues (1999, p. vii). For Gigerenzer, ‘ecological rationality’ pertains to whether the decision-maker is using decision heuristics that
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‘are adapted to the structure of the environment in which they are used’. It thus has a similar meaning to Herbert Simon’s notion of ‘procedural rationality’ that was outlined in section 1.3, except that it perhaps does a better job in prompting us to keep the importance of context in mind. But for Smith, ‘ecological rationality’ means a situation in which trial-and-error processes eventually result in a market operating efficiently.

The approach that Vernon Smith pioneered focused on using experiments to find out how markets work. A key feature of his experimental method is the use of significant performance-based financial rewards to motivate research subjects to do the best that they can when acting as players in experimental markets. The setting for such experiments is typically a computer laboratory in which groups of participants can be presented with different ‘treatments’ that enable the impacts of different variables to be assessed, other things equal, in a very strictly controlled manner. In experimental markets, participants can be playing buyer or seller roles, much as in a real-world financial market, but in other experiments the participants are often playing some kind of economic game with some of the other (typically unidentified) participants in their laboratory session.

Behavioural economists often follow Smith’s method to test their theories and to test their policy ideas in a laboratory setting. But they are also open to evidence gathered from a much wider range of experimental formats. Most importantly, they take seriously findings of experiments such as those described by Ariely (2008), Kahneman (2011) and Thaler (2015) even where the experiments did not entail the use of performance-based rewards to motivate the participants. Such experiments may involve simple hypothetical choices that entail some kind of gamble, with the focus being on, for example, whether the way the choice is presented to the participants makes a difference to what gets selected. Much of the research that uncovered the ‘heuristics and biases’ to which we will frequently refer was conducted in this way. In return, some of their findings became foundations for constructing alternative theories, as in the case of Prospect Theory (Kahneman and Tversky, 1979).

Behavioural economists are also open to using experiments that put participants into naturalistic choice environments rather than highly controlled but stripped-down approximations of real choice environments. Different questions may require different kinds of methods. For example, take the case of choices of mobile (cell) phone connection plans, an area that I have studied with my colleagues Lana Friesen and Christopher Shadforth. A highly stylized experiment was fine for exploring the impact of usage uncertainty and different types of plan formats on the extent to which people waste their money by choosing needlessly expensive plans,
a highly stylized experiment may be enough. We were able to isolate the impacts of these issues in a laboratory setting via an experiment in which the participants only faced choices between seven imaginary plans. They were allowed to make a sequence of twenty choices, with no penalties for switching, over the course of an hour as they attempted to minimize their notional spending on a particular pattern of service usage (see Friesen and Earl, 2015). By contrast, when we wanted to study how people search for good-value plans and the difference it makes to have access to online market aids such as product comparison sites, our experiment had a naturalistic design: in one treatment we used an offline archive of clones of the actual service providers’ websites and in another treatment we simply allowed participants freedom to search as they pleased on the Internet in their attempts to find the cheapest plan for a particular usage pattern (see Earl et al., 2017).

In line with the pluralistic view that behavioural economists have of the nature of rationality, their experiments do not focus purely on finding relationships between variables of interest and the choices that research subjects make; they are also interested in the routes by which participants in experiments arrive at their choices. Some of their experiments therefore come under the umbrella term ‘process-tracing analysis’. As is evident from the handbook edited by Schulte-Mecklenberg et al. (2011), process-tracing experiments can range from the kind of work that neuro-economists do—in which brain scanners are used to study what happens in the brain when particular kinds of decisions are being made—through to analysing transcripts of people ‘thinking aloud’ as they make decisions, a technique known as ‘verbal protocol analysis’ (for the classic handbook on this, see Ericsson and Simon, 1993). A logical extension of the latter method in experiments that involve subjects working on computers, is to record what they say in thinking aloud as the soundtrack of a screen-capture move of what they did on the computer screen whilst undertaking the experimental task. This method was used in the Earl et al. (2017) study of mobile phone plan choices. Before Apple gave the world computers that could make such recordings, Payne et al. (1993) pioneered the use of a software package called MOUSELAB that made it possible to record how research subjects searched for information in a stylized screen environment rather than by using a web browser.

As with research involving interviews and large-sample questionnaires, process-tracing research is very resource-hungry due to the huge amount of data that each subject may generate and the need to run protocol sessions on a one-to-one basis so that the administrator of the experiment can provide prompts to ‘keep talking’. Unless data collection is automated in the manner of the studies that used MOUSELAB, the data
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have to be transcribed and coded manually prior to any analysis. This can be incredibly time-consuming: in the study reported in Earl et al. (2017), our 41 participants each had an hour to complete the task with the result that nearly three years passed before we had managed to find enough time to finish writing it up. It should thus be no surprise that, whereas economics experiments in computer laboratories often have 100-200 participants spread across various treatment groups, process-tracing experiments often involve 20–100 participants, with the total number tending to be inversely related to the duration of the task. The good news is that even with small samples, statistical analysis is still possible, with the aid of non-parametric techniques.

Although the relative likely efficacy of rival policy ideas can sometimes be tested in an experimental economics computer laboratory, it is sometimes preferable to test them via field trials in areas that are representative of the wider population to which it is intended to apply them. This is the behavioural economics equivalent of what a firm does when it engages in ‘test marketing’ rather than risking a nationwide launch. Field experiments can be used to trial multiple policies by assigning different policies to different localities, thereby to get a sense of their relative cost-effectiveness. However, field trials may be impossible to organize in some policy contexts, such as where the policy ideas involve the State imposing regulations of one kind or another about how private sector providers of a particular kind of product must present their offers on their websites. Clearly in such a case, the alternative strategies could not be trialled simultaneously in different regions owing to the providers’ websites being organized to function on a national basis, a problem that can be avoided if the policies are simulated in different treatments in a computer laboratory experiment.

1.9 BEHAVIOURAL RULES AND ROUTINES

The picture of real-world decision-makers that behavioural economists piece together from the diverse sources considered in the sections 1.4–1.7 is very different from that presumed in ‘as if’ approaches to economics. Instead of the imaginary ‘homo economicus’, who can readily rank all combinations of options in order of preference and can instantaneously calculate the optimal course of action for any situation, behavioural economists work with a view of humans that is neatly capture by Gigerenzer and Brighton’s (2009) notion of ‘homo heuristicus’. People cope with the complex world in which they find themselves by using rules. These may be stand-alone aids to choice or may be nested together
or ordered sequentially, as with decision making procedures and routines. A useful analogy here is to think of the mind as rather like a computer: it comes with some things programmed in from the outset, to which can be added other ‘apps’. Indeed, we may view the mind as being like a computer that has rules for finding and installing updates to its set of apps by itself, though sometimes it needs external inputs to activate its programmes or install additional apps. The heuristics that are hard-wired into the human mind can be viewed as constituting Human Nature insofar as they are shared by the bulk of the population. Other heuristics get installed as a result of the social context in which decision-makers develop, as with the process of nurturing, but some heuristics are personal creations, tentatively put together by drawing on existing heuristics and retained if they seem to work in practice.

Although these heuristic devices are, by definition, supposed to be decision-making aids, not all of them are conducive to good choices. But in acknowledging this, we should not lose sight of the positive role that heuristics play in making life manageable. Unfortunately, many modern behavioural economists have done precisely that. The kind of modern behavioural economics that is presented most in textbooks and applied by ‘behavioural insights’ teams focuses primarily on seemingly dysfunctional heuristics that are part of Human Nature and distort/bias behaviour predictably in particular directions that reduce the quality of choices. Humans are, as Ariely (2008) puts it, ‘predictably irrational’. This makes their behaviour susceptible to manipulation by devious firms and governments but, in principle, they can be taught how to over-ride their inherent fallibility and use better heuristics. This view underlies self-help behavioural economics books such as Belsky and Gilovich’s (1999) *Why Smart People Make Big Money Mistakes and How to Avoid Them*.

In the pluralistic version of behavioural economics set out in this book much attention is of course given to heuristics that compromise the quality of the choices that people make. These dysfunctional heuristics include not merely the ones that are part of Human Nature but also those that only some members of the population choose to use. However, we also draw upon the work of behavioural researchers such as Gigerenzer and his colleagues, who see some heuristics very positively, characterizing them as ‘fast and frugal’ tools for making effective choices. From the latter standpoint, it is natural to focus on differences between people—for example, some people possess a set of heuristics that makes them capable of operating in a ‘streetwise’ manner, whereas others lack these heuristics and will consequently be at risk in certain kinds of settings—that may be transmitted around the population, rather than merely on heuristics that are common to the bulk of the population. Those
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who have especially ‘fast and frugal’ ways of deliberating in a particular context provide benchmarks for procedural/ecological rationality. Their ways of operating may not be the best that humans will ever develop, but they provide exemplars of current best practice. Note here the plural with ‘exemplars’: when members of a population have somewhat different needs and constraints in a particular area of choice, no single set of heuristics may constitute ‘the’ best-practice way of deliberating.

1.9 COMPUTER SIMULATIONS

Behavioural economists were very quick to start using computers to model decision-making. Cyert and March’s (1963) book *A Behavioural Theory of the Firm* is a landmark contribution in this respect, as well as for the theory that it set out, while Herbert Simon was a major contributor to computing sciences and a pioneer of the field of artificial intelligence. For them, the link between organizations and computing was very straightforward. They saw organizations as operating on the basis of decision rules which were often embodied in formal policies and procedures about what should be done in particular situations. Decision processes could therefore be mapped in terms of decision trees involving binary ‘yes/no’ nodes with the direction of the answer to a question then leading in an ‘if, then’ manner either to an action or to a further question to consider. Once these maps of decision processes had been constructed, it was an a obvious next step to turn them into computer programmes and see how well they could predict what the organization would do as its environment changed. Trial-and-error processes or statistical analysis could be used to calibrate the extents of a response to a particular problem (for example, how much a department store would lower its prices if it found its inventories getting ‘too large’, and the point at which it would decide to have a ‘sale’) and thereby improve the model’s predictive capacity.

Computer simulations play a major role in Gigerenzer et al.’ (1999) research programme on ‘fast and frugal’ decision rules, providing a means to test how effectively simple rules work in particular contexts. It has also become common for researchers to develop ‘multi-agent simulations’ to explore what happens in markets populated by a variety of ‘agents’ each conceived as a set of decision rules. Groups of there ‘agents’ can be assigned different sets of rules, such as rules for when to buy or sell in response to the latest information about prices. Such models enable the analyst to see, for example, how chaotically a market might
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behave depending on the types of rules used to make decisions and the distribution of such rules amongst the population of decision-makers.

1.10 ADDING THE EVOLUTIONARY PERSPECTIVE

This book’s approach to behavioural economics is distinctive not merely via its pluralism but also via its evolutionary perspective. The latter has several facets, each of which is underpinned by a Darwinian view of how evolution takes place. This view has three stages. First, some kind of mutation occurs in the organism in question. Secondly, there is the selection part of the process: if the mutation increases the organism’s relative competitive strength, it will have a bigger chance of surviving long enough to reproduce whereas rival organisms will have a reduced chance of doing so. Finally, there is the retention part of the process: the mutation is passed on to the next generation if the organism in question breeds. Without the breeding phase, the advantages that the mutation conferred will be lost when the organism that hosted the mutation dies. If the competitive fitness-enhancing mutation is retained down the generations via the breeding process, the population of organisms with the mutation will grow. This will make life harder and harder for other species in the same environment and for members of the same species that lack the fitness-enhancing mutation.

One way this book incorporates this Darwinian perspective is by employing the evolutionary psychology perspective advocated by Cosmides and Tooby (1994). This entails trying to understand modern behaviour by examining what would have conferred evolutionary advantages on early hunter-gatherers. Central to evolutionary psychology is the idea that modern humans should be viewed as if they have a genetic endowment that is not significantly different from that of their hunter-gatherer ancestors. The basis for this is that, in terms of evolutionary time, modern humans are merely an eye-blink away from early members of the Homo genus who colonized much of the world and from whom Homo Sapiens eventually emerged as the dominant species. If the evolutionary psychology perspective is correct, modern humans must be coping with their choice environment by deploying, or building upon, whatever they have inherited from, and which conferred evolutionary advantages on, ancient hunter-gatherers.

The evolutionary psychology perspective has potential to help us explain why, for example, modern consumers are susceptible to obesity via excessive consumption of food that contains a high proportion of fat and sugar. Our hunter-gatherer ancestors faced an environment in which
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their access to food was highly variable. This meant that they needed to have calorific reserves to call upon when fresh food was in short supply. Their survival chances would thus have been enhanced if they happened to have a genetic preference for sweet, fatty foods that could replenish their calorific reserves. However, because their access to food varied a lot, their reserves did not accumulate in the long run and compromise their abilities to reproduce and rear children to adulthood. Those who did not favour such foods would have failed to build up these reserves and would have been more vulnerable and less likely to pass on their genes. A genetic preference for these foods thereby got passed to the present day. However, today’s affluent humans can eat regularly and have ready access to the kind of junk food that helps them build up calorific reserves way beyond what they actually need (see further, Brooks, 2011). Evolutionary processes have not yet had enough time to select a population without such dysfunctional preferences.

The evolutionary psychology perspective implies that behavioural economists should perhaps reflect more critically about ‘heuristics and biases’ than they have normally tended to do. If the heuristics that make humans ‘predictably irrational’ are hard-wired via the genes that modern humans have inherited, then we may be wise to reflect on how these heuristics might have been retained because they enhanced the competitive fitness of early humans. In some contexts, the ways in which they were of benefit to early humans might still apply today. We will be on the lookout for such contexts as this book proceeds.

In addition to focusing on the selection of genes in competitive environments, the behavioural economist can consider how evolutionary selection takes place with respect to rules and routines. This is what today’s evolutionary economists do, much influenced by the seminal work of Nelson and Winter (1982). In contrast to the biological view of evolution this perspective sees evolutionary change as being initiated by innovative thinking rather than any random mutation of rules or routines. This perspective brings together ideas from the behavioural economics of the 1950s and 1960s and merges them with the ‘creative destruction’ view of capitalism offered by Joseph Schumpeter (1943), a view that focuses on technological competition rather than price competition. In contrast to ‘as if’ theories of the firm that tend to assume firms are identical, the evolutionary approach sees firms as differing in the knowledge, rules and routines that they use when competing with each other. Firms with operating systems that are better suited to winning customers will enjoy a growing market share Their way of doing business will become more and more widespread as they build on their success by opening new factories and branches that they operate in the same way or
as they grow at the expense of their rivals. Their ways of doing business may also spread due to rivals copying them, as with the global spread of franchising as a business model into a wider and wider range of products and services.

What applies for rival business organizations is also relevant for understanding cultural evolution. Social groups with ways of thinking and choosing that give them advantages over other groups that think and choose in different ways will prosper and have a bigger chance of passing their operating systems on to successive generations via social nurturing processes, even if these heuristics are not embedded in genes. These considerations help, too, if we are trying to understand the historical path taken by academic disciplines and schools of thought. For a particular view of behavioural economics to flourish, its core ideas need to be passed from generation to generation. This may be impossible if the proponents of these ideas cannot obtain academic posts that enable them to develop their idea and teach them, and if they cannot attract postgraduates with the capacity to pick up their ideas, extend them and pass them on to the next generation.

1.11 OUTLINE OF THE REST OF THE BOOK

The behavioural approach to economics used in this book can be summarized in a single paragraph. It is a way of doing economic analysis that takes account of the challenges that face decision-makers in the real world and of what we can learn from psychology, introspection, and both informal and systematic research on how people try—sometimes remarkably effective and sometimes ineptly—to cope with these challenges. These challenges arise from complexity, uncertainty and innovative competitive ploys that continually generate problems and opportunities. The choice environment and human cognitive limitations inhibit the discovery of optimal courses of action and prevent decision-makers, and the economy in general, from settling into a state of equilibrium. A behavioural economist is not prepared to theorize ‘as if’ these challenges do not exist by assuming decision-making environments to be to be simple and static or by assuming decision-makers have all the capabilities they need to handle them effortlessly.

In contrast to the conventional economist’s strategy of viewing all actions as being motivated by a desire to maximize ‘utility’, Chapter 2 offers a multi-faceted examination of what motivates people to do what they do. Instead of assuming some kind of representative ‘utility function’ with a particular simple mathematical form, the chapter ends by
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emphasizing that individuals differ in their mixes of motivations and it sets out techniques for uncovering how people see means–ends relationships between the things amongst which they are choosing and the goals they are trying to pursue.

In Chapters 3–6, we use Dewey’s decision cycle framework to examine how people decide they have a problem to solve and figure out what to do about it. Chapter 5 focuses on an issue that shapes how decision cycles unfold but which economists would normally presume themselves to have taken account of via their presumption that ‘everyone has their price’: it deals with the question of what determines the extent to which people are actually ‘open to change’ when things are not going as they expected or market conditions change. By the end of Chapter 6 we are ready to consider the ways in which firms and governments can seek to manipulate consumer behaviour. The latter are the focus of Chapter 7.

Chapters 8 and 9 focus on what used to be the heartland of behavioural economics, namely, the behaviour of firms and other organization. In these two chapters we focus particularly on learning and the determinants of how bold firms are in approving investment decisions, as well as on the challenges of getting a firm to function as a team. Chapter 8 is focused mainly on the firm in relation to its external environment and offers a distinctive behavioural/evolutionary view of pricing and supply curves, whereas Chapter 9 is concerned more with factors affecting organizational productivity, ending with an examination of the challenges of implementing revolutionary change when an organization is struggling to survive.

The last two chapters of the book take us into the territory of behavioural macroeconomics. Chapter 10 focuses particularly on the role of confidence as a driver of aggregate demand in affluent economies and on the behavioural foundations of business cycles. Finally, Chapter 11 explores the question of whether the overall volume of economic activity can be scaled back to reduce its impact on the environment, without necessarily reducing how happy people are and how fulfilling they find their lives to be. This is a complex issue and in exploring it we call upon material from many parts of the book as well as introducing some of the behavioural contributions that others have made to what has become increasingly known as ‘happiness economics’.
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2.1 INTRODUCTION

The goods and services that people consume, and the things they do in organizational and/or self-employed roles, are merely means to particular ends. In fact, as Gutman (1982) emphasizes, human action typically involves ‘means–end chains’ in which one thing is a means to something that is in turn a means to something else, and so on, though such chains only have a rather limited set of links. To understand and anticipate economic behaviour, it is necessary to understand the kinds of ends that people are pursuing and how they see possible choices in relation to these ends. Here we run into a major complication: people are individuals, not clones. People differ in what they are trying to achieve. They differ in the kinds of means–end relationships that they have in mind when choosing, in their views of the strengths of particular means–end relationships, and in how to prioritize the pursuit of conflicting ends. Such differences can cause coordination failures, social embarrassment and difficulties in domestic and workplace relationships.

Individuality poses a much bigger problem for marketers and economists than it does for a clinical or organizational psychologist who deals with particular patients or groups of workers. The psychologist has a reasonable chance of obtaining knowledge of the particularities of the clients that provides the key for overcoming dysfunctional behaviour. But marketers and economists are often concerned with the behaviour of thousands or millions of consumers at a time. In applied work, economists engaging in ‘choice modelling’ normally deal with this by finding correlations between choices and questionnaire responses. Each respondent’s data thereby vanish into the number-crunching black box that spits out estimates of the relative strengths of the variables that have been presumed to be determining behaviour. With such modelling, all of the research subjects need to have replied in terms of the same set of questionnaire variables, so everyone ends up being asked to answer questions that reflect the analyst’s presumptions. Because of this, the
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questions may seem to many respondents to be ‘missing the point’ regarding what drives their behaviour.

When theorizing, economists normally try to avoid embracing individuality at all. Instead, they work with ‘representative agent’ models populated by identical decision-makers, each of whom operates as a microcosm of the market as a whole. The representative economic agents all see products in the same way and each of them buys a bit of everything that gets traded in the economy. This abstraction and associated lack of attention to individuality is defended on the basis that it is market-level behaviour that is the phenomenon of interest, not the idiosyncrasies that result in individuals doing different things and differing in their willingness to buy particular products. Viewing consumers as identical, and firms likewise, in their underlying motivations and in how they see the world keeps the analysis of the workings of supply and demand nicely tractable. Clone-like consumers are viewed ‘as if’ they set out to maximize ‘utility’, firms ‘as if’ only interested in maximizing profits, and both groups are viewed ‘as if’ they know what they need to know in order to pursue their respective goals successfully.

Now of course actual consumers do behave differently, so understanding what drives their personal choices remains of interest to policy designers. Following the analysis offered by Stigler and Becker (1977), mainstream economists have sought to address this not in terms of differences in motivation, preferences, cognition or decision-making methods but on the basis of differences in human capital—i.e., differences in skills, either endowed or acquired, that result in people differing in what they can earn and in which kinds of products they can consume successfully. Every choice thereby continues to be viewed as an act of ‘utility’ maximization without serious attention being given to what that might mean in psychological terms. There is no discussion of behaviour differing due to differences between people in their psychological make-up.

Behavioural economists need a theoretical framework for thinking about motivation, despite being open to asking people why they do what they do. They are in a position to gather information at a moment’s notice about the particular drivers of choices in the situations that they find themselves having to analyse. Moreover, even where time and other resources are available for conducting such research, a theoretical framework can be useful for deciding which information to gather and for interpreting it. In this book, we will follow the Stigler and Becker approach of highlighting the impact of relevant expertise not merely on earnings but also on what consumers hope to get out of the products they
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buy. However, we dispense with the ‘as if’ view of utility-maximizing representative agents. In its place, we offer in a more complex, multi-faceted view of motivation that allows us both to have a general view of the underpinnings of human action and a means of understanding differences in behaviour via some factors being more relevant for some people in some contexts. The framework presented in this chapter draws on a variety of perspectives that psychologists, economists and others have offered about what motivates humans in general. After discussing these theoretical perspectives, the chapter ends by outlining techniques designed to find out how individuals see their worlds, and to identify their personal means–end chains, without interrogating them within the confines of a questionnaire that reflects the analyst’s preconceptions.

2.2 HIERARCHICALLY-ORDERED NEEDS

The conventional economic wisdom sees overall wellbeing in terms of the sum of utilities derived from the things that a person chooses. On this view, economizing entails focusing on the different marginal utilities to be obtained by spending a bit more in one area rather than another, so that the total utility is maximized. The presumption underlying this view of the process of economizing is that consuming additional units of a product add to utility, but at a progressively decreasing rate. Diminishing marginal utility supposedly provides an incentive to consider consuming other goods, whose marginal utilities are higher per dollar spent, rather than continuing consuming more and more of a good that one has already been consuming.

Though eminently plausible in some contexts, this vision of the consumer may leave us a bit uneasy about its ability to encapsulate the behaviour of those who have a seemingly boundless passion for collecting particular kinds of products or those who become compulsive hoarders. However, a more basic issue that should concern us is whether it is a good idea to view all choices as serving the same need with differing degrees of effectiveness. An alternative approach is to see people as having multiple needs that they rank in order of priority. On this view, less important needs will only be attended to if this can be done without compromising higher-ranking needs. Viewing needs in this way does not preclude a person from ranking alternative combinations of goods in order of preference, but it does preclude adding up any kind of total for utility. This kind of thinking can be seen in the writing of an Austrian economist, Carl Menger, who came up with his version of utility theory
less than a decade after Jevons devised the one that became the conventional economic wisdom.

Menger ([1871] 1950) gave the example of a farmer’s choices following a bad harvest. The farmer’s first priority would be to feed himself and his family. Any remaining produce would be used for meeting other needs in the order of their importance, beginning with seeds for next year’s crop, followed by food for farm animals, and so on.

A similarly hierarchical view of human needs can be found in Ralph Hawtrey’s (1926) book *The Economic Problem*, but with an additional insight: he distinguished between ‘defensive’ and ‘creative’ consumption. By the former, Hawtrey meant activities/goods that serve as means to remove or prevent pain, injury and other sources of distress, whereas the latter pertains to consumption undertaken for positive gratification. Some products can serve both functions: for example, parents may purchase a Toyota Landcruiser to ensure the safety of their children on the school run but it may also be a means by which they can take vacations in which they explore remote areas. As people become richer, they can remove sources of distress such as hunger, being too cold or too hot, being mocked by others because of shabby clothing, and exhaustion from long working hours. They also become more able to reduce the drudgery of domestic chores by purchasing labour-saving appliances. Of course, being rich brings needs for new kinds of defensive expenditure, to ensure that one’s possessions are not stolen or trashed by others. Generally, though, as Hawtrey (1926, p. 190) observed, ‘The rich man can afford to be fastidious in avoiding whatever he finds uncomfortable, fatiguing, unhealthy, disgusting or ugly’.

Though largely forgotten in conventional economics, the perspective offered by Menger and Hawtrey can be seen as precursors to a very well known psychological view of motivation, namely, Abraham Maslow’s (1943, [1954] 1970) proposition that human behaviour is underpinned by a ‘hierarchy of needs’. (Maslow’s analysis provided the basis for two books on ‘humanistic economics’ by Lutz and Lux, 1979, 1988)

In Maslow’s theory, the most basic human needs are physiological: we cannot live without air, food and water, and in many climates we will perish if we do not also have shelter. Next in the hierarchy come safety and security needs, followed by social belonging, esteem and, finally, self-actualization (by which Maslow meant our desire to live to our full potential, something that in Hawtrey’s terms may entail being able to engage in a desired form creative consumption). Much later, Masslow (1971) added an even higher need, namely, ‘self-transcendence’, which we can view as the desire to meet our other needs via means that take account of our human obligations to each other and to the rest of Nature.
A particular kind of product might serve a variety of these needs: for example, a meal may be a means for meeting basic physiological needs but it may be consumed socially in a way that brings family members close together or earns praise from guests at a dinner party; for some, being able to cook meals to a very high standard might be a means of self-actualisation. Eating a particular kind of food could even be a means towards self-transcendence, as with those who try wherever possible to eat organic, vegan food in order to limit the harm they do to the environment and the suffering they cause for other species, rather than for any health benefits that such a diet might offer.

In Maslow’s view, people focus on addressing their most important un-met need and are only willing to consider trying to address lower priority, higher-level needs if they can see ways of doing so that do not compromise their higher-priority needs. Consider again the case of food. Our self-transcendence need will have to remain unmet if meeting it would stand in the way of meeting our needs to belong and receive esteem. Such a conflict might arise because we believe that the people around us view those who practice organic, vegan diets as weird and tend to avoid them. But we will also not allow our attempts to win esteem to compromise our abilities to feed ourselves.

Maslow’s perspective was dramatically foreshadowed in the opening scene of Puccini’s opera La Bohème, in which the clash that the lead characters face between their physiological needs and self-actualisation is resolved by a decision to burn the manuscript that one of them has been writing. More recently, the documentary series Victorian Slum (directed by Emma Frank, 2016) has illuminated the dilemmas that the poor faced in slums in London a century and a half ago. The immediate obsession of the slum-dwellers was with earning enough money for their weekly rent and they were prepared to go without food in order to avoid being evicted in weeks when their earnings were too low to pay for both rent and food. Although they lacked financial reserves, the reserves of their own bodies usually were usually enough to enable them to avoid having to switch focus to buying food at the cost of being forced out on to the streets. Their calorific reserves were replenished via a diet that involved buying bread and jam by the slice from local corner stores, and often their accommodation was so basic that cooking was not even a possibility.

Evolutionary process seem much less likely to have favoured humans who were motivationally hard-wired to want to maximize total utility rather than to operate in the non-additive manner envisaged in Maslow’s famous theory. A conventional economist would no doubt defend the additive view of preference and utility by saying that, if we are starving, the marginal utility of food becomes extremely high, ensuring that we
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will divert out expenditure away from other areas. The problem with this view is that if the decision-maker lacks foresight, the need to substitute may be perceived too late, taking the decision-maker by surprise. If so, the decision-maker’s past profligacy in other areas may result in an inability to prevent starvation. By contrast, people who are programmed to keep asking themselves whether choices that might be means to meeting lower-priority needs put them at unacceptable risk of being unable to meet their basic needs are less likely to be taken by surprise. The latter are more likely to have made provision ‘just in case’ their worst fears are justified, to ensure they can meet their basic needs: taking the hierarchical view, and always being concerned with basic needs, promotes planning rather than operating in a reactive manner.

People may differ in how strongly they are programmed to keep their basic needs in mind when choosing. Their programming in this respect can be both genetic and the result of social learning and/or inferences from personal experience. Social groups in which keeping basic needs in mind is a norm will tend to thrive in a surprise-prone environment relative to those where the norm is to enjoy today and be confident in one’s capacity to deal with whatever tomorrow brings.

Today’s debates over the need for action to limit greenhouse gas emissions provide food for thought in relation to this evolutionary perspective. The conventional economist’s view of decision-makers seems well suited for characterizing the ‘climate sceptics’ who deny scientific evidence about human-induced global warming and who presume that, if it does actually turn out to be a problem, the relative price adjustments will ensure it is only a temporary one. To the rest of us, who are better characterized by a hierarchical view of motivation, the climate sceptic may seem like the alcoholic who, when told that she is endangering her life by consuming too much alcohol, presumes she will be able to cut back on her intake before the damage to her liver becomes fatal. Our inadequate knowledge of when it would be safe to stop doing something that could threaten our long-run survival matters far less if we have a sense of priorities and a concern with meeting basic needs and therefore operate on a ‘safety-first’ basis, (see also Aldred, 2012).

To end this section, it is worth also reflecting on the evolutionary role of human sexual needs. Maslow included sex on his list of basic physiological needs, whereas he saw the needs for intimacy and to be part of a family as elements of the lower-priority group ‘social belonging’. Regardless of whether he was right to make this separation, we should keep the need for sex in mind as a motivating force in the economy. Human sexual needs drive economic activities via expenditure aimed at attracting and keeping sexual partners, such as spending on grooming,
clothing and jewellery, dining out, in bars and nightclubs, and so on. Sexual needs are powerful enough to drive risk-taking behaviour that often has amongst the most expensive downsides of any of the choices that humans make. These include the impact of unplanned pregnancies or sexual scandals on career options, and the impact of divorce settlements on financial status. However, these needs seem to have a powerful role to play in the evolutionary fitness of humans as a species.

Most species mate because they are genetically programmed to do so, rather than because they receive the payoff of sexual pleasure. Clearly, to a degree humans are programmed to want children; most people naturally find babies and infants attractive and yet fail to think ahead to the prospect of obnoxious teenagers, whilst women who do not have children at an early age may find themselves feeling prompted to make up for this via their hormonal ‘ticking clock’. This kind of genetic programming is reinforced by social norms and pressures to produce children. However, with their abilities to think and reason, humans are in a position to over-ride such programming if they can see a case against producing (more) children.

Humans might reason, as some indeed do, that sexual activity is ridiculous and, worse, is potentially dangerous due to the risks of sexually transmitted diseases, complications associated with childbirth and the impact of children on resource pressures and their parents’ stress levels. With a capacity to think but no motivation to pursue sex for reasons of pleasure, human reproduction rates would probably have been far lower. Because sex was the route to reproduction, the ability to experience sexual pleasure would naturally get selected in the event of mutations that gave some human the capacity to experience (more) sexual pleasure, and an associated motivation to pursue it. Evolutionary processes would naturally select a capacity to experience sexual pleasure that was both intense and fleeting so that humans did not lose the urge to pursue it. Were it possible to store such pleasure in one’s memory, it would be possible to replay the experience in one’s head (rather as we can do to some degree with a movie or piece of music), thus reducing the need actually to repeat it (see further, Earl, 2013).

The development of contraceptive technologies has enabled humans to pursue their sexual motivations even when they have decided that it is not a good time to be producing children. As a result, population growth will depend increasingly on: (a) the presence of people who think little about the negative consequences of producing children, or who are not prepared to challenge family and social norms that value the production of grandchildren; (b) adherence to religions that rule out the used of contraception; and/or (c) the existence of patriarchal societies in which
women who can see the downsides are denied the right to choose to limit their risks of having children.

2.3 NOVELTY, COMFORT AND PLEASURE

Humans have a basic physiological need for novelty in the flows of stimuli that they receive. Our senses have evolved to function on the basis of changes in the stimuli they detect, both in terms of type and intensity. Without changes in a form of incoming stimuli our attention will wander in search of something that is more exciting, firing up interest and relieving boredom. We can view this both in relation to events presently unfolding and an ongoing change in novelty, such as occurs when the arrival of grandchildren gives retirees a new focus in their lives. Given this need for novelty, the kinds of products that will sustain our interest rather than motivating us to go shopping for something novel are those that keep enabling us to have pleasurable new experiences and/or keep offering us what marketers call ‘surprise and delight’ by offering new opportunities that we had not fully anticipated.

Notice here that it is the potential for novel stimuli that is key to something holding our interest: something that has previously given us a flood of novel stimuli but is not expected to continue to do so will lose our attention. George Shackle, who during the 1940s made the notion of surprise central to his theory of choice under uncertainty, took this point further. He noticed, via introspection, that the human imagination enables us to engage in ‘enjoyment by anticipation’ (Shackle, 1943, 1949). That is to say, we can give our brains the opportunity to process imagined stimuli by rehearsing in our minds what it might be like if possibilities that we presently imagine actually eventuate. He saw this as a means of explaining why people stake money on lotteries and bets despite finding it hard to imagine that they will actually win: once the commitment to the gamble has been made, they can enjoy the excitement of thinking what they would be able to do if they did win. Until the results are in, these novel possibilities remain feasible no matter what the outcome. If the gamble succeeds, the person who takes the gamble gets enjoyment not merely from actualizing the imagined possibilities (the value of which is all that a conventional economic analysis of gambling would consider) but, win or lose, the gambler gets the earlier enjoyment by anticipation.

Shackle portrays this phenomenon as starting at the point at which the decision-maker commits to the gamble: it is only by purchasing the lottery ticket that we are actually opening up the (very slim) prospect of winning a huge sum of money. If Shackle’s analysis is correct, it implies
that consumers will have a motivation for making commitments for particular consumption activities (such as vacations, weddings, concerts, sporting events and dates) well in advance of the time necessary to ensure the event can actually be organized. There is, however, an exception to the idea that we will get much more out of an event to which we have been looking forward to for a long time than if we arranged it just before it happens: we may delight in seeing how good we are a running our lives impulsively, making choices in the thrill of the moment rather than via planning.

Yet perhaps Shackle did not go far enough in considering the motivational significance of the human capacity to enjoy by exercising imaginative capacities. When we are shopping, whether by exploring what is on offer at physical retail sites, browsing via the Internet, or by having tradespersons visit us to discuss our home improvement ideas, we get streams of novel stimuli that can serve as ‘food for thought’ even without making any commitment to spend any money. Like daydreaming, spending time search and browsing relieves us of boredom by helping us meet our need for novel stimuli. On top of this, as emphasized by Tibor Scitovsky (1985), the modern shopping environment provides sensory stimulation in addition to what we get from viewing the products themselves: the modern mall offers us opportunities to eat, socialize, enjoy a climate controlled environment full of visual and other stimuli (see also The Call of the Mall, Underhill, 2001).

So far the discussion of the motivational side of the need for novelty has focused on novel stimuli or imagined prospects that are welcome sources of excitement, i.e., things that give us hope. But we should not forget the motivating effects of stimuli and thoughts that we prefer not to have to deal with— in Hawtrey’s terms, the things that distress us; the things that we fear. The lives of today’s poor or our poorer ancestors are characterized by stress associated with uncertainty about where the next meal is coming from, whether the rent can be paid, and so on. These basic needs, combined with very limited resources, make life for the poor a series of gambles in which hopes focus on distress being kept at bay, rather than on new experiential opportunities. Because of these preoccupations, this kind of life is not boring even where jobs and domestic chores fail to provide stimulation. Merely to put a meal on the table may be enough to give a sense of achievement.

With affluence (and, some might say, with social welfare systems), life may become so devoid of actual and prospective discomfort that it fails to meet the need for novel stimuli. As one of the few economists to have sought to employ Hawtrey’s notions of defensive and creative consumption, Scitovsky (1981) saw the excess comfort of modern
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affluent societies as the reason for the pursuit of high-excitement activities. These may entail actually putting one’s life at risk, as with mountaineering, or escapist entertainments in which one gets engrossed in following the fortunes of others as they deal with major challenges. In some cases, as with theme park rides or white-water rafting and jet-boat tours, the consumer is given the sense of living on the edge but the experience is presumed to be managed so that no one (normally) gets injured or dies.

Although humans have a physiological need for novelty, and insufficient novelty is unpleasant to us, manifesting as boredom, there are limits to the amount of novelty that we find pleasant. As Scitovsky (1976, 1981) emphasized, the relationship between the amount of novelty we face and how comfortable we feel takes the form of an inverted U-shape rather than being monotonic: at some point a rise in the degree of novelty/intensity in incoming stimuli produces a maximum level of comfort and further increases may eventually reduce our comfort levels so far that we want to be elsewhere, just as when we are bored. However, whilst our level of comfort is a function of the level of stimulation that we are experiencing, the level of pleasure that we experience appears to be a function of changes in the level of incoming stimuli: highly pleasurable activities thus commonly involve escalating stimuli levels in terms of intensity and novelty, beyond what we would find ideal if they were sustained, up to a point of climax after which stimuli flows fall sharply, enabling us to relax and reflect on what we have just experienced.

Whilst sex would be an obvious example of this, it may be wise for readers to reflect instead on the experience of enjoying movies and live artistic experiences, books that one simply ‘can’t put down’, the excitement of sporting events and exhilarating touristic experiences. If well designed, these kinds of activities are utterly attention-arresting ‘flow’ experiences (see further, Csikszentmihalyi, 1990) during which consumers at no time are motivated to consider anything else. Where everyone knows that the activity has a particular limited duration, and suppliers have reputations for not going ‘too far’, the prospect of temporary sensory overload can be enticing. However, the problem for the supplier (to which we return in section 9.6) is to know how far it is safe to go when competing by offering novelty.
Closely related to Maslow’s idea that humans have needs related to esteem and self actualization is a need that may prevent people from idling their time away in comfortable surroundings, namely the need for achievement (commonly abbreviated to $n\ Ach$). This need is best known via David McClelland’s (1961) book *The Achieving Society* but it was originally suggest by psychologist Henry Murray in a study that predated Maslow’s analysis and was based upon clinical and experimental research he had conducted with colleagues at Harvard, using fifty ‘men of college age’. Murray (1938, p. 164) defined it as the desire:

To accomplish something difficult. To master, manipulate or organize physical objects, human beings, or ideas. To do things as rapidly, and as independently as possible. To overcome obstacles and attain a high standard. To excel one’s self. To rival and surpass others. To increase self-regard by the successful exercise of talent.

Murray’s thinking complements an even earlier contention, by the pioneer of evolutionary and institutional economics, Thorstein Veblen (1914), that humans have an ‘instinct of workmanship’: people are programmed to want to do what they do well, and take pride in being able to do this. The higher the standards that we set ourselves, the more we are going to find ourselves engaging in problem-solving activities and learn something as well as coming close to satisfying our need for achievement. These human traits have obvious benefits in terms of evolutionary fitness.

The need for achievement has attracted most interest in relation to workplace motivation and its impact on productivity, with McClelland advocating the use of measures of $n\ Ach$ in personnel selection processes. But as well as differences in $n\ Ach$ possibly accounting for performance differences amongst individuals within a group, it seem possible that inter-group differences in $n\ Ach$ might help explain differences in economic performance between nations. This could result from native populations having evolved differently in terms of genetically inherited achievement needs. However, national differences could also arise due to genetic foundations for $N\ Ach$ being amplified socially, via cultural norms favouring behaviour consistent with pursuing this need. Having a ‘mañana mentality’ and a casual attitude to quality would not be conducive to survival in global competition against economies in which the need for achievement was higher. If our thoughts turn to cultural stereotype, it is hard not to think of Germany and Japan as likely
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exemplars of the latter, and the Japanese even having the word karōshi to
denote the phenomenon of death from overwork. We might thus expect, if
we had internationally consistent and reliable measures, to find a
correlation between $n\text{Ach}$ and per capita levels of national income. This
is the proposition for which McClelland remains well known, but its
empirical validity remains controversial. (for a short survey, see Gilleyard,
1999).

It is important not to let the usual focus on $n\text{Ach}$ in relation to the
workplace divert our attention from its significance in relation to what
people do when they are not at work. As Cairncross (1958) pointed out
long ago, economists are prone to be blind to the amount of work that
people do at home. Like firms, we can choose between paying for others
to supply us with goods and services, or we can engage in do-it-yourself.
The latter may be much better than doing overtime at work or a passive
form of leisure activity as a means towards satisfying our needs for
achievement; indeed those of us with a high need for achievement may
feel very restless if we have not got some kind of domestic project
underway and/or are not challenging ourselves with new tasks and/or
what Hawtrey would class as ‘creative’ consumption activities.

2.5 IDENTITY MANAGEMENT

Identity came into economics mainly via the work of George Akerlof and
Rachel Kranton (2000, 2010) and it surfaces at a number of points in this
book as a driver of behaviour. In essence the term refers to a person’s
sense of self, i.e., how a person answers (at least, in his or her head, if not
in public) the question ‘Who am I?’ We might think of this as reflecting
the person’s assessment of his or her personal qualities such as ‘I’m
politically conservative, kind, reliable and patient, and a bit of a
workaholic, but I’m slack when it comes to exercise and I don’t dress as
well as I should’. However, psychologists distinguish between self-
identity and social-identity, with the latter term focusing on how people
answer the identity question with reference to particular social groups to
which they feel attached and whose values they share, often with pride
(Tajfel and Turner, 1979). The groups that are part of our social identity
may be formal, with regular gatherings (for example, ‘I’m a freemason’
or ‘I’m Hell’s Angel’) or comprise merely people with particular socio-
economic status and/or sets of beliefs (for example, ‘I’m a Western
Suburbs matron’ or ‘I’m a Trump supporter’). Being a member of one
kind of group often means that they cannot be a member of another
groups and hence people often operate with a strong sense of ‘us and
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‘them’, as in ‘I’m a vegan behavioural economist who is passionate about music, whereas my colleagues seem mostly to be omnivorous mainstream economists who are passionate about sport; we don’t mix together much!’

Identity is thus closely related to Maslow’s view that people have a need for social belonging: group membership and a sense of solidarity helps us meet that need; we feel less like lone, possibly crazy or misguided outsiders if we join existing groups or succeed in forming new ones. Identity may also relate to the need for esteem. If we are members of an ‘out-group’ and always being put down by members of the dominant ‘in-group’, this may not be good for our esteem even if we believe that the dominant group has a view of the world that is misguided or indefensible. Our ability to tolerate being put down may depend to a large degree on the extent to which those in our group that we respect are taken us seriously, too. In some cases, the need for esteem may only be met by ‘selling out’, i.e., changing sides, losing the approval of the minority group that we leave. Joining a group may entail other costs if our existing values do not align well enough with the expectations of the group’s members: we may have to adjust our consumption and expectations in order to be accepted and enjoy other benefits of membership. With some groups, membership entails being willing to go through challenging initiation rituals and we may only get to that stage after cultivating the approval of an existing member who is then prepared to recommend us for membership. In some case, no matter how far we are prepared to bend to join a particular group, membership will not be open to us because there is something about us that is at odds with the group’s organizing principles (as in the case of, say, all-male clubs that refuse to allow women to join).

Much of economic behaviour can be viewed as a means towards the end of identity management. This view underpins a recent attempt by Shrum et al. (2013) to re-conceptualize the notion of materialism. In everyday parlance the term has tended to mean the notion that the acquisition of goods is the key to happiness. Shrum et al. (2013, p.1180) propose that ‘materialism is the extent to which individuals attempt to engage in the construction and maintenance of the self through the acquisition and use of products, services, experiences, or relationships that are perceived to provide desirable symbolic value’. A key aspect of this way of viewing materialism is the phrase ‘the extent to which’: different kinds of identities will entail different levels and forms of spending.

There may be many means to a given identity-related goal. Shrum et al. point out, for example, that if we see our appearance as significant for our self-esteem, we can try to achieve improvements by spending on
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cosmetic surgery or by taking more exercise and dieting, with the latter not necessarily entailing any spending. Those who solicit gifts and/or try to ensure they will receive legacies are being materialistic in Shrum et al.’s sense, whereas those who make charitable donations are not unless they do so in order to acquire or enhance a relationship that has symbolic significance to them. (An example of the latter would be where a person donates money to his or her alma mater college subject to the gift being given extensive publicity and his or her name being attached to the building or professorial position that it finances.)

Although personal wealth and social and institutional factors constrain the identities that people can uphold, it needs to be said, foreshadowing section 2.9, that identities are essentially personal construct: we try to figure out who we are and then see whether the idea we have is workable and whether we can be comfortable with what it turns out to entail. This is not to say that people always try to establish who they are without recourse to external inputs. For many, it is important to have a sense of their family roots, as is evident with the popularity of genealogical research as a leisure pursuit. We may also look to external stimuli in trying to construct a view of how we fit into the world. Taken together, the messages that marketing campaigns send out promote a highly materialistic perspective on what we should see as important. Depending on how we are brought up and the groups that we join, social norms can operate as ‘institutional hidden persuaders’ (Hodgson, 2003) that oppose or reinforce stimuli coming in from marketing.

In modern economic systems, stable sets of values associated with a sense of self make it much easier to predict sales: imagine how chaotic things would be if, say, people who saw themselves as opera-lovers one day, re-imagined themselves as devotees of boxing the next, and so on, with no inherent reason for the switches of identity across the economy normally to offset each other. There are obvious evolutionary foundations for this, dating way back to the benefits early humans would have enjoyed if they happened to have a sense of identity and needs for social belonging and esteem. Groups can achieve things that lone individuals cannot, especially when group members are proud to be members and hence are committed to upholding the group’s goals. Coordination failures are less likely when group members agree on particular principles and rival groups know what their rivals’ binding principles are.

A more subtle reason why evolutionary processes would have resulted in humans having a sense of identity is that identity reduces cognitive load and facilitates decision-making. Identity does this in cases where we think of ourselves in ways that preclude certain kinds of behaviour from being open to us. If we say, for example, ‘I’m not the kind of person who listens to country and western music or who breaks into cars or houses if the opportunity arises’, we are imposing additional constraints on our set of feasible choices and hence on the set of possibilities we need to consider: it is easier to work out what music to
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listen to on our headphones when we go out jogging and we do not keep getting diverted from jogging and listening due to scanning for opportunities to engage in theft. Operating according to a stable, slowly evolving set of rules in turn reduces the cognitive load of people who know us, for we rarely surprise them (see Parsons, 2000).

Identity is closely bound up with the ways in which we are motivated to behave in relation to changing fashions and the extent to which we set out to acquire things that will enhance our social standing. It is to these social aspects of motivation to which we now turn our attention.

2.6 FASHION AND STATUS

It is hard to deny the existence of behaviour that is motivated by these concerns but acknowledging the significance of such behaviour poses a problem for conventional economists. At the core of conventional thinking lies the notion of equilibrium but equilibrium seems unlikely in a world in which some people see themselves as fashion leaders and others view themselves merely, to quote a classic pop song by The Kinks, as ‘dedicated follower[s] of fashion’. For the latter, even if they view themselves as ‘late adopters’ rather than the sort of person who ‘rushes to jump on the latest bandwagon’, conforming with what most other people in their social reference group are doing is a prerequisite for not being hopelessly out of fashion. Concerns about status likewise clash with economic equilibrium since one person’s rise in status threatens the status of others, thereby motivating the latter to retaliate.

If we view ourselves as fashion leaders, we will continually find ourselves needing to experiment with innovative choices that few, if any, others have made. If no one follows us, we have to try another experiment and hope that will be more successful in attracting followers and thereby provide evidence that we are indeed fashion leaders. However, if our lead is widely followed then, soon or later, there will come a point where we will have to try something different in order to stand out from the crowd. If we fail to do this, we risk losing our leadership role to others. (This theme is explored further in Chai, Earl and Potts, 2007.)

Even those who studiously cultivate a disdain for fashion and feel no need to establish themselves as fashion leader may sometimes find their identities hard to maintain unless they experiment in new areas. It is not simply that those who are determined to stand out by being different may become motivates to search for a new way of being different due to others emulating their behaviour. There may also be the kind of problem revealed in the introspective writing of Holbrook (1995, ch. 10): those
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who have cultivated a distinctive identity in one environment (for example being a jazz aficionado at high school in their home town, whilst all their classmates listen to pop music) can find it very unsettling to move to a new environment (in Holbrook’s case, becoming a student at Harvard) in which their choices seemed nothing special. As Holbrook (1995, p. 330) recalls, ‘[A]ll at once, I found myself in the midst of hipsters in every domain—music, art, literature, film—claiming interests so esoteric that they tapped into levels of nonconformity whose existence I had scarcely suspected’.

Those who seek to elevate their social standing are similarly likely to have to develop relevant knowledge of what is normal in unfamiliar social settings. Failure to conform to the relevant norms will mean failure to be granted access to the social groups they seek to join. The motivation to spend in ways that signal one’s wealth is a consequence of everyone knowing that it is unacceptable to demonstrate one’s wealth by walking around with a certified statement of one’s total assets pinned to one’s shirt. Less widely known is how to engage effectively in spending on ‘conspicuous consumption’—i.e., on products and services where one’s spending and/or consumption are visible to a target audience rather than being privately enacted. It is necessary to demonstrate that one understands the entry codes of one’s target group by consuming the right kinds of status symbols. Newly rich consumers still see the world from the perspective of the group from they are trying elevate themselves, so their early attempts to signal that they have ‘made it’ are likely to be more impressive to that group than the one they aspire to join. Until they crack the code and start signalling their success in a suitably subtle manner, the ‘new money’ upstarts are likely to be viewed by the ‘old money’ establishment as brash and lacking in taste.

The significance of social norms for how different parts of society run their lives is emphasized in the seminal contribution to the economics of conspicuous consumption, Thorstein Veblen’s (1899) book *The Theory of the Leisure Class* (for surveys of the history of conspicuous consumption and writing in this area, see Mason, 1981. 1998). The timing of Veblen’s work should be noted along with its title: the book predates the modern world in which working-class incomes are high enough to permit spending aimed at to ‘keeping up with the Joneses’ rather than merely spending to meet basic needs. Conspicuous consumption in the suburbs may indeed be a major driver of economic activity today but, historically, status-seeking behaviour was economically most significant at the other end of society.

The rich have never been content simply to be in the upper echelons of society. On the contrary, history reveals them as engaging in vigorous
competition to live more lavishly than each other. For some, spending on
their country homes and feasts was a means of buying access to influence
on policymaking; a select few would be able to attract monarchs to stay
on their estates. Their discretionary spending in such status races trickled
down to the lower levels of society, via employment opportunities on
their estates and in the production of luxury goods. Veblen’s book
captures this at its peak, at a time when traditional landed gentry found
themselves facing new competition from successful industrialists, just
before its disruption by World War I. However, he emphasizes that the
pursuit of status via displays of trophy products has been going on for as
long as humans societies have been able to generate surplus beyond basic
needs, or able to capture the fruits of rival groups’ surpluses. Given the
track record of the rich, and with income inequality on the resurgence in
the 21st century (see Piketty, 2014), we should expect production
increasingly to be skewed towards luxury products for the super-rich.

Veblen’s view of the leisure class included the idea that the household
head gets pleasure not merely from the leisurely lifestyle he enjoys and
prestigious, high-quality goods he consumes but also by being able to
make it possible for other family members to consume similarly and from
seeing them enjoy leisure. He called the latter ‘vicarious’ consumption
and leisure—clearly, a different kind of vicarious consumption from that
which Scitovsky had in mind when discussing scope for people to pursue
their needs for excitement via spectator roles. The household head could
even take pride in making it possible for members of household staff
(who had their own status ladder, from the butler downwards) to enjoy
the limited consumption and leisure opportunities that they had. In
Veblen’s time, middle class household head had to work, unlike the
upper class household head, but even he could enjoy vicarious
consumption and leisure from the knowledge that his wife and children
did not have to go out to work in order to support their material lifestyle
or meet basic needs.

So strong are fashion- and status-related motivations for spending on
consumption that productivity growth since Veblen’s time has done much
less to increase leisure time that some economists predicted (most
notably, Keynes, 1930). Nowadays, however, the motivation to be
upwardly mobile or, at least, to keep up the appearance of not going down
the social ladder has produced a middle class of dual-income households.
Labour-saving appliances have played a vital role in making it possible
for women to adopt these new roles. Indeed Chang (2010) argues on this
basis that the invention of the washing machine was more significant than
the Internet.
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Fashion cycles and status-driven consumption behaviour may seem to be dysfunctional beyond their contributions to helping people meet their needs for novelty. However, as argued in Chai, Earl and Potts (2007), they contribute to evolutionary fitness to the extent that they drive creative thinking and lead to experiments that enhance the stock of knowledge. Societies in which everyone knew their place and did not try to advance or differentiate themselves would provide few incentives to innovate except in order to deal with external threats or population pressures. New knowledge generated to profit from fashion and conspicuous consumption may initially only benefit high-status individuals, but it may trickle down eventually to the lowest levels of society: for example, the innovations pioneered in luxury cars tend sooner or later to become standard features in even the cheapest models (as with, fuel injection systems, anti-lock brakes, airbags, etc.). Moreover where status symbols and fashion product are durable goods, ownership may also trickle down, too: the rich pay hefty premium for being the first owners before trading up to the next generation of products and thereby enable less affluent consumers to purchase the trade-ins (or donations to charity shops) second-hand at discounts way beyond what physical depreciation would imply. Where we should be concerned, however, is in respect of the possibility of products being designed to last only for the duration of the fashion cycle. As well as being resource-hungry, these products cannot trickle down to poorer groups to enable to meet needs more basic than those concerned with status.

2.7 BUILDING SYSTEMS AND KEEPING ENTROPY AT BAY

Even in an age of fashion cycles, worn-out or non-functioning consumer durables still trigger many decision cycles. The physical deterioration of our durable assets can be viewed as a manifestation of an entropic process whereby structures disintegrate unless energy is expended on maintaining them. Such processes impinge on us in many parts of our lives. If we do not put effort into maintaining our social networks, our connections will fade away, much as neural networks in our brains, and the capacities that they give us, will fade if we do not keep activating them. Our homes become filthy and untidy unless we invest time and other resources in keeping things clean and in organizing our possessing, returning them to their places of storage after using them. Our health and appearance will decay without investments in exercise and grooming, and our gardens will start looking unkempt and eventually become like jungles if we leave untended. People differ in their willingness to tolerate or allow these
entropic processes to work. Some clearly are not distressed to see entropic processes at work and ‘let themselves go’, along with their property despite not being short of the wherewithal to prevent this. However, for other, building and maintaining structures is a major concern, sometimes to the pint of obsession.

The extent of our concern with keeping things in good order may be something that we choose, viewing it as part of our identity. Some of us may want to be viewed as ‘laid back’ whereas other are anxious to avoid the negative social connotations that may be attached to having low standards in this respect: note here that the original meaning of the word ‘slut’ was a slovenly, untidy woman, not one who had many casual sexual partners. But a degree of motivation to invest in developing and maintaining systems may be the result of evolutionary selection processes favouring those with a genetic disposition towards being organized and building systems, or who live in societies where this is the social norm.

To be sure, an obsession with maintaining order can be dysfunctional, crowding out opportunities to acquire other experiences and grow as a person: for example, a life of cleaning, tidying, keeping the garden spin and span and polishing the car may preclude getting out and getting to grips with the wider world. However, so long as such extremes are avoided, evolutionary processes generally favour people and societies that are prepared to invest in keeping entropy at bay and that look for opportunities to build systems.

This is not just to do with the obvious health benefits that come from good hygiene, or the impact of grooming on the kind of partner one might attract. Being organized also increases productivity in a number of ways. First, arranging things in hierarchical systems is a means of reducing the impact of human cognitive limitations. In the absence of any system of organization, we will waste time and miss opportunities whilst trying to find things: this is why supermarkets group the items they stock by categories, just as we organize what we buy from them when we get it home and store it in our pantries and refrigerators. Secondly, when we build systems we often get the benefits of positive externalities between the system components: in other words, in some sense ‘the whole is greater than the sum of the parts’ so there is some kind of ‘synergy’ effect to be achieved from grouping them together according to particular rules. For example, when we select clothes to wear, we do not do so randomly but with a view to the overall effect that they will produce in combination; inconsistencies in style and unmatched colours and patterns clash with evolved aesthetic sensibilities (cf. Dutton 2003), whether these are hard-wired or have been passed down the generations socially. The same may be said for interior design and décor and in respect of cooking.
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random combinations may violate our systems-based sense of what constitutes good taste. Moreover, those with an inclination to build systems can also achieve benefits in terms of physical outputs, as when a vegetable garden is constructed with due attention to relative positions of plants that may affect each others’ access to shade and light and the kinds of insects that are likely to be attracted.

2.8 THE DIDEROT EFFECT

A variant of behaviour that is a mean to the end of maintaining structures is ‘the Diderot effect’, brought to the attention of modern social scientists by Grant McCracken (1988). It was first described by the French philosopher Denis Diderot (1713–1784) in an account of what happened as a result of being given the gift of a very fine dressing gown (Diderot, 1775–1777, pp. 5–12). Keeping the gift and disposing of his old dressing gown was the start of a spiral of spending that left him heavily in debt. Diderot’s financial disaster was the result of viewing his possessions as complements and striving to maintain consistent quality amongst them. The new dressing gown upset the order that he had previously achieved: it made his other clothes look tawdry. Replacing the contents of his wardrobe would not solve the problem, for the clothes would look too good for the wardrobe, and if he replaced the wardrobe it would make the rest of the furniture in his bedroom look substandard, and so on. He would have done better to keep his old dressing gown and dispose of the gift, rather than trying to elevate the general standard of his possessions (and, in the process, his identity) to the standard signified by the new dressing gown.

Nowadays, we may see this human motivation to achieve consistent standards as being a major driver of expenditure on home improvements, often in conjunction with technological or space constraints associated with upgrading a deceased consumer durable. For example, our old refrigerator may expire and we replace it, not with something of the same size and appearance but with something bigger that is more capable of handling our current needs. This may then cause a cascade of spending if we have to remodel the entire kitchen to get the new refrigerator into the right place and as a result of the new refrigerator making the rest of the kitchen look out of date. Having replaced the kitchen, our laundry starts looking out of date, but having replaced it, too, our downstairs bathroom seem inconsistent with the emerging look of the house, but it seems absurd to give this one a makeover without doing likewise, and achieving a better deal from the contractors, for the upstairs bathrooms. The
expenditure on the new refrigerator thereby escalates fifty-fold or more, all because of our pursuit of consistent standards.

The environmental consequences of the human susceptibility to the Diderot effect ought to be a cause for concern. Diderot’s discarded possessions probably were fit to be reused by others, but things work differently with home improvements. The pursuit of consistent standards result in many things that had been serving perfectly adequately in functional terms being torn out of homes, tossed into skips and taken off to landfill sites. Moreover (and I write as a past sinner in this respect), with attention and funds focused on stainless-steel appliances, granite bench-tops, etc., the uptake of products such as solar electricity and battery storage systems may be delayed for years.

2.9 PEOPLE AS SCIENTISTS

In his two-volume magnum opus *The Psychology of Personal Constructs*, George Kelly (1955), a clinical psychologist at Ohio State University, offered a very different view of human action from what we have so far considered. Kelly’s book was the start of a new ‘constructivist’ school of thought in psychology and it has won adherents in marketing, organizational behaviour and management. Brian Loasby and I aired its potential for use in economics at the 1981 meeting of the British Association for the Advancement of Science (in papers later published as Loasby, 1983, and Earl, 1983b; for more extensive expositions, see Earl, 1983c, 1986). Kelly’s approach to psychology involves an ‘as if’ method that is strikingly different from ‘as if’ economics: he suggests that it may be useful to view people ‘as if’ they are scientists trying to predict and control the world around them. On this view, battling against entropy would come into the ‘control’ aspect. For example, consider what we are doing when we try to build and maintain a garden as an ordered system. This requires a capacity to form hypotheses about what will grow successfully and about how to ensure weeds, insects, fungi and so on do not prevent the garden that we have imagined from becoming reality. In the process of trying to make the garden happen and keep it under control we also have an opportunity to test aspects of our theories about who we are, discovering what we are capable of doing and how much we know.

Kelly (1969) reported that he came up with his ‘people as scientists’ view of human action one afternoon at Ohio State University, where his schedule involved consultations with some of his patients, in his role as a clinical psychologist, and with some of his students, in his role as a teacher. He realized that in both roles he was trying to help people who
were having trouble making sense of parts of their lives. They had ways of thinking that could not effectively accommodate the things they needed to handle, with the result that their lives were getting into a mess or their chances of doing well in their studies were being compromised. The underlying problem they were not handling well in particular areas was that everyone has to construct their view of the events that make up the world, past, present and future. Personal construct theory was Kelly’s vision of how people do this by using rules and building frameworks for organizing their thoughts.

In constructing his theory, Kelly had in mind a view of the universe akin to that subsequently popularised in Chaos Theory (brought into economics by writers such as Ormerod, 1999): he saw the universe as an integral structure in which seemingly unconnected areas—such as the movement of his fingers at the typewriter and the price of yak milk in Tibet—could turn out to be related. People have to abstract from such complexity by theorizing as if they are dealing with a much more modular system in which it is safe only to worry about rather limited sets of connections. The problem is to know where to assume the boundaries of our choices lie: if we make these modules too small, we may be surprised to find that our choices set in motion unwelcome and unexpected chains of events that we are ill-equipped to handle; if we try to imagine a huge range of consequences for each choice we consider, we may find it impossible to choose. However, we can try to limit our exposure to nasty surprises by playing safe, staying in areas where our personal constructs seem to work effectively.

On Kelly’s view, people go through life trying to develop their abilities to predict and control events, or at least limit the extent to which their abilities to do so shrinks as the world changes. Hence he is inviting us to see choices as being means to testing our predictive systems in new areas, refining our appreciation in areas where we already have some effective constructs, and ensuring that our predictive systems will not leave us at the mercy of events. We develop our distinctive personal views about the areas in which we want to develop our abilities to predict and control events but we tend also to be concerned with how effective a view we have of who we are, i.e., our identities, or in Kelly’s terms, our ‘self-constructs’. The latter concern is not surprising: to find the external world hard to fathom is bad enough, but to lack a view of oneself that seems to fit the facts must be very scary!

Kelly’s focus on prediction and control does not entail viewing people as nervous about having absolutely any of their hypotheses falsified. To be sure, sometimes we get ‘more than we bargained for’ in a way that results in us finding ourselves out of our depth and struggling to figure
out how to cope. However, some surprises will be welcome because they make the world seem less challenging than it had seemed to us. As Adam Smith (1795) had previously realized (in trying to understand the behaviour of scientists), when people ‘marvel’ at something, it is because they cannot figure out how it can be possible, or how it works so effectively (as with, say, a piece of music to which we listen repeatedly). Things that make us marvel do not represent threats to our ability to cope with the world: their mysteriousness motivates us to give them further attention. Likewise, we sometimes experience ‘surprise and delight’ because we have failed fully to anticipate how cleverly a product has been designed to help us to make some things easier to predict or control. Brands that we construe as likely to offer us surprise and delight will attract us, whereas we will avoid those that we construe as prone to disappoint by delivering less than they seem to promise.

If we accept Kelly’s perspective, we can begin to view choices as serving as means toward predicting and controlling events in three main ways. First, if we lack constructs in a particular area we may experiment in that area as a means towards forming hypotheses; in other words, our choices may generate information that we hope to use inductively to generate some general hypotheses about this area. For example, if we have never tried a particular kind of cuisine and are open to doing so, a night out in a restaurant that specializes in serving it provides a basis for forming constructs about what to expect on other occasions when this kind of cuisine is being mentioned. We may have started out with no particular expectations, but we form a sense of what it ‘is like’ by comparing and contrasting this kind of food with other kinds for which we already have constructs.

Secondly, what we choose may provide a means by which we can test hypotheses we have already formed via induction or deduction. For example, we can check whether we were wise to generalize about a particular kind of cuisine based upon our initial experience of it or from what we have inferred it will be like after reading about it or hearing the reports of others. Similarly, if we have had an entrepreneurial idea about a new way of earning a profit, we can put it to the test of the market (cf. the ‘entrepreneurs and venture capitalists as scientists’ analysis offered by Harper, 1996). The choice that we make may provide us with the opportunity to test a number of hypotheses. Money spent on new clothes and at the hairdresser may be an investment in testing how other people react to an idea we have about ourselves, but it may also be a means towards testing our constructs about other people, as when we get ready for a first date with someone. For example, on a first date, having made such investments we get to test our hypotheses about what the other
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person is like and we may get to form more elaborate constructs about them and, sooner or later, about other aspects of the world that we end up sharing with them.

Finally, consistent with Hawtrey’s notion of ‘defensive consumption’, our choices may be of strategies or objects that we construe as means of insulating ourselves from situations that we predict we would find it difficult to predict and control. These kinds of choices receive a lot of Kelly-inspired attention in Chapters 5 and 6.

Some of the things we choose may serve as means to the ends of prediction and control in multiple ways. First, consider what we can get from watching television. We can get to know more about the world, test our knowledge of the world, and test our abilities to anticipate events and cope with situations that we have not so far experienced. Secondly, consider car ownership. It may make life easier to predict and control by enabling us to avoid being at the mercy of unreliable and inconveniently timetabled public transport, enable us to explore more of the world, open up new social experiences by changing how other see us, and permit us more readily to test our capabilities and visions of how the world can be changed (for example, by enabling us to transport inputs we need for our do-it-yourself home improvement projects).

2.10 TECHNIQUES FOR UNCOVERED MEANS–END CHAINS

George Kelly’s (1955) book *The Psychology of Personal Constructs* is significant not merely for its ‘people as scientists’ view of human action but also because it was there that Kelly proposed his ‘repertory grid technique’ (henceforth RGT) as a means for uncovering how people view areas of their lives. The word ‘technique’ is significant here, because what Kelly proposed is a method that does not entail the researcher constructing a questionnaire and asking research subjects to respond to it. Instead, Kelly’s technique is designed to coax people into revealing their personal repertoires of construct—i.e., the dimensions that they use when characterize phenomena—in whichever aspect of the world is the focus of investigation.

RGT captures how the person in question sees the world at the time it is being applied; if it is reapplied months or years later, it is quite likely that the set of dimensions that it reveals will have changed somewhat. In this section, we will be exploring the technique in the context of mobile phone handset, an area where there has been spectacular evolution over the past three decades. It would not be surprising to discover that many
buyers have growing repertoires of constructs and yet lag behind those of more ‘geeky’ consumers. It needs to be stressed, however, that if applied today, RGT may not capture all of the constructs that the person in question might call to mind tomorrow, or even later today. Without a recent cue, we may fail to call to mind things that do matter to us: for example, if RGT is applied to motor vehicles, most people will probably not mention that they would prefer a car to have good brakes, unlike someone who has recently had to do an emergency stop or been driving an unfamiliar car whose brakes perform surprisingly differently from those of their usual vehicle.

In its original form, RGT was used merely for uncovering the basic level of cognition, such as the features in terms of which a consumer views rival products, or the attributes a manager may consider when hiring staff. However, Kelly’s doctoral student Dennis Hinkle ([1965] 2010) devised several extensions to RGT when studying why people differed in their tendencies to resist making changes in their lives. These extensions make it possible to probe more deeply into how people see the world and to discover structural relationships between their constructs. From the 1980s onwards, consumer behaviour researchers in marketing (Gutman and Alden, 1985; Olson and Reynolds, 1983; Reynolds and Gutman, 1983, 1984; Reynolds and Jamieson, 1985; Laaksonen, 1994) and economics (Earl, 1986a, 1986b) realized that Hinkle had provided a way of revealing means–end chains that drive behaviour in markets. The Kelly/Hinkle techniques are nowadays normally implemented with the aid of a computer using applications that make it easy to follow the process and record data. They work as follows.

First, we specify the area of interest, such as how the research subjects see rival mobile phones, holiday destinations, their colleagues, possible careers, etc. We then begin the RGT phase by asking our research subjects to list around ten alternatives in this area. These may include not merely options currently available, but also ones that were previously available or that the research subject wishes were available—for example, if mobile phones is our area of inquiry, ‘an iPhone 7’, ‘My first mobile phone’, ‘my ideal mobile phone’. Some research subjects may be so unfamiliar with the area in question that they have trouble coming up with a ten-item list, even if prodded to include a wider variety of conceptual items (for example, add ‘a mobile phone that would suit an elderly person’). If so, we get them to do the best they can with a shorter list. Kelly calls each item on the list an ‘element’. These elements will comprise one axis of the ‘repertory grid’ that emerges via RGT. The other axis on the grid will comprise the repertoire of constructs that the RGT is designed to uncover.
WHAT MOTIVATES US?

Constructs are elicited as follows. We ask the research subject—let us call her Susan—to take the first three elements and tell us in what ways they are similar and in what ways they are different. If Susan says, for example, ‘My first mobile phone didn’t have a camera, a touchscreen, QWERTY keyboard or Internet access, unlike an iPhone 7 or Samsung Galaxy, both of which offer all of these features’, we have elicited four of Susan’s constructs for her mobile phone-related repertory grid. When she run out of things to say about the first three elements, we then ask her to focus on elements 1, 2 and 4 and repeat the process, followed by elements 1, 2 and 5, and so on, for all possible three-way combinations until we eventually get to elements 8, 9 and 10. In these repeat rounds, we speed up the process by emphasizing to Susan that what we want to hear from her are similarities and differences that she has not already pointed out in the preceding rounds.

It is common for no further constructs to emerge long before all the possible three-way compare and contrast attempts have been made: typically, unless the research subject is very unfamiliar indeed with the area in question, or is an expert in the area, one will end up eliciting around 8-15 constructs, some of which will be the same as those elicited from other participants in the process. Some of the constructs may be binary in nature (for example, ‘colour screen, versus black and white screen’), some may imply a measurement scale (for example, ‘bigger screen, versus smaller screen’) and some may have a single point of focus rather than being clearly dichotomous (for example, ‘smartphone, versus not a smartphone’ rather than, say, ‘touchscreen phone, versus clamshell phone’). The last type are particularly common when participants lack much experience in the area in question and have not picked up the terms and concepts that those with more expertise habitually use.

With the repertory grid thereby constructed, we can now apply the first of Hinkle’s extensions, namely, ‘construct laddering technique’. We do this by getting Susan to focus on one construct at a time and asking her to tell us which pole of the construct she prefer and why she prefer it. The reasons Susan expresses for her preferences will reveal further constructs: for example, she might say ‘I prefer a clamshell phone because when it rings, you just open it and you’re able to hear the other person right away; you don’t have to touch any buttons or screen icons at all’. We can the probe further on the basis of these replies and derive yet more constructs: for example if asked why she prefer not to have to press a button or touch an icon to reply to a call, Susan might say ‘I’d be hopeless at hitting the right button, especially if I were not wearing my reading glassies or was out in bright sunlight and the screen was more use as a mirror. I fear I’d always get flustered when the phone rang and fail to hit the button before
the other person rang off, or I’d hit the wrong button and cut them off by mistake, and I’d then have to call them back’. We can then repeat the process, laddering to yet another layer of constructs: to continue the example, if we then asked Susan why she prefers to avoid getting flustered and having to return missed calls, the reply might be ‘It’s so embarrassing, and it means I end up having to pay for the call’.

Applying the construct laddering technique is rather like peeling away a layer of an onion only to find another layers below until we get to the core of the onion. However, it turns out that the systems of constructs that people create for coping with the world often have far fewer layers than all but the smallest onions. Typically, in only half or dozen or fewer steps, we will find that our research subjects start giving responses to the effect that ‘I can’t say why I prefer this, I just do—surely anyone would prefer this, anyway!’ In such cases, the constructs about which we are asking them have to be seen as what Kelly called ‘core constructs’, the things that really drive the person’s behaviour. In the example we have been using, Susan’s core constructs may be only a step or two away: we seem to be heading towards her identity, i.e., to how she sees herself. Taking the laddering process further might well reveal that Susan see a clamshell phone as a better means for maintaining her self- and social-image as a capable, in-control kind of person, and for avoiding having to wrestle with the possibility that she is a rather mean and penny-pinching kind of person: using a clamshell phone limits the number of times she will have to consider whether she will return the missed call, a call that, by owning a mobile phone, she probably feels she should not have missed in the first place.

Construct laddering processes need to stop when the participant gets to the ‘I prefer it because I do’ stage. It is not ethically acceptable to try to probe any further, for this will cause distress. The chains that are elicited from seemingly unrelated constructs often terminate on shared core constructs. In doing so, they can bring out dilemmas that the research subjects may have trouble resolving with any of the products available to them. For example, if Susan sticks to using an old-fashioned clamshell phone as a means for avoiding identity-related issues associated with missing calls, the trade-off may be that of not having Internet access on the fly, which could cause embarrassment by other means and earn her the label ‘Luddite’ for resisting an affordable new technology. Whether she sticks with a clamshell phone or switches to a touchscreen smartphone, the phone may be both a means of avoiding anxiety and a source of it. She cannot be in complete control, but may able to work out which is the lesser of the two evils.
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The relationships uncovered by the construct laddering process are typically presented as inverted tree-like diagrams, with the constructs that were first elicited listed along the bottom row and the core constructs at the top, with lines showing how they are linked to intermediate constructs and how intermediate constructs are linked to each other. However, relationships between constructs can be explored further and then represented using Hinkle’s two other extensions to RGT, namely ‘resistance to change grids’ and ‘implication grids’, which are explored in section 5.7.

2.11 CONCLUSION

The wide range of motivational perspectives explored in this chapter offers a very different starting point for understanding why consumers do what they do than the conventional economist’s utility theory framework. It takes time to soak up these diverse perspectives and develop a keen eye for which of them may be especially helpful for making sense of what is going on in any particular context. However, this starting point for our behavioural approach to economics is not troubled by the damning critique that Joan Robinson levelled at the conventional approach over half a century ago. She argued that

Utility is a metaphysical concept of impregnable circularity; utility is the quality of commodities that makes individuals want to buy them, and the fact that that individuals want to buy them shows that they have utility (Robinson, 1964, p. 58).

Robinson saw the utility concept as having been introduced as a means for economists to offer support for laissez faire capitalism. By assuming that all motivation can be reduced to the maximization of utility and then treating preferences as if they are embodied in ‘utility functions’, conventional economists seem to imply that all must be well in a free-market economy and that there is no need to engage in any deep analysis of what drives economizing behaviour. This has left them in no position to analyse why changes in behaviour occur except on the basis of changes in relative prices, income levels or information.

Here, by contrast, our multifaceted view of human action leaves us with a dynamic view of decision-makers. Although their sets of underlying motivations may not be changing, people do change in terms of their knowledge, how they see the world and their place in it, and in which motivating forces are at the forefront of their decision-making
processes at any point in time. However, even though particular motivations may come to the fore in particular contexts, it is important to maintain a pluralistic approach, rather than to focus merely on what seems to be the key motivating need in the situation being analyzed. This is because dealing with one need may allow others to come to the fore or prevent other needs from being met. Moreover, the means by which one person tries to meet a particular need may impinge on the capacities of other people to meet different needs.

For example, if we think about the leisure classes in the second half of the 19th century purely with a focus on sources of status being enjoyed by the head of household, it is easy to forget that the women of the house may have had a seriously unmet need for excitement in their lives. The latter perspective then takes us on to being able to understand the success of department stores as a retail innovation at that time, which also had consequences for the supply of labour to serve the rich. The inclusion of public rest rooms was crucial to the success of such stores as places where women could spend extended periods of time shopping, for they enabling women to meet some of their most basic needs (see further the excellent two-part TV documentary directed by Aitken, 2011). This was happening around the time utility theory was being worked out but utility theory is not particularly useful for analysing how such major changes in ways of life came to be possible.

One thing we have not done in this chapter is venture into the territory of neuro-economics, typified by experiments in which decision-making is studied by putting research subjects in brain-scanning machines and studying their brain activity whilst they are making decisions. This does not signal that later chapters will proceed without reference to knowledge of how the brain works, for that is not the case. However, we should note here that perhaps the discovery that feeling of pleasure are associated with secretions of the neurotransmitter dopamine in the brain might come to be seen as provide a basis for removing utility from its ‘impregnable circularity’. If we know, say, the taking the drug Ice gives a dopamine hit a thousand times stronger than we get from eating a cheeseburger, then we can perhaps understand the disastrous addictive attraction of Ice and see also potential for measuring other marginal utilities in term of dopamine secretions. However, such an attempt to use research on the electro-chemistry of the brain as a means for modernizing utility theory would be inherently problematic, for two reasons. First, there is the problem of implementing it across the vast range of choices that modern consumers face. Secondly, it misses the point that choice is a forward-looking activity and although present choices may be influenced by the outcomes of previous ones, the amount of pleasure derived from a
past choice may not be independent of how well the construed outcome matched expectations.

We may thus have to be content with less resource-hungry methods for discovering why people do what they do. The repertory grid/construct laddering techniques that facilitate mean–end chain analysis are themselves more resource hungry than clipboard-and-questionnaire methods, but are nowhere near as expensive as research involving brain scanners. Where repertory grid and construct laddering methods cannot be used, the perspectives covered in this chapter should serve as useful elements in the design of questionnaires for finding what drives behaviour in contexts of interest.
3

HOW DO WE RECOGNIZE PROBLEMS
AND SEARCH FOR SOLUTIONS?

3.1 INTRODUCTION

The process of choosing begins with the recognition of a problem that could prevent our goals or needs from being met, or with the realization that opportunities may exist to do better in a particular area. Once we have recognized that we have a problem or have decided to experiment with new means of meeting particular ends, we then have to choose how much research to do, and how to go about the search process before we decide what to do. In the real world, in contrast to many of the laboratory experiments from which behavioural economists have sourced much of their knowledge about how humans are prone to behave, the set of options is typically neither small nor restricted and precisely spelt out. Our real-world options are not simply sitting in front of us labelled as ‘potential solutions to problem X’ and carrying detailed description of their capacities to serve as means to particular ends. Rather, we face a challenge akin to that of a senior detective trying to allocate resources en route to solving a crime.

This chapter’s core theme is that search processes are driven by rules from the systems of rules that we use as means for coping with life. We all have our own systems of rules, some of them hard-wired parts of our inherited operating systems and others that we have worked out for ourselves or sourced socially. Somewhat paradoxically, these rules make life manageable by restricting our thoughts and behaviour. The moment we start searching for particular kinds of products and/or using particular search criteria, we are allowing rules to shape the discoveries we make and are thereby potentially shaping our choices. In doing this, we are contradicting the traditional economist’s view of choice in which any product is potentially substitutable for any other product. But this is what we have to do to make choice possible, for the number of possible combinations of products that we might buy is mind-bogglingly large in a modern, affluent economy: Amazon.com alone can be used to source
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millions of different products. The number of possible combinations explodes still further once we take account of the possibility of sourcing a given product from a multitude of suppliers from all over the world.

Because we have finite time and finite information processing capacities, we run the risk of making errors of oversight and/or mistakes when processing information. Humans typically can only keep around $7\pm2$ items in their short-term memories (a constraint known as Miller’s Rule, after Miller, 1956) and can only process about 10 bits of information per second (Marschak, 1968), though our effective processing speed is often faster where we can recognize patterns as wholes rather than having to look at each component. These cognitive limits imply that we face the following trade-off: gathering more information reduces the risk of oversight but increases the risk of information overload unless the additional information clarifies the problem by enabling us to cease paying attention to information gathered previously. This trade-off is explored mathematically in Heiner (1986).

The trouble is, the outcome of any search activity is inherently uncertain and it is in the nature of an information-processing mistake that we will not be aware we are making it. Decisions about search thus seem problematic to view in terms of a theory that regards choice as a process of constrained optimization. In practice, they are often taken poorly: in a survey paper, Grubb (2015b) shows how consumers often suffer from inertia, end up paying more than they need due to doing insufficient search, and/or get confused when trying to compare alternatives. Professional buyers may not be particularly good at searching, either, even though their job is to source inputs efficiently for their employers (see Cunningham and White, 1974).

Before we start considering how such choices get made, it is useful to set the scene with an example of a challenging search problem that will be familiar to most readers, namely, finding the best-value mobile (cell) phone connection plan to suit one’s needs. From the standpoint of traditional economics, we should be approaching this problem mindful of how we might use any given plan different from another due to differences in unit charges for different kinds of services and differences in the sets of services offered. However, that is just far too challenging: it is bad enough to try to find the best plan even if we simply do our appraisals for all the plans we discover in terms of a single, approximate usage pattern based on our knowledge, such as it is, of the number of calls that we normally make, the SMS messages we normally send and the number of gigabytes of data we normally use per month.

Familiar and exasperating though this problem is, few consumers realize just how many plans are available. Many consumer end up paying
far more than they need to do, due to undertaking very little search and instead opting for a default provider, such as the company that they have been using for their landline service. Others may make serious attempts to ‘do their homework’ via Internet searches, aided by comparison sites, and still end up wasting money due to failing to spot the provider with the cheapest deal or not looking carefully enough at the range of products offered by the provider whose services they use, or not realizing that they did not understand how particular kinds of mobile phone contracts work and hence failing to try to find out. Many end up suffering from ‘bill shock’ after failing to spend enough time studying contractual fine print regarding charges for services such as international roaming. This is, in short, a market very different from the idealized ‘perfect information’ scenarios that economists often find convenient to use when analyzing how markets work. Skill in searching is vital for getting a good deal.

Many other focal examples could be used, such as searching for a marriage partner, a used car, or someone to fill a job vacancy. However, there is a very good reason, foreshadowed in section 1.7, for using this particular example: the writing of this book had to be delayed for several years because I was working with my colleagues Lana Friesen and Christopher Shadforth on a major study, funded by the Australian Research Council, of how Australian consumers coped with this problem in the period 2010–13.

In one of the phases of the project we ran an experiment in which participants were each given an hour to find the cheapest available plan for serving a particular usage remit. This experiment, reported in Earl et al. (2017), presented the participants with the task of finding the most suitable prepaid plan amongst over 800 plans of all kinds, offered by over 50 providers. These 800+ plans excluded offers with handsets, for the task remit presumed the user already had an unlocked handset. About half our subjects were offline but we provided them with an archive that consisted of clones of all of the providers’ websites, whilst the rest of the participants were able freely to use the Internet but were not given access to the offline plan archive. However, we did not tell any of the participants how many plans there were. The offline participants were given a home page that consisted of links to each of the cloned homepages of the providers’ websites, listed alphabetically. A long scroll down the experiment’s home page made it possible to see just how many providers there were, but there were no clues to the distribution of plans among providers and no clues (aside from one provider branding itself ‘Just Prepaid’) as to which of them offered prepaid plans. The online participants were not even told which firms offered mobile phone connection services, but they could at least call upon any assistance that
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Google could help them muster. We asked our subjects to think aloud as they went about the task and what they said formed the soundtracks for individual screen-capture movies of what they did en route to their verdicts. They were rewarded on the basis of how close they got to finding the cheapest prepaid plan consistent with the usage remit, but it had taken us many, many hours to determine what the best plans were in the two choice environments. If you had been one of our subjects, with just one hour at your disposal, how would you have gone about the task? What would it have been ‘rational’ to do in this situation?

3.2 ATTENTION AND THE INFINITE REGRESS PROBLEM

Prior to commencing a decision-making process we give our attention both to undertaking the acts of production or consumption that we have previously chosen and to scanning the world around us for threats and opportunities. This begs the question of how we allocate our attention between doing and scanning, and between scanning in one way rather than another. Getting the balance wrong could have serious consequences. For example, on the one hand, modern-day users of social networking sites may spend so much time scanning their smartphones for status updates and messages that they end up actually doing rather little. On the other hand, those who lock themselves away from external stimuli in order to get something done run the risk of discovering too late something personally significant that has been happening outside. We potentially could be making such choices every instant, though sometimes, as when we enter ‘do not disturb’ mode, we make choices to cover a particular period of time. We make these choices about how to allocate our attention without realizing that the attention allocation problem cannot be solved optimally: as Berger (1989) has pointed out, it is bedevilled by what philosophers call the problem of ‘infinite regress’. The infinite regress problem will keep arising in this chapter, as well as later in this book, so before we go any further it is important to explore it and understand how the human mind deals with it.

The choice between doing and scanning runs into the infinite regress problem because it is a choice about allocating finite attentive capacity that can only be addressed by allocating finite attentive capacity to it. To consider whether we should be allocating attention to the question of whether we are making the best allocation of attention, we must use some of our finite attention, but is this the best thing to do? The same question keeps arising, seemingly without end. This calls to mind one of the problems with the ancient view of the Earth as being a flat structure. To
the question of what supported the Earth, the ancient answer was that it was perched on the back of a giant turtle, but those concerned with the ultimate foundations on which the Earth rested would then want to know what lay below the giant turtle’s feet. If the answer was ‘another turtle’, the mystery remained, as it did if further probing produced the retort ‘It’s turtles all the way down!’

To provide an end point, the infinite regress must be cut off via some kind of rule or hierarchical system of rules. Because the problem otherwise has no end, the layer at which the stopping rule kicks in is arbitrary (Elster, 1984, p. 135) and typically not very deep. We have already encountered an example of this in the previous chapter: when discussing Hinkle’s construct laddering technique, we noted that it is brought to an end by a core construct that the person adheres to ‘because I do’. In the case of the doing versus scanning trade-off, we usually manage to allocate our attention without realizing we are doing so. The process by which we do this is nothing like how economists normally theorize about choice, though designers of attention-grabbing advertisements seems to operate as if they are well aware of it. Here is what happens.

Evolutionary selection processes have favoured humans having brains that, like modern computers, can run multiple programmes simultaneously, with some running in the background rather than being the focus of attention. Our senses have been selected to go into background mode when there is a lack of variation in their respective kinds of incoming stimuli. Departures from reference norms—such as sudden loud sounds (or a situation in which ‘everything has gone quiet’) or visual punctuations—bring what was in the background back into our conscious attention. For example, one moment we’re listening to the car’s radio and seemingly driving on autopilot; next, we’ve switched back into conscious driving mode, oblivious of the radio, in order to deal with something odd that stands out on the road ahead, or to check what caused another driver to sound their vehicle’s horn. In short, our brains are, in effect, using ‘if–then’ rules to allocate attention: if a reference norm is breached for a particular activity, then the brain brings that activity to the foreground of our conscious thinking. If nothing is detected that activates these rules, we continue with our existing allocation of attention and remain immersed in scanning or in doing what we were doing—or even just daydreaming—rather than getting into problem-solving mode (see further Koestler, 1979).
3.3 PROBLEM RECOGNITION AND SATISFICING

Problems are personal constructs, and problem recognition requires that we make a decision that we have a problem; we also have to decide how to construe the nature of the problem. Problem recognition is thus inherently bound up with the issues of evaluation and openness to change that are considered in Chapter 4 and Chapter 5, respectively. It, too, runs into infinite regress problem: searching to see whether a problem exists is a costly process and there are many ways of going about it, so what is the best way to operate in order to identify problems? Attempting to solve the problem throws up the kind of question we are trying to solve. Moreover, to keep checking on the performance of a product or person relative to any performance standard takes time and other resources, while the monitoring process may even adversely affect the performance that is being monitored—which also begs the question of how the reference standard came to be selected. Attempts to outsource or delegate monitoring to others do not close the problem. Not only is there the question of whom should be given the monitoring task, but also, as Loasby (1976) points out, those assigned the monitoring task could have shortcomings and hence they, too, need to be monitored.

Somehow, we must bring these infinite regresses to a halt and reach verdicts on whether we have problems and need to search for solutions. One way to do this is by applying social rules, but these may not be well grounded, resulting in the identification of problems that should not really trouble us. For example, the prospect of missing lunch may seem a problem, yet normally it is not: as many who practice diets involving intermittent fasting would attest, once one has got used to going without lunch, it turns out not to be a problem as the body simply turns to its calorific reserves until the next meal is consumed. However, where problems are actually present, there is nothing to guarantee they will be identified at the optimal time. Sometimes, we have a problem that we do not accept that we have, despite the insistence of others that we have it: we engage in denial. Sometimes, we are unaware of information that we might take as signalling a problem. Sometimes, we recognize a problem but it is not the problem we need to recognize.

An important manifestation of the last case is the kind of ‘fire-fighting’ behaviour commonly displayed by the executives studied in a classic piece of research by Carlson (1951). He found that his research subjects worked long, stressful hours busily searching for, and trying to implement, solutions to problems in their organizations. They were convinced that their situations were just temporary and that they would be able soon to return to a more relaxed pace of work, and work fewer hours,
once they had got things under control. The trouble was, their focus on trying to use their existing strategies for dealing with what was going on left them with little time to reflect upon whether they actually needed a major strategic rethink and to search for a different way of running their businesses or a different line of business in which to operate. Rather than focusing on fighting the ‘fires’ that kept breaking out, they would have been better to let some of the ‘fires’ burn unattended and instead find a design for a more ‘fireproof’ structure. It was obvious enough to Carlson, but not to them.

Sometimes, from the standpoint of our personal constructs, we may declare that a problem exists because we have observed a switch from one pole to another on a binary axis: for example, our Internet connection may have dropped out. Alternatively, something, or someone, may have breached a critical threshold level on a scalar construct: for example, a worker arrives late once too often. Sometimes, the presence of a problem may be construed in terms of a particular configuration of multiple performance shortcomings of either or both of these kinds, that the decision-maker or someone higher up in a hierarchy has specified as their policy for identifying the existence of a problem in a particular context.

Defining problems in terms of specific states or levels of performance is a mode of operation that is at odds with the traditional economist’s focus on substitution. The traditional perspective focuses on ‘overall performance’, where a particular overall score might be arrived at from very different mixes of performances. From that standpoint, using a template to determine whether or not a problem exists may seem very arbitrary because it entails a specific set of requirements. Certainly, ‘overall’ levels of performance can sometimes be computed (as with marks on an examination paper or the overall rate of return of a diversified firm) because each area of performance can be measured in the same units. If so, they can then be assessed in respect of critical overall required performance levels. However, using non-additive templates/checklists greatly simplify the process of defining problems and, within organizations, permit consistent, equitable treatment of personnel whose ‘overall’ performance cannot readily be reduced to a monetary figure. Setting targets on scalar performance indicators is actually necessary, anyway, where we do not know for sure what are the best levels of performance we would be able to achieve by switching to another product or supplier of labour services. We have to draw the line somewhere in the face of such ignorance and set ourselves targets at which to aim. Psychologists call such targets ‘aspiration levels’.

The aspiration level notion played a key role in early behavioural contributions, particularly those of Nobel Laureate Herbert Simon (1945,
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1955, 1957, 1959). In Simon’s hands, it led to the idea that choice was a ‘satisficing’ process, not a process of constrained optimization. Simon argued that people switch into search mode when they construe their recent or prospective attainments as falling short of their aspiration levels. They then keep searching for solutions until they find an option whose performance prospects look good enough to meet the aspiration(s) in question. If performance keeps exceeding aspiration levels, they will start to aim higher on a regular basis, whereas if they keep failing to meet an aspiration and can see no prospect of finding a means to meet it, they will lower their sights. Search strategies, whether for monitoring the performance of past choices or for finding solutions to performance shortfalls, will entail the use of routines and rules. These, too, will be open to revision if they fail to deliver outcomes that meet aspirations.

An important issue here is how initial aspiration levels are selected. It would be unwise to select aspiration levels randomly: if we unwittingly select a wildly ambitious set of aspirations this may lead us to waste much time in searching for something that is impossible to attain, whereas unduly low aspirations could result in needless underachievement. In the former case, especially if coupled with a reluctance to lower the target, we would be chronically in problem-solving mode and finding life frustrating in that area rather than enjoying what was actually feasible. In the latter case, life would be much less stressful but we might develop fewer capabilities due to having less experience in solving problems. Hence although we may acknowledge our ignorance of the bounds of possibility, we nonetheless want our aspirations to be in the ‘right ballpark’ for them to serve as useful focal points for our actions.

Loasby (1976, ch. 6) emphasizes the role of external reference standards in the process of setting aspirations. We pick up our ideas of what we might be able to achieve, or should aim to achieve, via advice from members of our social networks and from observing their attainments. We can also use the attainments of those in related lines of activity as ‘benchmarks’ and study the performance of our rivals—for example, firms in the UK have long been able to get a sense of where they stand relative to their competitors via the Centre for Interfirm Comparisons. If those whom we use as reference points suddenly seem to be doing better, we may judge we should be doing so, too, and raise our aspiration levels even though our attainments had not been falling short of our existing aspiration levels. On this view, being able to view how other live—via their posts on social networking sites such as Facebook, and from international television programmes or travel—may be very significant for determining whether or not people will judge they have a problem of
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under-achievement and need to start searching for ways to do better. No wonder, then, that, prior to the collapse of communism, Soviet Bloc governments limited their citizens' opportunities for visiting capitalist economies and tried to jam incoming television signals.

The aspiration levels that determine whether we recognize a problem and a consequent need to search for something better may be double-sided, defining an acceptable zone within which we are trying to keep ourselves. In such cases, our problem recognition processes are rather akin to those of a thermostat that is designed to keep the temperature of a room from becoming ‘too hot’ or ‘too cold’. Sometimes, we may be what marketers call ‘aspirational’ in that we operate with both short-term and long-term aspiration levels: for example, when choosing a car today, the challenge may be to find a used BMW 3-series that is in acceptable condition and meets our budget, but at the back of our mind we may be on the lookout for career opportunities that will eventually make it possible for us to own a new BMW 5-series.

Not all of the reference points used in judging whether or not there is a problem for which solutions need to be found take the form of aspiration levels. Because of the way our sensory systems operate, sometimes the trigger works via the detection of stimuli that are simply different from the norm, either in particular ways or as a pattern. If we have made ‘what has been normal’ our preferred state of affairs, we may judge that the arrival of, say, refugee migrants in our street poses a threat, even though we may know very little about them. But if we have so far built our lives around being different, we may judge that we have a problem, at least in terms of identity, if we start doing ‘normal’ things such as having a mortgage and commuting to work wearing a business suit—choices that we ended up making in order to solve other problems.

These processes for defining problems and initiating search are all based upon rules of one kind or another. They may be very effective at preventing disasters in the short-term but not be well selected for avoiding long-term difficulties. Insofar as our sense of what is normal adjusts in line with changes in the mean for incoming signals, we may fail to notice that the mean has changed. If so, we may be said to be ‘habituating’ to the new norm. This may result in us tolerating things that we would have refused to accept were we approaching the situation for the first time. For example, we may get used to increasingly high rates of unemployment as the crossing of previous politically sensitive thresholds fades into distant memory, or get used to growing surveillance and censorship, rather than taking to the streets to protest or changing our political allegiances. On the other hand, however, becoming accustomed to levels of attainment way in excess of those enjoyed by most people
may result in us behaving like unreasonable prima donnas or plunging into despair if our attainments suddenly fall to levels of which most can only dream.

Given the potential for habituation to have dysfunctional consequences, there will be evolutionary advantages for societies that consist of individuals who are attuned to diverse norms but who are not isolated from each other. By observing how others live and getting a sense of how they see the world, it is possible to get a better sense of whether and where one really should be recognizing problems and setting out to find solutions. Within organizations, survival may be a function of the mix of standards and aspirations that members set for themselves and expect others to adopt. Those who think in terms of unusually demanding norms (for example, in respect of quality) will be prone to see problems that others do not: the super-sensitive type might turn out to be needlessly concerned, but at least they may trigger debates that sometimes turn out to be vital for the continued existence of the organization of which they are part. However, debate, like search in general, has its costs. A largely docile workforce with a leadership that suppresses any dissent will be able to get on with operating in a particular way without wasting resources in debates and inquiries about alternative ways of operating (see Simon, 2005). This might be all well and good for an organization in its current environment, enabling it to out-compete rival groups. However, if the external environment subsequently changed, such an organization might then be very poorly suited to recognizing it has a problem or for finding effective solutions.

3.4 ELUSIVE OPTIMA

A traditional economist sees search activity as a means to the end of achieving an optimal allocation of resources, to maximize utility or profit. By contrast, from the behavioural perspective, search activity is something people engage in as a means of finding satisfactory solutions to the means–end problems they are trying to solve. The case against search being a means towards optimization used to be argued primarily on two grounds. First, in practice, search is simple-minded: for example, we tend to look for solutions locally and with the aid of rather basic procedures, such as ‘get three quotations and then choose the cheapest’. Secondly, decision-makers can never be sure whether extra search will pay off without actually undertaking it. If extra search fails to find a better option, it is still not clear whether we had already stumbled upon the best option (and have now wasted some of our resources on needless search)
or whether yet further search would reveal something even better. Such considerations led Herbert Simon to propose the notion of ‘satisficing’ as a way of characterizing what people do when searching: as explained in the previous section, we set targets to meet and we keep searching until we find something that looks good enough to get us to the targets.

The notion of satisficing is applicable to complicated closed problems where there is not enough time to check every option and not enough cognitive capacity to handle all the information that one might generate. The mobile phone plan choice experiment mentioned previously was set up to make it such a problem. The participants had to keep deciding whether they had spent enough time looking at a particular provider’s offers, whether to look at another provider’s offers, or whether they should now call it quits and hope they had found the best plan or a plan good enough to earn them a satisfactory financial payoff for their effort. But the satisficing concept seems especially significant for understanding how people try to cope in today’s complex and fast-changing world.

One of the big lessons that came from studying choices of mobile phone plans was that, out there in the real world, it may be impossible to specify what an optimal choice is, even if we know what the decision-makers that we are studying want to achieve. (The ‘even if’ aspect is not trivial: if consumer wants are complex, market research may run into the problem of ‘respondent fatigue’ and it may be the case that respondents are not even sure what they want or need.) One issue is that some relevant pieces of information may not be available. Call centre staff may be unable to provide answers to infrequently asked questions—in the case of mobile phone plans, sometimes all the staff at providers’ call centres could do was refer us back to the web pages whose shortcomings had led us to call them. But there is an even more fundamental problem: if the list of products, their features and their prices is constantly changing, it may be better to delay action and wait for a better deal, or to choose a course of action that leaves one’s options open (such as opting for a ‘monthly’ or prepaid mobile phone plan rather than signing up to a cheaper-looking 24-month contract). The problem is that no one can know for sure what deals are beyond the horizon. Indeed, flux in a market can be so strong that the information one has gathered may go out of date before one has had time to do anything with it.

In the case of mobile phone plans, two things brought this home particularly vividly. The first was what happened the day I was finishing a blog piece on the cost of buying an iPhone outright from Apple, versus buying one within a plan, using Vodafone’s iPhone offers as an example. I had finished the calculations and drafted the blog before stopping for lunch. After lunch, before publishing the piece, I decided to check my
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calculations and went back to Vodafone’s site, only to find that the plans had been changed. My blog had become a piece of economic history even before being released, and I reworked the calculations before hitting ‘publish’. At the level of the market as a whole, the kinds of deals Australian consumers were offered changed rapidly, for the better, between the plans in our late 2010 archive and the plans available to our online subjects in 2013 (see the Supplementary Material for Earl et al, 2017). By 2017, when we were still analyzing the rich data from our experiments, life had become even better for consumers as plans had generally got cheaper and simpler, especially for heavy users of data. Instead of complex call tariffs with two-tier pricing systems, the bigger-capacity plans were increasingly offering unlimited domestic calls and SMS messages, their main differences being between the costs of data inclusions. Once again, I was doing behavioural economic history! When markets are in such flux, consumers who do some research and pause to procrastinate are at risk of wasting time (due to having to revisit their research) or money (if they base their choices on the research as it stands), or might be rewarded due to later discovering improved offers when they resume their choice processes.

As Sidney Winter (1964) realized, the fact that search and evaluation take time has profound implications for how evolutionary selection processes work in economic systems. Following Milton Friedman (1953), most economists have argued that competition will ensure that those who do not behave in the manner assumed in economic theory will be driven out of markets by competitive selection processes. Although market participants may not be as well informed as hypothetical decision-makers in economic models are presumed to be, the assumption was that it was, in the long run, safe to view them ‘as if’ they operated with full information. This assumption presumed that those who unwittingly happened to stumble upon optimal choices would succeed at the expense of those who did not. In the long run, the latter would be eliminated. However, Winter realized that, where information has to be gathered and processed, it is possible that those who happen to have effective decision rules that shortcut the search and evaluation process will perform better than those who gather more information and process it more thoroughly, since by the time the latter actually work out what to do flux in the external environment may have rendered their choices obsolete. Meanwhile, those with what Gigerenzer and Goldstein (1996) came to call ‘fast and frugal decision rules’ would have already been adjusting to the changed conditions. Those with the simple, effective rules could thus outperform those whose choices were more circumspect.
Contrary to the perspective offered by Baumol and Quandt (1964), such decision rules should not be viewed as optimal devices for taking decisions: all that the argument requires is that they are decision rules good enough to force the exit of those who try to take decisions on the basis of careful deliberation about marginal costs and benefits. Better fast and frugal decision rules might potentially be devised, but even then we would not know if they were the optimal decision-making devices that could be developed.

Chronic flux in markets is also problematic for another defence of the notion of optimization, proposed by Richard Day (1967) who, ironically, later became a significant contributor to evolutionary economics. He suggested that, in the long run, via experimentation, decision-makers will stumble upon the best way to do things: satisficing behaviour would eventually converge to profit-maximization. However, as Winter (1971) retorted, in a world of innovation, many market participants may always be running behind best practice. Failure to find the best options does not necessarily result in these players being forced to exit. Survival does not require them to be ‘the fittest’ but merely ‘fit enough’ to survive in the environment in which they are trying to compete (Alchian, 1950). Indeed, with clever thinking, laggards may even be able to leap ahead for a time, via innovations that change the rules of the game. This would be part of the process that Joseph Schumpeter (1943) labelled ‘creative destruction’. In the long run, optimal ways of doing business do not get discovered via iterative adjustments, for in a world of changing knowledge there is no convergence to a steady-state equilibrium.

These arguments were raised in the context of competitive struggles between firms but they are also relevant in relation to social competition among consumers. To be sure, having a needlessly expensive mobile phone plan may limit how much one can spend on other things that have a social impact, such as clothing and grooming products. However, devoting endless hours to the ever-changing problem of finding the cheapest mobile phone plan is likely to keep a consumer from social interaction, limiting the payoffs from being able to be better presented than social rivals. Indeed, if the choice concerns a person’s very first mobile phone plan, it is not merely the hours spent trying to figure out the best choice that stand in the way of social interaction; there is also the inability to use the mobile phone as a means to communicate. Moreover, those who used fast and frugal search rules to find a reasonably cheap phone plan will have more time to spend keeping abreast of the latest fashion trends.

Although flux in markets can make it impossible to identify the best choice in relation to a particular set of means–ends chains, traditional
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economists would still assert (via Stigler, 1961) that choices in such settings are acts of constrained optimization, open to analysis using traditional tools. They would argue this case despite conceding that decision-makers may be making ‘optimal’ choices without necessarily taking the time to examine all the available options and hence possibly missing a better deal than the one they select. The key presumption is that people will act optimally in relation to their expectations: despite not knowing where the best product is to be found today, or when a better product will appear in future and precisely what form it will take, decision-makers can still figure out how far to keep searching if they can form some idea of the probabilities of finding better deals today or by delaying their choices and searching later. Optimal search can be conducted by factoring such probabilities into assessments of the marginal benefits of searching and comparing these benefits with the marginal costs incurred to achieve them.

Consider an extra act of search, such as spending an hour getting another solar panel quotation from a provider that we have already discovered, or spending an hour searching on the Internet to find more providers and more information about solar panels. Obviously, if we earn, say, $50 per hour after tax and we do not think an extra hour spent on searching for a better deal is going to save us at least $50, then we will be wasting our time if we continue to search rather than doing an hour of overtime at work or spending the hour doing something else that we value more than the income we would get from doing overtime. We supposedly will use our probability assessments as weights when making these calculations: for example, if we think there is a 0.2 chance that our search will enable us to find a product that is $100 cheaper than the cheapest we have so far found, but a 0.5 chance that we will at best only find something $20 cheaper, and a 0.3 chance of not finding anything cheaper than what has already been discovered, then the expected value of the search is (0.2*$100) + (0.5*$20) + (0.3*$0) = $30. If the opportunity cost of our search time is $50, then clearly the odds do not favour continuing to search, and we will choose the best deal from those we have already discovered. (Note that, for simplicity, this example abstracts from the possibility that we experience diminishing marginal utility of money.)

The traditional story may at first sight seem to contain more than just a grain of truth. However, it turns out logically to require that the decision-maker has at some earlier stage made some kind of arbitrary, ‘that will do’ satisficing judgment. Certainly, the analysis can accommodate choices between different methods of search once the probabilities assessments have been made about what each method might yield. We may indeed be able to consider the relative payoffs of, say, spending an
hour on the Internet versus an hour going to the local shopping mall, seeking information from a bricks-and-mortar retailer and coming home. We may also be able to consider the relative payoffs that we might get from different search terms on the Internet and then assess the relative payoffs from opening one search result rather than another, and whether it may be worth moving on to the next page of search results, and so on. We may likewise be able to form conjectures about the benefits of visiting one retailer at the mall rather than another and from different ways of engaging with the staff in the stores we enter. But the traditional model of optimal search begs the question of how the decision-maker arrives at the list of rival search strategies in the first place: just like the options or pieces of other information that they are intended to elicit, rival search strategies are not sitting there in front of the decision-maker and labelled as such. They have to be found or devised via creative thinking. Before we can solve our search problem, we thus have another search problem to solve. In other words, choosing an optimal search strategy is—like the task of recognizing the existence of a problem—bedevilled by the ‘infinite regress’ problem. The search problem thus has to be closed at some point in an arbitrary manner, by applying some kind of rule.

3.5 HEURISTICS, BIASES AND SIMPLE-MINDED SEARCH

How we search for solutions to a recognized problem will depend upon how we construe the problem and on our repertoire of rules and routines for solving problems, and on our habitual styles of thinking when applying these routines. An example of such a rule would be ‘If I need to find a hotel room, I use hotels.com’, and an example of a routine would be ‘When finding a tradesperson, I ask for recommendations on my suburb’s Facebook page, check their review scores, then work down the list from the top-scoring firms until I have succeeded in getting three to come and give me a quotation’. Examples of habitual styles of thinking would be tendencies frequently to think superficially, analytically, dualistically (in a simple ‘black or white’ manner), with an open mind, or creatively. These rules, routines and thinking styles may be revised through time, with the aid of higher-level operating rules, following social interaction, personal reflection on experience, and experimentation. Even if people do choose how, and how far, to keep searching via something approximately like the kind of marginal, probability-weighted trade-off thinking presumed in traditional economic analysis, the strategies between which they choose need to be viewed as coming to mind as a result of an cue-dependent process that triggers particular habitual modes
of thinking. (This process is considered in detail in Chapter 4, and there is a detailed discussion of the evolution of routines in Chapter 9.)

In addition to the rules and routines that we have developed for ourselves, the heuristics that we use for identifying problems and search for solutions include those that are part of Human Nature and which may twist what we do in a predictable manner. These heuristics and biases, along with others that affect other parts of the decision cycle, are covered extensively in conventional behavioural economics texts, as well as in a number of excellent survey articles (such as Hogarth and Makridakis, 1981, and Hanson and Kysar, 1999a) that provide references for the original research that identified them. Let us consider how some of these bias-inducing heuristics work during problem recognition and search, before focusing on search strategies that contribute to decision cycles being heavily truncated—sometime so far as to call into question the very idea of a decision-making process (see Olshavsky and Granbois, 1979).

As far as problem recognition is concerned, it is important to keep in mind that there are ‘threshold effects’ in human perceptual processes: we tend not to register gradually declining performance on a scalar dimension from the very outset but, at some point, not necessarily yet at a bad enough level for us to decide we need to do something about it, we eventually notice what is going on and start monitoring the situation. Secondly, ‘selective perception’ is a major determinant of whether we will perceive a need for action: we are prone to see what we expect to see and in testing our theories we operate as verificationists, looking for evidence consistent with out expectations rather than as falsificatoinists: we fail to test the robustness of our theories of what is going on by trying to find anomalies. The debate about human-induced climate change is consistent with this (as is my tendency to think of using such a supportive example!). We are also prone to suffer from ‘availability bias’, whereby our judgments are affected by the ease with which we can recall information and/or the frequency with which particular kinds of events are publicized, rather than the frequency with which events actually occur. Worse still, we are, by Nature, pretty hopeless overall in statistical terms: our minds latch on to concrete information, allowing it to crowd out abstract, statistical information; we tend to use frequency of examples, rather than their relative frequency. We can thus end up believing in the existence of problems that have no statistical basis due to, say, scaremongering by the tabloid media based on vivid cases examples of what are actually relatively rare events.

Availability bias is also likely to impact on how we search. This bias calls to mind the joke about the drunk who has dropped his keys in a dark gutter but is looking for them a bit further along the road where a street
lamp provides better illumination. However, even when sober, we are prone to look where it is easy to look, such as nearby, and with the aid of search tools which we are familiar, rather than where the probability of finding a good solution is highest. For example, in statistical terms, there should be a far better chance of finding a really suitable potential spouse in a large pool of prospects, yet many people in the market for a mate resist using online dating sites and rely on opportunities that arise at work or in singles bars where the pool of prospects is far smaller.

Willingness to bother searching is affected by the way in which we ‘frame’ a potential solution. For example, we may think about potential savings from searching in terms of the proportion we will save, rather than the amount we will save. If so, we may be willing to incur the costs of checking out a supplier rumoured to have what we are looking for at a 20 per cent saving on our so-far-best price of $1000, and yet not be willing to incur the same costs to check out a supplier of something else we are searching for, where the supplier is rumoured to be able to offer it only 5 per cent cheaper than our so-far-best price of $4000. Given that, in both cases, we have a hope of saving $200, our search choice should be the same in both cases.

This kind of scenario is one of Thaler’s (2015, ch.3) favourites and he illustrates it with reference to differences in willingness to search to save a given sum on a cheap clock radio versus a television that is much more expensive. A less credible anecdote to illustrate this kind of framing effect would be where the cheap product was a clock radio and a car was the expensive item. For one thing, if the car is a used one, its quality may be uncertain relative to the best-value example we have so far inspected, so our unwillingness to take the trouble to check it out may be due to us factoring in a risk premium. Moreover, checking out the car also entails the often-loathsome prospect of another interaction with a car salesperson (Barley 2015), whereas a fresh interaction at an appliance retailer does not carry that kind of downside.

Where we are undertaking a search, we are susceptible to having our attention diverted in particular directions—sometimes even completely away from our intended search—by the way in which information is presented to us. However consideration of this issue is deferred until Chapter 7 where we explore strategies by which firms may be able to manipulate choices.

As Olshavky and Grandbois (1979) emphasize, the process of dealing with problems is often greatly simplified, with far less search being undertaken than was readily possible. This may result in decision-makers wasting significant amounts of money that they could have saved had they conducted more thorough research. For example, rather than
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satisficing as in Simon’s basic model by stopping our search as soon as we discover an available option that seems to fit our criteria for acceptability, we might be wise to apply some kind of ‘oversight avoidance’ rule, such as ‘get another two quotations after getting one that seems satisfactory’. But the simplest procedure of all for solving the search problem is the one emphasized by Waterson (2003) and Thaler and Sunstein (2008), namely, to select the default option without considering alternatives and even without applying some kind of reference point for defining what is acceptable in that context. The default may be presented to us by a for-profit organization (as when a mobile phone service provider requires us to click away to another web page to examine something other than ‘our most popular plan’), a government agency (as when we are renewing our driver’s licences and are presented with an ‘opt out’ box that we will have to tick if we do not want to be automatically listed as an organ donor), or from evidence we have picked up from our social settings about what people normally do in our current kind of situation.

Making default choices clearly can prove costly: if we select a default $30 per month mobile phone plan rather than spending a few minutes clicking to and evaluating a $20 per month plan that would be adequate for our needs, we may waste at least $240 over a 24-month contract, and continue to waste money at the same rate if we make the default choice of keeping the plan running after the lock-in contract expires. This is a big price for most people to pay to avoid a few minutes’ additional research. On the other hand, accepting the default may in other cases be perfectly reasonable, given the opportunity cost of our time: if it seems likely to take an hour to save no more than we can earn in an hour, we are not necessarily being foolish if we accept the default of allowing our home and contents insurance to be continued via automatic credit card payments at the rate listed in the renewal quotation, rather than seeking and purchasing a cheaper product (if we do indeed find one).

A rather more subtle issue underlies the use of social norms as defaults. Going against social norms implicitly challenges the wisdom of the choices that others make even if we do not voice our reasons why we think their choices are flawed. Following the socially normal default strategy thus does not merely economize on our decision-making costs; it also means we are less likely to have to incur the costs of providing justifications for being a deviant. This may prove especially significant if the choice turns out to be problematic, whereas, as they used to say in the computing sector, ‘No one ever got fired for buying IBM’. However, following social norms and failing to engage in careful research before choosing may have severe downsides if the social norms are not well
aligned with expert knowledge about the consequences of making such choices.

In the mobile phone plan choice experiment mentioned earlier, no one seemed to choose purely on the basis of default settings. In general, though, there was very little sign of any reflection on alternative search strategies. At the outset, virtually none of the offline subjects scrolled down the home page to find out just how many providers there were; rather, many of them just began looking at plans offered by the provider at the top of the alphabetically-ordered list and kept working down the list, seemingly acting as if they would have enough time to get to the end of it. Nearly all the familiar providers had names at the other end of the alphabet but few of our subjects asked themselves whether it would be a good idea to get some kind of reference point by trying to find the cheapest suitable plan offered by a familiar provider. This might have helped them get an idea of whether the unfamiliar providers deserved to be unknown or were being unjustly ignored by most consumers. By contrast, the online participants in the experiment usually began by immediately typing something like 'cheap mobile phone plans' into Google. The top results typically took them to mobile phone plan comparison sites, the most prominent of these being whistleout.com.au, which, fortunately, was probably the least flawed of those available. In most cases, they immediately focused on using these sites, without any critical reflection on the extent to which the sites covered the range of providers (whistleout.com.au, the most comprehensive site, barely covered a third of the providers, a fact that could have been ascertained in a minute or so via a search for a list of Australian mobile phone service providers), or whether such sites might face conflict of interest problems. In short, the evidence suggested shallow, mindless thinking rather than any depth of reflection on the pros and cons of different ways of approaching the problem.

Doing the first thing that comes into one’s head and failing to undertake research on alternatives is not always disastrous. Some who marry the boy or girl next door without exploring alternatives (or who live in cultures where marriages are arranged by their parents) end up blissfully happy, in part due to their (or their parents’) long-term knowledge of the other party. In markets for goods and services, failure to shop around does not always result in needlessly poor deals: so long as a big enough proportion of customers actually does search industriously for good deals, competitive pressure may ensure there are no terrible products or products with woeful value for money.

In the mobile phone plan choice experiment, disastrous outcomes typically resulted not from plunging into the task in a mindless way but
from insufficient vigilance in respect of the task remit’s requirement that the chosen plan had to be a ‘prepaid’ product and/or from poor knowledge of differences between types of mobile phone plans and how unit charges are applied. In the face of information overload, it was easy to get sucked into looking at non-prepaid products via their attractive headline prices and then to forget to check that they were indeed prepaid plans. Some participants evidently ended up recommending non-prepaid plans because they construed ‘monthly’ plans as being the same as ‘prepaid’ ones: certainly, a ‘monthly’ plan, like a ‘prepaid’ one, does not involve contractual lock-in, but if usage levels exceed the amount permitted by any up-front purchase of ‘included value’, a bill for the excess usage would follow rather than the service terminating until a new block of credit had been purchased. Many participants’ cost calculations went awry due to failures to understand even the basics of call charges, which commonly involved an initial fixed cost in the form of a connection fee, with calls being timed in 60-second blocks rather than on a per-second basis. (Our participants commonly operated as though the call blocks were applied to total call minutes over a month, not to each individual call.) Even with simple-minded search, it was still possible for some participants to find the cheapest plan or one of its close rivals.

It needs to be emphasized that limited search can arise for reasons other than time pressure or cognitive shortcuts. A particularly interesting case in psychological terms concerns products whose purchase is seen by consumers as an occasion for embarrassment. Such cases may arise where consumers fear making fools of themselves by revealing their lack of expertise or where the products relate to bodily functions or activities that are not seen as appropriate to raise, even implicitly, with strangers. Waterson (2003) provides a telling case in point, namely, the competitive shake-up that occurred in the UK condom market when these products were moved on to open shelves in pharmacies and hence no longer entailed prospective buyers to ask at the counter to see alternatives. Before the change of policy, the embarrassment factor favoured the dominant brand Durex, which had become practically a synonym for the product, and many buyers would have been hard pressed to name alternatives. Even today, in the open-shelf environment, we might expect prospective buyers of condoms not to study rival packages at length due to concerns about how they might be construed by onlookers.
A variant of the strategy of selecting the default option rather than finding and examining alternatives is to give our custom to a supplier we have previously used. We may do this where the problem to be solved is that we are running out of supplies that we have previously purchased, or we need a similar kind of service to one previously purchased from the supplier (as with the services of our regular doctor, dentist, lawyer or car mechanic), or even where we need to deal with the shortcomings or demise of an existing product that we purchased from the supplier (for example, by replacing a deceased Apple laptop with another Apple laptop). In effect, the supplier previously used in that area becomes our default supplier.

Failing to consider any alternatives in these situations may sound like a very sloppy form of satisficing, and sometimes it is. Indeed, in the third kind of case, we are failing to punish the supplier whose product has become problematic; thereby we run the risk of giving the supplier an incentive to design products that will go obsolete or are less physically durable than they might have been. To keep us coming back for more, such suppliers merely need to ensure that their products and services meet our criteria for ‘good enough’: for example, if we get at least five years of service out of an Apple laptop before it suffers a catastrophic failure, we may be satisfied with its longevity. However, although repeatedly using the same suppliers can sometimes cost us dearly, it can often be an effective, ‘fast and frugal’ way of operating. Given the uncertainties here, the wise customer may be one whose decision routine includes periodically seeking alternative quotations to check whether the usual suppliers are keeping their offers in line with their rivals, then sticking with them if they are competitive but challenging them, or exiting from dealing them, if they are not.

In traditional economic analysis there is no basis for preferring one supplier to another if both offer the same price and quality combination. This appears to imply that relative market shares in competitive markets are indeterminate where firms are offering identical deals. On this view, market shares could be transformed by very small differences in relative prices and product quality, which would then invite retaliation. Attachment to a supplier is viewed as a kind of enslavement caused by the presence of ‘switching costs’ or lack of knowledge about the probabilities of doing better by switching. Switching costs may arise due to the costs of seeking quotations from other suppliers and setting up new contracts, the costs of learning to deal with somewhat different products and/or their suppliers, and the costs entailed in integrating an alternative
product into a system of complementary products (for example, changing a computer may also necessitate purchasing new software and/or peripheral equipment). The unknown probabilities problem—formally referred to as the ‘two-armed bandit problem’ but partially captured in the everyday expression ‘the risk of jumping out of the frying pan into the fire’—will persist if we fail to experiment with alternative suppliers to build up evidence about how reliable they are at satisfying our needs. However, in the absence of such costs or any reluctance to switch that is caused by uncertainty in respect of untried alternatives, the traditional approach portray buyers as if they are economically promiscuous, ready to switch to wherever they can get the best bang for their bucks.

Things look rather different from an evolutionary perspective: although the enslavement scenario may indeed apply for some contexts, re-buy tendencies often signify mutually beneficial long-term ‘goodwill’ relationships between buyers and suppliers, rather akin to de facto spousal relationships. As with human relationships, things do not always run smoothly in these business relationships: sometimes the supplier causes disappointment or falls behind relative to competitors; sometimes, the customer seems to be a nuisance (for example, by asking at short notice to change an appointment or the specification of what is to be delivered). But the crucial thing is that over the long term both parties judge they are getting satisfactory returns from doing business together. Having formed a relationship, they will be willing to give the other party some kind of credit—in other words, to ‘cut them some slack’—on the expectation of reciprocal treatment at a later date, should the need arise. Although the examples in this section focus mostly on business/consumer (‘B2C’) rather than business/business (‘B2B’) goodwill relationships, it is the latter that dominate in terms of the value of transactions that they affect (as emphasized by Andrews, 1964). In some countries such relationships have been vital in facilitating structural adjustments as market conditions change, as with the two-way relationships between giant Japanese firms and their suppliers, discussed by Ronald Dore (2012) in his aptly titled book Flexible Rigidities.

Long ago, based on their deep knowledge of real-world businesses, Alfred Marshall, (1890) and Philip Andrews (1949, 1964) argued that the ability to cultivate such relationships is vital for the long-run growth of a firm. There are two main reasons for taking their perspective seriously even in today’s globalized world of more aggressive shopping.

First, initial transactions often are not made at random but as a result of network interactions between new customers and those who are willing to share their experiences. This can be compounded by ‘herding’ effects, whereby quality and value for money are assessed on the basis of which
supplier already has the most customers. Although, once attached, customers are potentially vulnerable to having their inertia exploited, the costs of replacing disaffected customers—who may share their dissatisfaction via their social networks—provides a powerful incentive to keep one’s established clientele happy. If an initial transaction or subsequent transaction is a failure, many more transactions may be lost over many years.

Secondly, sticking with satisfactory suppliers can have significant benefits beyond those associated with avoiding the costs of searching. By repeatedly dealing with a supplier, customers enable the supplier to acquire better knowledge of their needs. This will make it quicker to diagnose and solve customers’ problems and even to anticipate their needs and know when particular innovative products will be worth drawing to their attention. Being confident of a regular flow of business from particular customers will make firms more willing to take risks associated with investing in assets specific to supplying those customers. Priority service may also be available when it is required at short notice: a customer known to be a ‘regular’ can be dealt with at less cost than an unknown prospective customers who has not yet established any loyalty and who might merely be ‘passing through’ rather than a definite long-term prospect.

Given these benefits, there is good reason for customers not to sever relationships with suppliers after a disappointing transaction. As Hirschman (1970) emphasized, by ‘voicing’ their dissatisfaction and giving the supplier another chance, rather than simply ‘exiting’ to rival firms, regular customers both let the firm know what it must correct and help ensure it is in a position to invest in making the required improvements. In a world of change and human fallibility, firms will suffer from lapses of performance from time to time but satisficing decision processes whereby customers cut them some slack help ensure that the market does not de-select firms that would have been able to perform well enough in the longer term. Being loyal despite a disappointing transaction may thus be rational, though after a run of problems the evidence may imply it is time to shop elsewhere.

It should be emphasized that often when clients give suppliers their goodwill, they are not doing this in a one-eyed manner or presuming that the supplier is necessarily going to be the one they will stick with in the longer run. Where there is scope for suppliers sometimes to cause problems, it is wise to diversify when sourcing products and ‘not put all one’s eggs in the same basket’: for example, a police service typically will source its vehicles from several manufacturers in order to limit the disruption of having vehicles off the road due to a product recall. In B2B
relationships, a major customer may keep giving most of its business of a particular kind to its preferred main supplier (such as its regular advertising agency) whilst also giving smaller blocks of work to up-and-coming new players. In this way, it signals to the established supplier that it is not to be taken for granted, whilst also developing knowledge of the capabilities of the aspirant long-term suppliers by seeing how they handle the crumbs of business that it feeds to them. By this kind of limited diversification in its choice of suppliers, the firm limits its vulnerability in the event that things fall apart with the main provider and it needs a trustworthy replacement in a hurry.

Just as B2B goodwill relationships are sometimes polygamous, so B2C brand loyalty often involve a degree of economic polygamy (Ehrenberg and Scriven, 1999). Over the long term, our needs and wants change and as suppliers’ capacities to meet them evolve at different rates, Because of this, we may flip back and forth from time to time between a rather small set of rival suppliers. We are not loyal to just one brand but we limit our search by not being open to all. Thus, for example, owing to a focus on reliability, we might be loyal to Japanese car brands and at various times buy the products of Toyota, Nissan and Mazda, without for a moment considering their European or Korean rivals. If so, the only way we may end up rethinking our loyalty is via seeing the experiences of members of our social network with their new VWs and Fords, if anyone we know buys them, or by being forced to drive Kia and Hyundai products when we have to rent cars and thereby discovering how good these brands have become.

3.7 CREATIVE THINKING

A distinction needs to be drawn between external search activities—such as investing time in gathering information via the Internet, visiting retailers or getting prospective trades-people to come and give quotations—and internal search, where we look for solutions within our minds. The need for external search can be reduced if we take time to trawl through our memories in search of products and suppliers that could help solve the problem we have perceived. But internal search may also entail thinking creatively to form new constructs about the kind of product that an entrepreneur might have thought of supplying (possibly for a different application) that might solve the problem we have recognized. When we use our imaginations in this way, we are thinking like an entrepreneur by constructing new conceptual connections (see
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Earl, 2003)—new, at least to us, though they might actually be original and even be the basis for us to consider starting a business.

For example, suppose our problem is that of weaning an elderly relative on to using a mobile phone so that we have a back-up way of staying in touch now that her traditional landline phone has been replaced by VoIP service whose reliability we doubt. Previous attempts to get her to use a mobile phone have failed because she seems incapable of learning how to keep its battery charged and cannot deal with its interface due to the keys being too small or her resistance to using a touch screen. We think for a while and then realize what we need to find: a mobile phone that is just like her cordless landline phone in terms of size and operating interface and which has a dock for charging. This is not like the seniors’ phone we have previously seen. However, having used our imagination to envisage the kind of product that might be ‘out there’ due to an entrepreneur envisaging it, we can now conduct a more focused search. Such a search may then lead us to the Olitech Easy Mate Plus, which is exactly what we had imagined might exist (even better, actually, since it also features a programmable emergency button, which we had not thought of hoping to see included).

The human imagination does not create constructs from nothing. Rather, we do so by using existing constructs from our repertoires and splicing them together in a process that Koestler (1975) labelled ‘bisociation’. From a rather limited initial set of constructs we can, if we put our minds to it, develop a huge array of more specialized ones, rather in the way that we can use a few dozen letters of the alphabet as elements from which to construct thousands of different words (Shackle, 1979). The ideal seniors’ phone that we imagine splices together aspects of a cordless landline phone and something like an iPhone that can be charged on a dock, but not the iPhone’s user interface or vast array of capabilities. These elements were themselves created in a similar kind of way (a cordless phone brings together elements of a traditional landline phone, radio technology, a battery charger and rechargeable batteries), building on earlier integrative thinking that pulled together elements from yet earlier exercises of the imagination (the cordless phone builds on the traditional phone, a device that brought together electricity, a system of wiring, a microphone and a loudspeaker), that built on a variety of even earlier connection-making thoughts. In other words, it’s constructs all the way down, until the foundation constructs (such as sound and distance) that enabled us to start using our imaginations as infants.
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3.8 MARKET-ASSISTED CHOICES

When we use our imagination and memory to find solutions to problems, we are being self-reliant. For this strategy to be effective, we need appropriate experience and a capacity for making mental connections in the area in question. In contexts where we are short of these capabilities, we may often be able to outsource all or part of the decision-making process to those who have superior expertise or operate as hub-like intermediaries. In the terminology introduced to economics in Earl et al. (2017), instead of making ‘self-reliant choices’ (henceforth, SRCs), we may opt to make ‘market-assisted choices’ (henceforth, MACs) as a means of finding better options and identifying them as such. Typically, choices involve a mixture of do-it-yourself and calling upon assistance from the market, but the extent of the mixture and the form that market assistance takes varies with the context of choice.

To appreciate the notion of market-assisted choices properly, it is necessary to think of markets in the way suggested by the leading institutional economist Geoffrey Hodgson (1988), namely, as collections of social institutions that facilitate streams of transactions of particular kinds. In turn, a social institution should be seen as any social rule or source to which we habitually head, or are advised to head, ‘as a rule’ for help in finding solutions to a problem. In today’s world, such institutions include not merely Internet search engines such as Google and online knowledge hubs such as Wikipedia, but also trusted product-specific sources of information and knowledge. The latter, in turn, consist not merely of for-profit product comparison sites and websites of trade associations but also government websites, newspapers, magazines and other media that host advertisements and report on, or review, particular kinds of products; consultant and sales personnel in retail stores; and expertise sourced via social networks such as Facebook.

The SRCs/MACs distinction grew out of an earlier, more radical notion proposed by Earl and Potts (2005), namely, that the idea that there are benefits to be had from the division of labour might usefully be extended from the production side of economic analysis to the preference side. A division of information and knowledge is inevitable in a world in which the set of products keeps changing, where consumer enter markets infrequently and are pursuing different ends but are all constrained by finite time and cognitive capacity. In its most extreme form, the market for preferences idea extends as far as outsourcing the choices that we make, rather than merely outsourcing inputs into making those choices. This extreme is likely where our preferences exist only in a very basic sense and we have very poorly developed means–end chains—for
example, when we ask, ‘What sort of superannuation plan does someone like me need to have?’ or ‘What shall I do when I retire?’ or perhaps, the even more basic question, ‘How can I achieve happiness?’ Clearly, there must already be some basic means for choosing, for multiple sources of assistance may be used: if sources differ in the answers they supply, a choice will have to be made about which, if any, of them to use as a basis for choice.

A market for preferences is rather odd in that, unlike a typical market, transactions need not involve any payment to the supplier of information and ‘if–then’ suggestions. For example, someone who provides assistance might merely receive a brief but personal ‘Thank you’ message or some kind of socially standardized token reward such as a bottle of wine whose price is well short of what one might have been able to earn in the time it took to provide the assistance. Those who post review on online sites such as Amazon.com typically receive nothing beyond, at best, an automated ‘Thank you’. The seemingly one-way nature of the interaction in these cases begs the question of why so many people give their time so freely in posting reviews and helping others to shop in areas where the latter have less experience and/or expertise.

The standard training of economists predisposes them to see the solution to this puzzle in some kind of long-run incentive that is associated with reciprocal behaviour. If we fail to make our expertise available today, we might find that others in our social network do not come to our assistance tomorrow when we could benefit from their expertise. In some contexts, the interaction is entirely anonymous but there is an intermediary who keeps tabs on who has be contributing. An academic journal operates in this way: those who want to get their work published in a particular journal would probably aim to avoid alienating its editor by repeatedly declining requests to referee the work of others. A conventional economist might view those who post online reviews not as operating altruistically but as deriving utility from being able to be seen as owners of the products they review, and from getting good ratings in terms of number of views of their YouTube video reviews or for how useful their review was relative to those posted by others about the same product. Many reviews come from disgruntled consumers and hence simultaneously signal what they could afford and the fact that they acknowledge they made a poor choice. Here, one might presume the utility comes from punishing the supplier by reducing its sales, as payback for the supplier’s failure to compensate them for their bad experience.

Such perspectives may indeed be worth taking seriously, but we may be able to go much deeper by assembling an evolutionary perspective on
this behaviour (see also Simon, 1992, 1993, 2005). If operating in an altruistic manner benefits a social group, whatever it is that drives the altruistic behaviour will have a bigger chance of being retained and passed on to subsequent generations. A relevant trait here is what Csibra and Gergely (2011) have called ‘natural pedagogy’—in other words, part of being human is a programmed tendency to try to share our knowledge with others. The driving force could be a genetic mutation, for example, something that hard-wires the brain so that a person ‘cannot bear the thought’ of someone else going through what they have been through. For example, if you are gluten intolerant, you may remember what it was like to try to cope with the task of buying groceries and eating out when you were first diagnosed, and it is that memory that makes you willing to volunteer to help someone who has just been diagnosed with the same condition. But altruistic behaviour may also be the result of people picking up altruistic norms from the societies in which they grew up, as part of the moral code according to which the society operates (cf. Smith, [1759] 1976). We may thus ‘do unto others as we would have them do unto ourselves’, and contribute to ensuring that this rule gets passed down to future generations. Cultural practices may also be conducive to being open to taking advice, as in societies where there is respect for the wisdom of elders.

Decisions about the extent to which the process of searching for alternatives and gathering information is worth outsourcing, and to whom, entail issues that arise in the literature on industrial organization that addresses firms’ outsourcing choices. Internal provision and outsourcing both carry risks. As Williamson (1975, 1985) stresses, a contractor may guilefully exploit one’s lack of knowledge, making the most of contractual ambiguities. Anxiety about such possibilities and how disputes might be handled may be enough for decision-makers to rule out the possibility of getting quotations from other parties. On the other hand, as Richardson (1972) emphasized, a do-it-yourself strategy could merely be the starting point for further problems due to a lack of expertise (for an empirical application of this quandary to home improvement/renovation decisions, see Peng, 2013). But the expertise issue also arises with outside suppliers: they may be over-confident about their ability to tackle our problem, with difficulties ensuing that reflect their incompetence rather than anything devious.

For-profit product comparison sites often face a potential conflict of interest: if they do not charge the users of the information they make more readily available, they may be raising their revenue by charging the suppliers whose details they are presenting to the users. Similarly, consumer magazines that are brutally frank about the shortcomings of
particular products run the risk that the manufacturers of these products
could withdraw their advertising. Consumers will therefore need rules for
judging the trustworthiness of such sources. Finally, note that those to
whom our social networks point us may have unwarranted confidence and
reputations for expertise that are far more glowing than they deserve.

Because of these risks, it may be wise to use multiple sources when
making MACs. But here we run into the same question that we run into
when getting quotations in a self-reliant way: how many is enough? The
experiment on mobile phone plan choices added a fresh dimension to this
puzzle, for it revealed that the payoffs to using comparison sites varied
depending on how competently the participants in the experiment used
them. Choices could go awry because the sites themselves were rather
complicated: their features (such as calculators and search engines) could
be buried on linked pages or not noticed on pages that were examined but
which contained too much information. Consequently, there were payoffs
to limiting the number of sites visited and focusing instead on learning
how to make more effective use of those that one did visit.

3.9 PROCEDIRAL RATIONALITY WHEN SEARCHING

Human tendencies to engage in very limited search become easier to
understand if we reflect on them in evolutionary terms, especially if we
recognize that what mattered for the success of humans as a species was
the mix of decision-making approaches across the population. An obvious
basic point is that societies in which people paired up without taking
years to find a partner that suited them perfectly were more likely to
experience rapid population growth. Secondly, very limited search
sometimes was actually vital for survival, because it ensured quick action.
The kind of response systems that enabled our distant ancestors to escape
predators and other pressing sources of danger still come to our
rescue today, even though the emergency may be caused by, say, a
vehicle rather than a lion. These systems prevent the kind of decision
paralysis that may beset a deer that is looking at the headlights of an
approaching car. However, the successful evolution of humans has also
depended on them not treating all occasions for choice as emergencies.
Being able to do this effectively, rather than acting like, say, chronically
frightened birds, gave humans the confidence and time sometimes to
‘think slow’, enabling them to search for alternative strategies and to
create new ideas rather than just working with familiar possibilities.

Like their ancient ancestors, consumers and business decision-makers
need operating systems whose rules ensure they rarely behave
impulsively when there is no actual emergency, or get obsessed with finding better solutions when there are none to be found or where the payoffs to search are trivial compared with the effort entailed. They also need to be able to get an appropriate mix when using their capacities for creative thinking: although creative thinking about what might be possible may limit our vulnerability to nasty surprises, it consumes attention and can be dysfunctional if it gets in the way of thinking about things we might be able to do to improve on our existing position rather than merely making it more impregnable. Thus although we might, from a Schumpeterian standpoint, appreciate why Intel boss Andrew Grove entitled his (1996) autobiography *Only the Paranoid Survive*, we would be wise to keep North Korea in mind as an example of how the allocation of attention can go badly awry.

People who make few errors in classifying problems and in matching problems with effective mixes of defensive and progressive thinking deserve to be classified, using Herbert Simon’s (1976) terms, as engaging in ‘appropriate deliberation’ and hence as being ‘procedurally rational’ in the long term. Those who lack this basic capacity and either make random associations between ways of choosing and occasions for choice, or who repeatedly choose in the same way in diverse settings, are prone to end up as clients of clinical psychologists. Among these problem cases will be not merely those suffering from paranoia but also those who get diagnosed as suffering from an ‘obsessive–compulsive disorder’, due to their limited zones of tolerance for departures from their views of how the world ought to be; other problem cases may include those whose lives have got into a mess due to them repeatedly failing to consider alternatives, or due to them procrastinating so much that opportunities repeatedly slip away.

When trying to develop policies to improve the quality of decision-making, our focus will normally be on what is ‘appropriate deliberation’ for a particular class of decision-makers in a particular context. Sometimes, we can begin to answer this question deductively, by making an informed critical assessment of the appropriateness of alternative ways of searching for solutions to a problem. Consider, for example, the problem that some participants in the mobile phone plan choice experiment ran into regarding getting unit prices for international SMS messages. Often, these figures did not stand out readily amongst a mass of other information on providers’ web pages but sometimes the providers had simply failed to list them. Logically, an appropriate strategy for finding such data, if they are on a web page, was to use the browsers ‘find’ capability. But if this produced no results it could be perfectly reasonable to assume a typical value based on unit charges of other
providers, on the basis that the usage remit included only a handful of international SMS messages per month: even a significant percentage error in their unit costs would be unlikely to have a huge impact on the overall cost of the plan in question. With only an hour at their disposal, it would not be appropriate for participants to spend several minutes trying to find such a figure for a single plan by repeatedly scrolling on many of its provider’s webpages—yet this is what some participants did.

Unfortunately, it may be impossible to think about the choice problem from first principles in this kind of way in respect of more central issues. For example, if one faces an alphabetical list of potential suppliers, is it more appropriate to sample from the list at random or to spend the same amount of time working down in sequence from the top of the list, or up from the bottom? Should we assume that the top of the list contains a preponderance of poor-value suppliers who choose their brand names (e.g. ‘AAAA Pest Management’) in order to snare those who will, via their normal cognitive rules, begin at the top of the list and work down? Were this the case, the appropriate decision rule might be to begin with the first firm whose name sounds like it is not deliberately trying to pitch itself at the top of the list (e.g. ‘Accountable Pest Management’, or, perhaps better still, ‘Adam Friedman Pest Management Services’). In such cases, the appropriate way to proceed would need to be resolved empirically, not from first principles.

An alternative potentially useful starting point for uncovering what constitutes ‘appropriate deliberation’ in a context of interest is to study the systems of rules that experts in the area use. These systems may never become optimal, or be capable of being identified as such if they happened, via iterative adjustments, to do so. Moreover, different experts in a given area may have different operating systems. But they provide benchmarks from which others might be able to learn better ways of choosing. There is, however, a problem with assessing procedural rationality in this way: what an expert might do when checking for a problem and trying to find solutions may not be feasible for the non-experts in the context in which they have to make their choices. Two issues are particularly noteworthy in this respect.

First, there is the ‘tacit knowledge’ problem that Nelson and Winter (1982) introduced to economics via the work of Polanyi (1962, 1967). The experts may be unable fully to articulate how they go about sizing up problems and finding solutions. In common parlance, they cannot explain their ‘knack’, having picked it up over many years with aspects of it being unconscious. The expert’s way of operating may seem to be ‘intuitive’ or based on ‘gut feelings’, whereas what the policymaker needs—and hopes people will come to use—is a set of specific rules and routines. This
dichotomy is often the stuff of TV detective drama series, where the ‘old school’ detective operates ‘intuitively’ in the search for the solutions to crimes and thereby keeps running into conflicts with the ‘new guard’ senior management for failing to follow official procedures. We will consider ‘intuitive’ behaviour further in the next chapter.

Secondly, there may be differences between experts and non-experts in the time and resources they have available. An operating system that works brilliantly in the expert’s usual environment is not guaranteed to work in a less resource-rich environment of a supposedly similar kind. This is a variation of a problem that is commonly observed, whereby ‘experts’ impose wasteful policy ‘solutions’ on populations without properly understanding the realities of the situations with which the intended beneficiaries have to deal. It may actually be the case that lay decision-makers have much more effective coping systems than external specialists; if so, our focus needs to be on finding what the more successful decision-makers do in that environment.

If appropriate deliberation is to be inferred by studying what actually works in the context in question, we need to proceed in a statistical manner, using a suitably large sample of data from research subjects who differed in the quality of the choices they made; we should not simply look at the best performers and advise that everyone should do what they did. The reason for this is that the success of the top performers may be partly due to luck despite making mistakes: if their strategies were applied in slightly different contexts, luck might not be there to offset their strategies’ shortcomings. (This is an issue often overlooked by those who write books for business executives about the things that ensured the success of top firms at a particular time.) In the case of the mobile phone plan choice experiment, the few subjects who succeeded in identifying the cheapest plan for the remit (2 of 21 offline participants, 1 of 20 online participants) all did so despite making errors of some kind (in fact, a veritable catalogue of errors in the case of the top-performing online subject). With a different remit, there is no guarantee these participants would have been the best performers.

To arrive at a statistical view of appropriate deliberation in a particular context, it is necessary to study behaviour in a fine-grained way, tabulating things that some research subjects did that others did not. The next step is to examine how the presence/absence of particular kinds of behaviour correlate with a measure of the subjects’ success in the task in question. In the experiment on mobile phone plan choices, Lana, Chris and I constructed an inventory of over 50 contenders for things that it might be appropriate to do. The statistical analysis revealed that the great majority of them made little different to the quality of the outcome. But
we discovered that being able and willing to call upon the services of product comparison sites did improve choices, and that there were payoffs to spending major blocks of time using (and thereby getting used to) one or, better, two comparison site(s) rather than trying to use many different sites. Another predictor of the relative quality of choices was how long participants were into their allocated hour before they calculated a complete total cost reference point, on any plan, for meeting the usage remit. Those who delayed doing this, or never did so, and tried informally to assess whether freshly-sighted plans were cheaper or dearer than plans they had been looking at previously were prone to make poor choices. This was so even if their ‘eyeballing’ technique meant that they had a quick look at the offers of a larger number of providers.

It may not be possible always to use such fine-grained research techniques to arrive at a picture of what constitutes ‘appropriate deliberation’, or even, say, the kinds of things decision-makers need to do/avoid doing if they are to end up in the top half of the population in terms of not wasting money or on any other performance measure. In the case of mobile phone plans, consumers in the real world may have a poor idea of their usage, even if they have good recollections of how they went about finding the plans that they chose. Hence if we were to try to assign them to narrow usage bands there would be a big chance of putting them in the wrong group and getting misleading results.

Assessing how procedurally rational people are is also problematic where products serve multiple ends that different consumers value somewhat differently. For example, suppose we were trying to understand what constituted procedurally rational search choices when buying a car. Here, search strategies could affect both whether people end up choosing a vehicle appropriate to their needs, and whether, given what they buy and what they trade in, they end up finding a good deal. In respect of the former, we might at best be able to classify buyers as having succeed or failed to search the market adequately on the basis of whether or not they ended up purchasing vehicles that were dominated on all relevant dimension or that expert testers rated as worse than average, overall, for that class of vehicles. The ‘good deal?’ issue centres on a monetary value, as in the mobile phone plan experiment, but it could be hard to study due to the enormous set of possible purchases/trade-in combinations and uncertainty about quality differences between vehicles.

Finally, it should be reiterated that we should not presume that the best thing for a population of buyers in a particular market is that they all adopt the search strategies that are used by those who consistently find the best deals. To be sure, a market may need to have a sufficient number of canny shoppers in order to provide incentives for suppliers to compete.
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keenly. However, if such a situation prevails, the quality of deals that the bulk of the less canny shoppers use may not fall far short of their more canny counterparts. If the less canny shoppers are using faster search strategies, they might not judge it was actually worth the extra time to achieve better deals. Moreover, if everyone started searching in the same way, the supply side of the market might adapt, changing the nature of appropriate deliberation in that context.

3.10 CONCLUSION

Economists traditionally focus on price as the key factor that determines which transactions take place to balance the forces of supply and demand or to coordinate imbalances between these forces. It should be evident from this chapter that their focus is fundamentally misleading. For a product to get purchased it must first be discovered by potential buyers and recognized by them, or by those who assist them in the process of choice, as a potential solution to a problem they are trying to solve. Offering a lower price or better value for money does not win a sale if potential buyers use search strategies that leave them oblivious of products that would have served their needs more efficiently than any of the products they end up considering. Hence, if we want to understand how, and how well, a market works, it is vital that we understand how buyers construe problems and search for solutions.

This chapter has pinpointed some of the key issues that confront decision-makers when they are trying to do this, and has argued that these issues ultimately have to be dealt with by applying rules. Even though decisions about searching might superficially appear to be acts of constrained optimization, involving the weighing up of prospective costs and benefits in the face of limited time and cognitive power, logic dictates that they are built upon rules that call a halt to inherent infinite regress problems. We logically have to operate in a satisficing manner, contrary to the core presumptions of traditional economic thinking, unless we are dealing with simple, closed problems. The evidence suggests that people often could readily be doing much better by using different search rules (see Grubb, 2015b). However, search based on simple rules and routines can also be far more efficient, if the rules and routines are appropriate, than time-hungry strategies that involve gathering and processing huge quantities of potentially relevant information.

Implicitly, to use the title of John Hey’s (1982) experimental study of search behaviour, we have been on a ‘search for rules of search’. But we have not ended up with a definitive list of general-purpose ‘how to’ rules.
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for conducting search. Although our general message is that search is rule-based, the rules that are appropriate for search for solutions to problems are place-, population-, time- and product-specific. This point is especially significant in the Google age where our search results and their rankings depend on previous searches by untold numbers of other searchers and the links to which the latter then clicked.
HOW DO WE EVALUATE OUR OPTIONS AND FORM EXPECTATIONS?

4.1 INTRODUCTION

This chapter examines the processes by which people assess alternative search strategies or products and courses of action that they have already discovered or imagined. These assessments necessarily entail forming expectations, for we make up our minds ahead of receiving a service or using goods that we have chosen: the current state of something is significant only insofar as it seems capable of affecting how it is going to serve us if we select it. Since we cannot be sure what the consequences of particular choices will be, our expectations are best viewed as hypotheses about how aspects of the world will unfold in the future, e.g. about the usefulness of a particular search strategy, the quality of the photographs we will get if we buy a particular smartphone and use its camera, how many units we may sell in the next 12 months if we put a particular price on a product, or what our electricity bills will be after we have had solar panels installed.

Having recognized that hypothesis construction lies at the heart of the subject matter of this chapter we should recall George Kelly’s (1955) contention, introduced in section 2.9, that it may be useful to view people ‘as if they are scientists’. From Kelly’s standpoint the processes of evaluating options and forming expectations entail constructing mental models that characterize each option in terms of where it stands on a set of axes, some of which will refer to how well it is expected to serve as a means for addressing the problem that triggered the decision cycle. These axes may be binary (either/or) or take the form of dichotomous scales on which we rate the prospective performance of our options and other consequences of choosing them. These construct axes can include dimension for characterizing the extent of our uncertainty about how an option might serve us if we choose it.

We commonly collapse scalar constructs into binary form for cognitive simplicity. For example, if we are in the process of choosing a
we may have looked at fuel economy figures for the vehicles we are considering and yet end up thinking of them in terms of the construct ‘gas-guzzling versus economical’, somehow drawing an arbitrary line between the two categories. Some scales seem only to permit ordinal rankings (for example, Brand X looks harder to use than Brand Y but easier to use than Brand Z), whereas other scales permit numerical scores to be assigned. However, if asked, we can usually turn either kind of assessment into a rating on a 0–10 scale.

As we saw in section 2.10, by employing Kelly’s Repertory Grid Technique (RGT) it is reasonably straightforward to find out which axes people use when construing their options in particular situations. However, a repertory grid does not tell us how our research subjects came to be using particular construct axes or how they go about locating their options on these axes. It is these issues that this chapter attempts to analyze, rather than simply presuming, falsely, that the capacities of particular products to serve to means to unmet ends are self-evident.

How challenging decision-makers will find the process of evaluation is partly a function of the information they have at their disposal. In this chapter we will follow information economists in divide products into three categories according to the challenges they pose for buyers who are trying to make well-informed choices. Search goods are those for which decision-makers can gather all the information they want prior to making their choice, whereas experience goods are those whose properties can only be fully discerned after they have been purchased. In the age of the Internet, many products that would previously have fallen into the experience good category can be viewed as search goods because prospective buyers can now get much more detailed specifications of them online than sales assistants might have provided, as well as being able to read reviews posted by previous purchaser, watch demonstrations on YouTube and download owners’ manuals to find out what is entailed in using them to full effect. However, if buyers opt to limit their search costs, products that theoretically can be viewed as search goods in practice become experience goods.

The third category, credence goods, pertains to products and services whose qualities cannot be fully discerned by purchasers even after they have paid for them. Buyers of such good have therefore to trust that they will be served appropriately but they risk being over-serviced, i.e., being talked into paying for things that did not actually need to be done, or of being under-serviced because they are unable to verify that what they paid for was actually delivered. In some cases, buyers might end up being simultaneously over- and under-serviced, as when an automotive service centre manager convinces customers that their vehicles should have an
unnecessary change of brake fluid in addition to the routine service items, and then bills them without asking the mechanics to do the work.

But the challenges entailed in assessing alternative products or strategies should not just be viewed as problems of information that is inherently unavailable or overly time-consuming to gather. Decision-makers need relevant knowledge if they are to seek relevant information and draw appropriate inferences from it. With much knowledge that is applied to choices being the result of experience following previous choices, the case for making the growth of knowledge a focal area for analysis in economics is very strong. Yet many economists—like students who expect that they should be able to do well in examinations if they can answer questions by regurgitating lecture notes that they have learnt (or rather, stored) verbatim—fail to see the difference between information and knowledge. The distinction lies at the heart of this chapter but the ‘growth of knowledge’ theme continues throughout much of the rest of this book.

4.2 THE PROCESS OF COGNITION

The process of forming evaluations and expectations begins with incoming stimuli from our search activities, our social environments and advertising, along with our internally generated ideas about what we may be able to do. It ends with the evaluations and expectations being stored in our brains as networks of neural connections. In this section we explore what goes on during the process and what it means for the kinds of evaluations and expectations that we form. The analysis presented here draws particularly from three Nobel Laureates—Daniel Kahneman, Friedrich Hayek and Herbert Simon—plus the writing of Arthur Koestler (1975, 1979) that were mentioned in Chapter 3. Of the three Nobel Laureates, Kahneman is the one with the smallest inspirational role, for his (2011, pp. 11–12, chapters 4 and 22) writing about the ‘associative memory’ and intuition mainly reinforces the message drawn from earlier work by Hayek and Simon. From Simon, we take the idea of the mind as a complex system that uses systems of rules, rather like computer programs, to solve problems, in this case the problem of evaluating rival options. Hayek’s role here may be a surprise, for he is best known for his writings on how market economies work and why they work better than socialist systems. Few economists are aware that in his 1952 book *The Sensory Order* Hayek proposed a theory of how the mind works as a complex system of neural networks. Hayek’s book has come to be
recognized as a prescient contribution to neuroscience and is a key source for economists who take the information/knowledge distinction seriously. It has lately begun to attract interest from behavioural economists (see Loasby, 2004; Butos, ed., 2010; and Frantz and Marsh, eds., 2013). Hayek’s theory of cognition, which he originally devised in the early 1920s, is consistent with—and probably affected—his subjectivist approach to economics in which market signals do not contain self-evident messages but have to be interpreted.

Memory-based pattern detection
To begin, let us consider what happens where we are not actively looking for anything in particular but are nonetheless encountering sensory stimuli, such as when we are idly gazing out of the window of a bus as it passes business premises, billboards, cyclists, parked car, and so on. Our retinal cells receive visual stimuli from these objects and send signals along our optic nerves to our brains, which figure out what we are looking at. If we pass, say, a McDonald’s restaurant we are likely instantly to know what we are looking at, even if we have never previously been along this particular stretch of road. Moreover, we are also likely instantly to associate it with particular attributes that are not currently visible (in my case, for example, with alleged copious inclusions of sugar and salt in the burgers and with the lack of vegan or even vegetarian burgers on the menu). We take this for granted as adults, but it is not something that a newborn baby can do and neither can a digital camera do it even though it could capture much the same image as a set of pixels and then store it.

According to Hayek, we know what we are looking at because (a) cognition is based on past experience, stored as memories in the form of sets of neural connections, and (b) we know things in terms of patterns of associations between conceptual elements and objects, rather than as unorganized sets of stored sensory inputs. We know what we are looking at if, within incoming sensory stimuli, we can find patterns that match some of the patterns we have formed as means of characterizing things that we have previously experienced. Our instantaneous sense of what we are looking at when we see a particular McDonalds restaurant depends on us having previously encountered and characterized such restaurants as a set of relationships between objects and concepts (for example ‘the McDonald’s arches logo’ and ‘fast-food restaurant’, respectively). These elements in turn are similarly characterized as being constituted by other elements and concepts: for example: ‘fast’ may be viewed as ‘not taking much time’, with ‘time’ in turn being characterized with reference to minutes on a clock-face, and so on. A set of associations that we create to
characterize a particular object is essentially a rule for specifying how we construe this object.

Were we gazing out of the bus window as newborn babies, we would have very little idea about what we were seeing, despite having the same information coming to our sensory receptors. This is because we would have very few memories to use as templates for finding patterns in the incoming sensory data. Of course, we also would not yet have a language with which we could label and describe anything, but language is not essential for cognitive processes to work: the words that we come to associate with particular kinds of phenomena (including brand and model names) are essentially cognitive shorthand symbols that facilitate conscious problem solving, creativity and social interaction.

For newborn babies to start making more and more sense of the world around them they need to have some basic hardwired pattern and rules on which to build, and be programmed to experiment by creating new conceptual combinations and trying to find matches with them, rather than merely to try to find matches with those they already have. It is clear that other species do inherit some basic survival-enhancing patterns and rules, which we normally call ‘instincts’. For example, Tinbergen (1951) reports an experiment involving young geese and an ambiguous silhouette whose shape was chosen so that it roughly matched those of both a hawk (with a short neck and a long tail) and a goose (with a long neck and a short tail). The silhouette was moved above a pen that contained the young geese: if the direction of its movement was such that the ‘long tail/long neck’ were to the rear, the young geese ran for cover, as if they ‘knew’ by instinct that geese do not fly backwards and hence that they were looking at a hawk, which they were programmed to associate with danger.

The dependence of cognition on both stored cognitions and pattern recognition capabilities is evident if we reflect on the capacity of a digital camera as a cognitive device. A basic digital camera can capture as a series of pixels an image that we can see, and it can store it on the same memory card as perhaps several thousand other images. But what is stored is merely a set of data; it does not signify anything to the camera. However, more sophisticated cameras that embody artificial intelligence can detect particular kinds of patterns, which then trigger them to perform particular kinds of programmed operations. For example, face detection signifies the need to select a particular exposure setting, whereas in the case of a camera in a toll road scanning system, recognition of a vehicle registration plate within the photograph triggers search for more refined patterns within the frame of the registration plate, i.e., letters and
numbers. The sequence that is found is then checked against a database to determine whether to send an infringement notice to the vehicle's owner. Such object recognition systems work in a manner analogous with how our minds work, except that they have a very limited set of things they can recognize.

Because Hayek worked out his ideas long before such technologies existed he had to use a different analogy to make his argument about the significance of pattern recognition. He pointed out that in a mosaic, it is the pattern of the differently coloured tesserae that matters and in that sense a mosaic is more than just the sum of its tesserae. Whether we think in terms of pixels or tesserae, the implication is the same: cognition is an active process even when we are seemingly just gazing passively. Without having previously memorized the concepts of ‘bird’, ‘quacking’ and ‘waddling’ as being the key aspects of the concept ‘duck’, we cannot characterize a duck as a duck even if it is waddling, quacking and would be seen by others as a bird of some kind. In such a situation, stimuli from the duck may fire up neurons in our brain but the pattern of neurons does not correspond to any stored set that pertains to ‘duck’. However, if we already have memorized the concepts of ‘bird’, ‘quacking’ and ‘waddling’ and someone nearby utters the word ‘duck’, our brain can form the duck concept and store it for future use by combining the neural connection sets for the existing concepts, plus the one associated with the sound of ‘duck’. Next time we hear someone saying ‘There’s a duck’, this will activate a particular set of neural connections and we will know what to expect to see if we look for it.

It may seem, from what has so far been said, that the process of analyzing what a particular option that we are considering has to offer entails mentally disassembling it into a set of features. This sounds like the reverse of the process of creative thinking whereby we put together a vision of something by synthesizing concepts we already have stored in our memory. Yet the end product of analysis is actually similar to the mental outcome of creative thinking: in both cases, a new set of blended sets of neural connections gets stored in the memory. In this way, we can usually make at least some kind of sense of new products and new situations. Mostly, we do not end up as perplexed by novelty to the same degree as the audience at the premiere of Igor Stravinsky’s ballet *The Rite of Spring* in Paris in 1913. On that occasion, the complex, dissonant music nearly caused a riot. Stravinsky has broken the norms of musical composition and his audience merely heard a cacophony because they could not find the usual kinds of patterns in the incoming aural stimuli. In general, where incoming stimuli do not fire up sets of neural connections that match those that have been stored as memories of desired qualities,
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All we can really do is judge that the object in question is ‘utter rubbish’ (cf. Thompson, 1979).

*Finite attentive capacity*

The more we have stored in our memory system, the greater the number of patterns that our brain potentially could try to find within a set of incoming stimuli. Were the brain to search in an unsystematic, unfocused manner without any pressure to reach a conclusion it might find many matches that were of rather limited usefulness. The classic ‘Oscar Wilde Sketch’ from Monty Python’s Flying Circus shows how surreal characterizations can become if the imagination is allowed to range freely: in this piece of comedy, Wilde, Whistler and Shaw show off their wit to the Prince by successively accusing each other of likening him to a ‘big jam donut with cream on the top’, ‘a stream of bat’s piss’, and ‘a dose of clap’, all of which they try to justify in ways that turn out to be complimentary (see [http://www.montypython.net/scripts/oscar.php](http://www.montypython.net/scripts/oscar.php)).

The prodigious capacity of the human memory means that evaluation inherently entails a search process within the mind—even when what is being evaluated is itself a possible search strategy. As with any search process, cognition needs to be brought to a halt by a stopping rule that defines when a good enough impression of the object under consideration has been found, or by a focusing process that causes the brain to run out of options soon enough for the decision-maker to be able to move on to an adequate decision. In other words, cognition is necessarily a satisficing process. It is not like the process of trying to open a door with the aid of a huge, unorganized bunch of keys, with the door only opening if we insert exactly the right key.

Hierarchical decomposition is one means by which the brain can limit the probability of trying stored patterns that do not match up with information contained in incoming stimuli or in information that has been stored previously. This process is akin to the process of sorting mail. These days that task is truncated because an address normally includes a post (zip) code. However, in the absence of such a code, the sorter works up from the bottom of the address, thereby rapidly narrowing down where the letter has to go. Obviously, this will normally be far quicker than indiscriminately asking at one residence after another whether the addressee lives there, until someone answers in the affirmative.

Typically, the starting point for the focusing process is to frame incoming stimuli within a context. For example, in the context of gazing out of the window of a bus, there is no need for our brains to look for, say, fish or books on behavioural economics, for as a rule we would not
expect to find them in this context, unlike various kinds of vehicles, business premises, roadside trees, and so on. If our bus ride ends at a university campus, there will be a different set of phenomena that, as a rule, we will expect to see, and yet another set if the context then becomes that of a lecture theatre or a particular professor’s office.

A similar process of focusing comes into play when we are actively engaged in undertaking evaluations. For example, if we were evaluating people for an academic job we would not need to characterize them in terms of their gardening and housework prowess, whereas if we were sizing up prospective tenants for a rental property we would not need to consider their potential as researchers and teachers. In either case, we would not need a complete picture of each of the candidates, merely one that our cognitive rules deemed to be good enough for deciding between them. Finding a fit with a particular pattern within the contextual frame may in turn limit how far we need to go further along the hierarchy that we associated with that context: for example, if we have in mind some things that would be ‘deal breakers’ and we check for these at the outset, we avoid having to form evaluations about other aspects of the options that display these features.

How far we can then go will depend on the range or memories we have in relation to that context, as well as on the information we have at hand. For example, if we were gazing through the window of a bus as it passed a used-car yard, we might get only as far as seeing ‘a car’ within a particular set of fleeting visual stimuli, but with more knowledge we might conclude it was ‘a hatchback’ and that it was ‘made by Hyundai’, or even get as far as classifying it as ‘a mid-range 2011 model-year Hyundai i30’. If we were able to inspect it closely, we might even conclude that it had ‘probably covered far more kilometres than its odometer indicates’ and hence that ‘the seller probably should not be trusted’. Without having remembered particular patterns, such as how a Hyundai badge differs from a Honda badge, or that a badly worn steering wheel and a huge number of stone chips in a car’s paintwork are usually associated with vehicles that have travelled great distances, we will be unable to form a detailed picture of the nature of what we are examining.

The hierarchical process of working down to more detailed levels of analysis is so ingrained that we are rarely aware of it. But it is something that we had to learn. The newborn baby’s gaze is unfocused but it soon develops rules for looking and hearing that enable it to make cognitive associations and become more skilled in assessing new situations.

In some contexts, we may be able to truncate the evaluation process by applying ‘fast and frugal’ decision rules to the information at our disposal. Indeed, our rules for forming cognitions efficiently may
determine the information that we need to gather before we try to form our judgments. For example, suppose we judge whether a particular movie might be worth going to see on the basis of whether the director is one of our favourites and whether it has an average of at least four out of five stars in its review ratings. If so, we do not even need to check what the reviews actually say or find out which actors appear in it.

The need for the brain to have rules to enable it to move on when it has made good enough characterizations arises not merely because of the finite processing capacity of our memory systems but also because each object that we encounter or imagine is unique in its location in time and/or space if not also in other respects: even a particular McDonald’s may be not exactly the same today as it was yesterday since, for example, different patrons may be there. As Heiner (1983) emphasizes, we cope with the complexity of everyday life by using rules that treat certain things as if they are identical despite their inherent singularity. This in turn makes our behaviour much more predictable than it otherwise would have been. Thus, for example, occasionally a McDonald’s may suffer a power outage, get struck by lightning or a run-away vehicle, or be the scene of a shooting or stabbing, and so on, ad nauseam, but we form our expectations about going to a McDonald’s in terms of what McDonald’s is like ‘as a rule’. We form our expectations expecting it to be as we last remembered it unless we have reason to expect otherwise.

The likelihood that stored set of connections will ‘come to mind’

The foregoing discussion of hierarchical decomposition as a means to rapid cognition entailed a very Simon-inspired perspective on The Sensory Order. Hayek himself gives us a different but entirely complementary view of what happens. He suggests that the probability of a stored set of connections being tried as a means of categorizing the meaning of incoming stimuli is a function of (a) the cumulative number of times the set of connections has been activated, and (b) how recently it has been activated. Memories we have not called upon frequently or recently are thus unlikely to be used for cognition unless more those with a bigger probability of being tried fail to help in figuring out what to make of the stimuli.

If no context has been established to prime the relevant set of stored cognitions, the process that Hayek describes can be quite disconcerting. For example, whilst I was in my study writing this chapter, my partner was watching the 2017 England versus Australia Ashes cricket series on television and occasionally I would ask her how things were going. Then an email came in from the facilities section at work with the subject line
‘Bat Policy’. It was actually about what to do if one found an injured or sick fruit bat on campus, but having not thought about fruit bats for a while, my first thought was that it might be some kind of health and safety directive to limit injuries on the campus cricket field! But cognitive system that give priority to finding matches with recently retrieved cognitions have obvious evolutionary merits if we switch environments rather infrequently and/or each switch is only a partial change: our stream of experience thus seems relatively seamless and we do not keep having to pause to figure out where we are.

Hayek’s analysis implies that what first comes to mind when we are evaluating products can be cued not merely by what we made of advertisements to which we have been exposed but also by the set of experiences we have had. For example, if the seat on my car has been giving me backache over a long period, I am unlikely to forget to consider carefully the seats on cars that I test as possible replacements. By contrast, the quality of their brakes probably will not surface as an issue if I have not had to do an emergency stop in ages and if I do not have occasion to do so during a test drive. Things that we would view as important if we have been cued to think about them may thus get ignored if we have not had much occasion to consider them. Instead, we are at risk of focusing our evaluations on things we have repeatedly seen in recent advertisements even if they might seem rather peripheral were we to be prodded to consider other issues.

Hayek’s analysis also seems important for appreciating how people can end up needlessly miserable. Suppose we are considering changing jobs because of the political climate in our workplace and how we are being treated there. It may escape our attention that we have a history of feeling like this about our jobs (since we keep thinking about the current job in particular) and are failing to consider how easy our lives are in major respects and how good our jobs are compared with the best jobs that many people can get. If we were to spend less time whinging with similarly disaffected colleagues and more time at home with our families, this would change the activation histories of work- and home-related related memories and reduce the probability of us focusing on the downsides of the job or seeing potential benefit from moving to a different one.

The process of stereotyping can be readily understood in terms of Hayek’s analysis. Information received about a particular kind of person or product may be enough to permit a particular categorization to be made, such as ‘A Muslim’ or ‘An Italian car’. However, once the classification has been made, a wider set of associated sets of neural connections will be activated, making it even more likely that next time
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we think about this kind of person or object we will do so in the same way. If the picture created by that set of associations seems good enough for our purposes, the process of characterization stops there without any attempts to see if different patterns can be found in information that is already at hand or is potentially accessible. Thus, for example, suppose we see an advertisement for a new generation of a car offered by a particular brand with which we have previously associated with ‘unreliable’ and ‘rust-prone’. Evoking the brand in our memory associates the new model with these undesirable attributes: even if it is much improved over its predecessors, it is ‘tainted by association’. If we do not buy it and experience it for ourselves because of this, and if we do not encounter any reviews to the contrary, we will make the same kind of judgment about the next generation, too, and so on. An obvious role for advertisements is as means for challenging this human tendency by countering at the outset the set of associations that target customers would otherwise use to characterize the product.

The powerful stereotyping effect of a dominant way of seeing particular kinds of things and a stopping rule that inhibits consideration of alternative possibilities is something that you can experience if you type ‘hollow head/face illusion’ into Google and watch one of the many videos that come up in the search results. These videos usually feature a rotating Einstein or Charlie Chaplin mask and as the mask rotates to reveal its reverse side you will find it impossible not to see the face pushing out towards you (as well as starting to rotate in the opposite direction), despite the fact that the back of the mask has the face curving inwards. Try as you may, you will have trouble seeing it any other way. We are not used to seeing faces that curve inwards so if we are presented with something that in all other respects looks like a face, our brain treats it as if it is a normal face that curves outwards, even though it does not. The cognitive rules that our brains develop may initially be rather tentative but over time, as more memories of the same kind accumulate, the sets of neural connection that embody them become increasingly hardwired. In the case of the rules we use for seeing faces, so firmly ingrained is our way of seeing faces that the hollow head/face illusion works even when a face is roughly carved into a pumpkin.

*Expert intuition*

The memory- and pattern-based view of cognition provides a way of making sense of what goes on when people with expertise in a particular area are able to make assessments very quickly, especially when it comes to them sensing that they face a hazard or, in the case of experienced entrepreneurs, an opportunity. They may refer to having a ‘gut feeling’, instinct or intuition, but what has happened is more likely to be the result
of the fact that an expert is someone who, over the years, has stored a large repertoire of sets of neural connections pertaining to relevant cases and their associated characteristics.

Expert evaluation is just a matter of matching the stimuli from the new situation with a memory and the latter’s connotations. As Simon and Chase discovered, chess masters who can play several dozen games at the same time are able to win all or almost all of them not because they have a superhuman capacity to compute the possible decision trees associated with all their feasible moves and their opponents’ responses; rather, they have extensive memories of what happened in previous games and can use these for assessing each of the games they are now playing (Simon and Chase, 1973; Chase and Simon, 1973). Kahneman (2011) made a similar argument with respect to the capacity of expert fire-fighters to size up risk: subconsciously, they can sometimes sense that it is time to withdraw, just before a floor gives way or a beam comes crashing down. They can do this because the pattern of stimuli they are absorbing sound warning bells in their heads by matching sets of neural connections pertaining to previous kinds of danger. In essence, they know what they are looking at because have ‘seen it all before’.

**Inattention blindness**

The rules we use in cognition normally prevent us from being bemused and unable to choose, but the focus they induce can sometimes have dysfunctional consequences. If we are attempting to assess something in a particular way, we will not be trying to find matches with other kinds of memories. We may focus on one kind of information in the set of stimuli in question and filter out other kinds of stimuli within which we could have found a pattern that match a memorized pattern for which we were not looking. This is what commonly happens when students ‘latch on’ to key words they were hoping to see in an exam question and fail to soak up the significance of some other aspects of the questions. It is rather like what happens when an organization receives information but acts as if blind to it because it did not get passed on to those who would have seen its significance.

By filtering out much of the information that our sensory receptors received we end up with what has become known, following Mack and Rock (1998), as ‘inattention blindness’. This phenomenon is illustrated by the famous ‘invisible gorilla’ experiment of Chabris and Simons (2010). Participants in this experiment were asked to count the number of basketball passes in a video and at the end of the video were asked both how many passes they had counted and if they had noticed anything odd whilst engaged in the task. About half of them failed to report noticing
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someone in a gorilla suit mowing around amongst those who were passing the basketball. (A similar result came from a second treatment in which a woman with an umbrella replaced the ‘gorilla’.) The gorilla was not noticed by those whose sensory processes did not lead them to look for anything odd in the midst of the players whose behaviour they were observing: they just saw the things for which they were looking. For their expectations to be over-ridden, something would have needed to put them on the alert (as with the driving/listening to the radio example in the previous chapter): perhaps, they would have noticed the ‘gorilla’ had it been bright yellow, three metres tall and shrieking loudly.

Deconstruction
Sometimes cognitive processes entail the opposite of inattention blindness, namely, drawing inferences from missing information rather than failing to process information that was present. We need to be able to do this in cases where information that matters to us is prone not to be volunteered by other parties, such as prospective partners/dates or sellers of used cars and real estate. In such situations, the process of evaluation and expectation formation needs to be based on associations we have previously made between the presence of particular characteristics and what is missing from the stimuli set that we would normally expect to be found in the context at hand. Thus for example, if an advertisement for a car does not mention its odometer reading then our rule may be that it has an above average reading for its age. If our rule is reliable, we may avoid wasting time checking out the vehicle any further. Such a process of inference is akin to decoding the information that the source has chosen to reveal, thereby to discover its subtext. This is similar to the practice of ‘deconstruction’ that is commonly used in literary criticism and sometimes used in marketing. However, though it is merely a variant on the idea that cognition is achieved by finding patterns in stimuli that match patterns one has previously noticed, deconstruction may be relatively rarely practised: not everyone is naturally cynical.

4.3 PERSONAL CONSTRUCTS AND BLIND SPOTS

George Kelly’s (1955) *Psychology of Personal Constructs* does not analyze human processes at the neural level, yet it offers a view of how people operate ‘as if’ they are scientists that complements perfectly the perspective that was set out in the previous section. The essence of Kelly’s ideas, the first three chapters of his *magnum opus*, became
available in more convenient form in 1963 as *A Theory of Personality*. The latter book’s title is very helpful for appreciating his fundamental postulate, namely, that ‘A person’s processes are psychological channelized by the ways in which he anticipates events’ (Kelly, 1963, p. 46). Our personalities, as assessed by others, are manifest in things that make our behaviour predictable to some degree, and Kelly seems to be arguing that that our personalities are shaped by the systems (i.e., ‘the ways’) that we use to form expectations. For behavioural economists, the significance of his view lies in the implications that his analysis has for the kinds of expectations that people are prone to form and are able to form, and the consequences their ways of looking at the world have for the choices they make.

Kelly fleshes out his thinking via eleven corollaries to his fundamental postulate, beginning with the construction corollary: ‘A person anticipates events by construing their replications’ (*ibid.*, p. 50). In other words, to form an expectation about something, we ask ourselves what it is like, which is equivalent to trying to find something similar to it in our memory, as per Hayek’s analysis. Kelly views this process as akin to seeing how closely we can match the thing we are construing with template that we have constructed to characterize particular kinds of phenomena. Such a template might refer to, say, ‘The small car I’m hoping to find’ but this template might itself have been constructed after reflection about the pros and cons of some small cars with which we are familiar, seen in terms of how they matched up with the view we have constructed of the ends that we see a car as serving.

By using a technique pioneered by Grupp and Maital (2001) we can give a sense of what such a template might look like graphically, as in Figure 4.1: here, the solid line connecting the desired features of the car, ranked in order of importance to the consumer shows the car the person is hoping to find, whereas the dotted line AA and the dashed line BB show how two possible choices have been construed, neither of which exactly matches what the person is hoping to find.

Kelly’s individuality corollary emphasizes that people will differ in the templates they use: ‘People differ from each other in their construction of event’ (*ibid.*, p. 55). One reason for this is that we each use a distinctive set of rules for constructing associations between constructs. Kelly recognizes the presence of such rules via his organization corollary: ‘Each person develop, for his convenience in anticipating events, a construction system embracing ordinal relationships between construct’ (*ibid.*, p. 56). For example, you might see an SUV as safer than a sedan because you see it as giving a better view of the road ahead, whereas I might see an SUV as less safe than a sedan owing to its
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higher centre of gravity: we can both characterize these different kinds of vehicles in relation to their prospective safety but we have different ‘ways’ of doing so.

![Diagram](image)

**Figure 4.1**: Hypothetical customer aspiration profile and actual profile of characteristics for small cars (from Earl and Wakeley, 2010, p. 1128)

The possibility that we may have our own personal cognitive blind spots is implied by Kelly in his dichotomy corollary: ‘A person’s construction system consists of a finite number of dichotomous constructs’ (*ibid.*, p. 59). The operative word here is ‘finite’, and we can illustrate this by reflecting further on the SUV example. Digging deeper into the ordinal relationships of our different ways of thinking about these vehicles may reveal, say, that I do not think about safety in terms of the ease of seeing the road ahead, even if driving a low-slung sports car, unless the windscreen is filthy or on occasions when I am being pushed too close to the vehicle in front of me by an aggressive vehicle that is tailgating me, whereas you might not think at all about a vehicle’s centre of gravity; moreover, perhaps neither of us thinks about an SUV in relation to it offering greater convenience in terms of access for senior citizens with poor joints in their legs. Some of those who end up buying SUVs due to being concerned about problems of entry and egress in lower vehicles might, in turn, not be thinking at all about matters of safety when
sizing up their options or, if they do, might simply see it in terms of an official safety rating or the number of airbags that a vehicle has.

The limitations of our sets of constructs also arise via Kelly’s range corollary: ‘A construct is convenient for the anticipation of a finite range of events only’ (ibid., p. 68). This means that for any particular context, we will only have a limited repertoire of constructs that we use (hence ‘Repertory’ in Kelly’s Repertory Grid Technique), with the sets that we use only intersecting to a limited degree between contexts. For example, whilst we may use the construct ‘stylish versus ugly’ to cars, furniture and houses, we probably do not assess cars in terms of the construct ‘bedroom versus living room’ that we might use when thinking about furniture and houses, or assess furniture and houses in terms of the construct ‘sedan versus hatchback’.

Because of his constructivist perspective, Kelly avoided the term ‘learning’. He chose instead to see people as sometimes re-construing events after gathering fresh evidence via experience and deciding what to make of it. This is summed up in his experience corollary: ‘A person’s construction system varies as he successively construes the replications of events’ (ibid., p. 72). For example, after driving a 2017 Hyundai i30 as a rental car you might conclude that the i30 is now much more like a European hatchback than the kind of car one normally expected from a Korean manufacturer. However, we are limited in our abilities to change how we see particular kinds of events by the rules of the particular way we look at the world. As Kelly’s modulation corollary puts it, ‘The variation in a person’s construction system is limited by the permeability of the constructs within whose range of convenience the variants lie’ (ibid., p. 77). Thus, for example, if you tell me about your impression of the 2017 Hyundai i30, I may find it impossible to believe what you are saying because I take the view that German engineers are always able to stay several steps of those in other parts of the world and I anticipate that if I did compare a new i30 with the latest VW Golf my hypothesis would be confirmed. If this is the way that I think, I am ruling your evidence-based judgment as inadmissible.

Kelly’s view that the systems people use to make sense of the world may prevent them from changing how they see some things had an important message for his fellow clinical psychologist: if you want to help your patients towards more enjoyable lives, you will need to understand how their ways of looking at the world are preventing them from doing this by themselves; having done this, you will need to work out ways of steering them towards more permeable construct systems in areas in which their rigid ways of thinking are having dysfunctional consequences. But Kelly’s view is also profoundly important for
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economists who want to understand the pace of change in economic systems and the extent to which people will respond to changes in information and relative prices. We will explore this issue at length during Chapter 5.

Although the rules of a person’s construct system normally result in them operating in a way that is consistent enough to make them seem to onlookers to have a particular kind of personality, there will be occasions when they surprise others by doing things that seem ‘out of character’. Kelly acknowledges this via his fragmentation corollary: ‘A person may successively employ a variety of construction subsystems which are inferentially incompatible with each other’ (ibid., p. 83). The inconsistency that others see may arise because the person in question has not made a connection between different parts of his or her system for forming constructs, whereas the onlookers have made the connection in question within their respective systems. For example, suppose we have a friend whom we see as a ‘greenie’ and the he says he has bought a new Toyota. However, he then surprises us by showing up in an enormous Toyota Landcruiser rather than the Prius we had predicted. Surely, we think, the vegan tree-hugger ought to know that his choice is going to be bad for the ecosystem!

But there might be method in his madness, and it might turn out that it is us who have failed to make some connections. Our greenie friend might have decided to reduce his family’s greenhouse emissions footprint and get closer to nature by ceasing to take his family on overseas vacations and to take them instead to see the wonders of nature in rugged parts of the country in which they live. Moreover, he may have ruled out using the Landcruiser on the school run, so all in all it might seem a ‘green’ choice in his situation even though he would view with disdain those who use such vehicles as urban runabouts. The lesson here is that we should not jump to conclusions when others behave in surprising ways, and that if we are to understand how people make their choices we may need quite a deep understanding of the rules they use for organizing their thinking.

In labelling particular people as ‘greenies’, ‘rednecks’, ‘bogans’ (an Australian/New Zealand term that intersects somewhat with ‘white trash’ in its connotations), ‘ferals’, ‘yuppies’, and so on, we are likely simultaneously to be thinking of them in terms of the ways in which they look at the world and the kinds of choices they make. Together, such bundles of associations are what marketers mean when they talk about people with different ‘lifestyles’, which they map using ‘psychographic techniques’ (see Wells, 1975) including Kelly’s RGT and Hinkle’s
construct laddering technique. When we assign people to particular lifestyle categories we are not denying their individuality: some greenies, for example, may end up choosing to drive a Toyota Prius, others a small diesel car, others may keep an ageing, less economical car going as long as they can, and others may opt not to own a car at all, instead getting around by cycling and/or public transport. But what we are saying is that they broadly fit a particular kind of template when it comes to the operating systems they use for running their lives. People within a particular lifestyle category will find it easy to empathize with each other but may have trouble understanding why other types of people think as they do, even if they can broadly predict how the latter will react to particular stimuli. Kelly captures this via his commonality corollary: ‘To the extent that one person employs a construction of experience which is similar to that employed by another, his psychological processes are similar to those of the other person’ (*ibid.*, p. 90).

The final corollary that Kelly attached to the fundamental postulate of his theory was the sociality corollary: ‘To the extent that one person construes the construction processes of another, he can play a role in a social process involving the other person’ (*ibid.*, p. 95). Cast in economic terms, Kelly’s message is that transactions may fail to take place successfully if buyers and sellers use different rules of thought for forming their evaluations and expectations. For example, consider why the estate agent who tried most diligently to match me up with a house when I first moved to Australia failed to clinch a sale. I told him that I wanted a ‘low maintenance’ house, and he took me to a series of pristinely presented properties, including a couple of former show homes. However, I ended up buying something slightly cheaper and less well presented. He knew of the house in question and could have arranged a deal with the listing agent to show it to me, but he did not do so because he construed ‘low maintenance’ differently from me. What I had in mind was avoiding anything but brick and tile homes so that I would not need to keep attending to flaking paint on weatherboards or rusting iron roofing sheets: my concern was with whether the construction materials would best keep the forces of entropy at bay, not with the state of interior décor.

Success in engaging with prospective customers or suppliers (including people within one’s workplace for whom one is undertaking tasks or to whom one is assigning tasks) may thus require taking trouble to ensure that one understands well enough how the other parties think. In an effective goodwill relationship, knowledge of how established customers think may even go so far as to enable the supplier to anticipate the customer’s needs ahead of the customer becoming aware of them,
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with the customer then swiftly seeing the merits of what the supplier is suggesting. In today's world of e-commerce, the online reviews that are part of the ‘voice’ mechanism (Hirschman, 1970) facilitate this by provide evidence of the constructs that some customers used in forming their expectations.

4.4 SOCIAL INFLUENCES: 
THE HIDDEN PERSUADERS

Although our past experiences and the rules that we use for forming expectations make us unique individuals, our personal construct systems nonetheless have social foundations. The environments in which we are brought up and in which we operate later in life provide us with stimuli that are being generated by the particular people around us. These stimuli include examples of what people do in particular kinds of situations and information about what they experienced as consequences of their choices. Of course, we still have to decide for ourselves what to make of this information but the frequency with which we end up finding the same patterns in it affects how our minds work by affecting the likelihood that we will try find such patterns when sizing up stimuli sets that we receive subsequently.

By this process, social institutions can become our rules for cognition and the basis for our lifestyles. These social ‘hidden persuader’ (Hodgson, 2003) may be every bit as powerful as, or even more powerful than those from advertising that Packard (1957) famously emphasized. Even if we are not consciously inferring rules from what people in our social circle say or do, our unconscious cognitive processes may be developing sets of associations between particular social phenomena. Seeing particular kinds of choices being made repeatedly in particular kinds of contexts provides a basis for inferring rules that we may then follow until we have occasion to question them. If the pattern seems to be that adults form couple relationships and then have mortgages, two or three children and a dog and a cat, we will probably come to expect that our lives will be like this unless we see ourselves as being like those who fail to follow the norm. Insofar as we follow the norms, we add weight to them, giving others further instances on which to base their views of normality.

At the very least, the patterns that we infer from what goes on around us provide reference points for normal behaviour, for what people normally seem to look for in means to particular ends and the ends that people normally find worth pursuing. We can use these norms as default
setting if we wish and thereby save ourselves the effort entailed in discovering and evaluating alternatives. However, not everyone who grows up in a particular social setting ends up accepting its norms. We will only admit externally-developed ways of thinking to our systems of personal constructs if they are consistent with high-levels rules in our systems that we use for judging when to change our rules (see further, Chapter 5 and Earl and Potts, 2004). If, by whatever train of events, we create higher-level personal rules that prevent us from absorbing social norms, we may end up evaluating our options differently from those around us.

4.5 OUTSOURCED EVALUATIONS: THE SOURCE CREDIBILITY ISSUE

As with the process of finding options, we can often outsource the process of evaluating the contenders that we discover. If we opt to do this, we need rules for evaluating the likely quality of the evaluations that we obtain, i.e. rules for judging to whom we should give our trust. Evidently, this is yet another situation in which the infinite regress problem arises, which means we will need some kind of arbitrary stopping rule: if we ask someone else whether we should trust a particular person’s evaluation, how do we know we can rely on what they say? Those who supply evaluations may:

- Face a conflict of interest (for example, a real estate agent may seem to be trying to help us but is also acting on behalf of the vendor);
- Be less diligent than they might have been in their examination of the product (for example, in the case of someone undertaking a building or pest inspection on a property we are thinking of buying);
- Not have the expertise we think they have or that they profess to have (for example, where a mobile phone comparison site mistakenly lists a particular ‘prepaid’ plan as a ‘monthly’ plan); or
- Express opinions based upon statistically unrepresentative personal experiences (for example, they may have had unreasonable expectations about the hotel room for which they have written a thoroughly negative review on Tripadvisor.com).

The rules that we use may take many forms, ranging from relatively unconscious pattern recognition in terms of body language (as with ‘shifty’, ‘sheepish’, ‘smarmy’ modes of behaviour that we have previously encountered and associated with poor outcomes), through to
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displays of credentials and testimonials. Sometimes, our rules may, in
effect, take the form of simple statistical tests, based upon a minimum
sample size, average rating and some sense of the distribution of ratings.
Online retailers such as Amazon.com often make it easy for us to apply
such rules, but they promote the use of a further kind of rule, namely,
using the reviews that others have ‘found useful’. We can also employ
rules that refer to the extent to which suppliers are ‘market institutions’
(cf. Hodgson, 1988, ch. 8). For example, we may trust a firm that has
been in business for a very long time, on the basis that it would not have
survived so long if it persistently lied to its customers or delivered poor
quality and poor value for money. Firms that indicate their membership of
relevant trade associations and/or that they have won particular awards
invite prospective customers to trust them on the bases of these proxies.

Our rules for deciding whom to trust can be based upon the mental
models we have constructed in relation to the incentives that our sources
have to tell the truth. We may reason that a key issue is whether or not
maintaining a good reputation matters for our source. A supplier with
whom we have a goodwill relationship has an incentive not to dupe us
since, were we to discover what had happened, we would be likely to take
many future transactions elsewhere. By contrast we might be sceptical
about endorsements for credence goods provided by celebrities whose
careers are well past their peaks and who are therefore more likely to
have limited opportunities to supplement their incomes via endorsements,
making them possibly more likely to say what they are being paid to say
even if they are uncertain about its truth or do not believe it to be
accurate.

As economists, we may think these kinds of lines of thinking are very
straightforward, and hence are likely to be worked out by those who lack
our training. However, this may be unwise where consumers lack training
in critical thinking of a more general kind and have not had enough
experience from which to infer reliable or, better still, fast and frugal rules
for working out whom to trust. A salutary reminder in this respect is the
fact that in the mobile phone plan choice experiment that I conducted
with my colleagues Lana Friesen and Christopher Shadforth not a single
subject took any notice of providers’ claims to be ‘award-winning’,
whereas this would have been one of the first things we would have been
looking for when assessing which providers plans were worth considering
and how closely we would need to look at their contractual fine print.
4.6 PROBABLE OR POSSIBLE?

One class of rules that people may infer from social interaction or work out from first principles consists of rules for characterizing any uncertainty they feel about their options. Ideally, we might conduct behavioural research using tools such as RGT to discover the forms these rules take and their relative popularity, rather than merely making assumptions of a general nature. The constructs that we initially elicited via RGT might include ones that are shorthand proxies for a more complex way of thinking about uncertainty. For example, our research subject might view different brands of cars in terms of the axis ‘reliable versus prone to breaking down’ whereas what we may really want to know is what they mean by ‘reliable’ or ‘prone breaking down’ and hence how they draw the line between the two categories. ‘Reliable’ might mean ‘never lets you down’ but it might instead be a less demanding standard such as ‘not being expected to let one down more than a couple of times over five years of ownership’ or take a statistical form such as ‘having no more than a one-in-a-hundred risk of breaking down on any day it is being used’. To find out what they meant, we would need to probe more deeply.

Rather than undertaking such inquiries, and in the hope of keeping their analysis manageable, most economists, behavioural or otherwise, habitually theorize as if people characterize uncertainty via probability scales that range from zero probability to 100 per cent probability. On this view, with a binary construct axis, we might assess an option as having, say, a 70 per cent chance of coming out one way and a 30 per cent chance of coming out another way. The presumption with the probabilistic view is that, for the axis in question, the set of probabilities that we assign adds up to 100 if we are assigning each probability as a percentage. Where the axis in question has a scale of potential outcomes, our mental model may look something like a bell curve, with outcomes near the ends of the scale rated as having zero probabilities of eventuating. But in some cases we may envisage heavily skewed or bi-modal sets of outcome probabilities. A set of probabilities can incorporate a ‘residual hypothesis’ if we are unsure whether we have considered all the things that might occur. Thus, for example, we might think that if we choose a particular strategy it has a 60 per cent chance of coming out one specific way, a 30 per cent chance of coming out in another specific way, and a 10 per cent chance of it coming out in a way that we have not anticipated at all. The residual hypothesis means we are open to surprise, such as might occur when we thought we had a good chance of getting a particular job but where failure to get it was not the end of the story since instead we unexpectedly were
instead offered an internship or a different job within the organization in question. The probability that we assign to the residual hypothesis in a particular context is an indication of the extent to which we acknowledge limits to our knowledge of what can happen there, and of the limits to our imagination.

An alternative to the probabilistic approach is the ‘potential surprise’ framework proposed by George Shackle (1949, 1961; see also Earl and Littleboy, 2014). Shackle questioned the wisdom of using probability scores as foundations for personal decisions, for at the level of the individual unlike, say, an insurance actuary, outcomes either occur or they do not. Given this, Shackle’s introspection led him to suggest that we may form expectations by considering how surprised we would be if a choice resulted in a particular outcome. If an outcome seems perfectly possible, we would not be at all surprised if it took place, whereas if we view an outcome as impossible we would expect to be astonished if it eventuated. Graphical representations of assessments formed in this way normally look superficially like inverted bell-curve probability distributions, but they are conceptually very different. Clearly, viewing an outcome as impossible is like assigning it a zero probability, but viewing an outcome as perfectly possible is not the same as assigning it a probability of 100 per cent, for other outcomes might also be viewed as perfectly or partially possible. Moreover, Shackle’s framework is not additive: if we change our view of how surprised we would be if a particular outcome occurred (i.e., if we change our assessment of its possibility), we will only change our assessments for alternative possible outcomes if what we saw as implying a need for us to change our mind for the outcome in question seems also to have implications for how seriously we view its imagined alternative outcomes.

Although Shackle’s view of how we take account of uncertainty in our mental models is very different from that of an ‘objective probability’ approach based on statistical frequencies, it may be fruitful to try to see how far we can go in creating a synthesis of Shackle’s perspective and a subjective probability approach in which probabilities are not viewed in terms of statistical frequencies. After all, in ordinary parlance it is commonly said that a particular situation seems ‘possible, though not probable’. Utterances of this kind may often signal that people are engaging in cognitive simplification by thinking in binary terms rather than in a scalar way. However, sometimes people will be thinking about uncertainty in scalar terms and would not have trouble replying if we were to ask them to rate particular outcomes on a 0–10
‘possibility/probability’ scale of likelihood. What might they have in mind when they offer their ratings?

In considering this puzzle, it is instructive to recognize that the Shackle approach and the probabilistic/statistical approaches differ philosophically in how they see causality. Shackle sees potential surprise ratings as reflecting the extent to which the decision-maker can envisage potential barriers to an outcome (for example, our chances of getting a particular job may seem limited because we would score poorly on some of the selection criteria). By contrast, those who think in terms a probabilistic analysis tend to think of probabilities as shaped by the presence of particular drivers (for example, the risk of lung cancer being driven by how much one smokes, lives in an environment where the air is polluted, and so on).

It is surely misguided to focus just on ‘barriers’ or ‘drives’. Clearly, a ‘barrier’ to something happening may be the absence of ‘driver’ to kick-start a causal process and maintain its momentum if it runs into obstacles. Shackle (1961) almost concedes this when he notes that we may reduce our disbelief in a particular prospect if, having noted some potential barriers to its eventuation, we can imagine second-tier barriers to the potential power of the first set of barriers. These second-tier barriers seem akin to drivers but may themselves be of limited efficacy due having obstacles of their own to overcome. If the latter prevailed, rather than being blocked by something else, there might be nothing to stop the outcome from eventuating. Thinking about the determination of outcomes in this way clearly entails another example of the infinite regress problem. In this case, the complexity of the many layers and limits to our imagination means we can only get so far in considering potential opposing forces, leaving us with an uncertain, foggy view of what would happen if we made one choice rather than another.

Expectation formation is further complicated by the possibility that a particular outcome might conceivably be reached in a variety of ways via different combinations of drivers and barriers, with different drivers being needed depending on which barriers actually eventuated. Hence, where the presence and significance of an imagined barrier is uncertain, an imagined outcome may need to have a powerful and wide-ranging set of potential drivers if it is to seem likely to occur.

Given all this, it might be reasonable, by way of a synthesis, to interpret response on the likelihood scale as follows:

10 = ‘I’m sure this is going to happen; I can’t see anything that could stop it or anything else that looks at all possible’.
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6–9 = ‘It’s probable; I’d be more surprised if it didn’t happen than if it did, as it has a lot more going for it than it has potentially standing in its way’.

5 = ‘I wouldn’t be surprised either way, if it did or didn’t happen; I can see just as much reason for believing it won’t happen as I can for believing it will’.

1–4 = ‘It’s possible but I’d be more surprise if it happened than if it didn’t, since I can see a lot that could stop it from happening and not much in its favour’.

0 = ‘I think this is impossible and I’d be astonished if it did; I’m sure it won’t happen as there’s too much stacked against it’.

The mid-point rating (5) entails a view akin to what we might have when watching a tug of war between seemingly equally-matched teams: something will eventually tip the balance one way or another but we do not have enough knowledge to anticipate which factors might be decisive. However, recognition of the incompleteness of our mental models would also underlie ratings of 6–9 and 1-4.

This interpretation of what people may mean if they rate potential outcomes on a 0–10 ‘possibility/probability’ scale does not seem to require that the set of total scores for the outcomes they were considering summed to 10 except in the case where they assigned one outcome a score of 10. However, neither does it preclude respondents from trying to ensure that their scores do add up to 10. Some people might be working on the basis that they should think this way and take the view that among the barriers they should consider to the eventuation of a particular outcome are the things that they see as potential drivers of other outcomes that seem to some degree possible. Such a view would imply, as per the traditional additive probabilistic way of thinking, that the chances of rival outcomes happening are interdependent.

Clearly, however, there is one serious problem with such an attempt to bring probabilistic and Shacklean perspectives together in a way that does justice to how people speak about uncertainty in everyday life. The interpretation proposed for the 0–10 ‘possibility/probability’ scale logically cannot accommodate cases in which people see a range of outcomes as perfectly possible but are not completely ruling out potential outcomes outside that range. In cases where outcomes were either seen as perfectly possible or impossible our interpretation of the scale could accommodate rating for each of these two groups of outcomes considered as wholes: the set of outcomes seen viewed as impossible would be rated as ‘0’ and with no other contenders acknowledged as possible, the set of
perfectly possible outcomes would be rated as ‘10’, signifying that the person thinks that the actual outcome will definitely fall within this range. The problem is that if there is a set of ‘somewhat possible’ outcomes that rate in the ‘1–4’ zone, logic precludes viewing the ‘perfectly possible’ group as a whole as ‘10’ on the scale since it is not being presumed that the actual outcome is definitely going to be within the range of ‘perfectly possible’ outcomes.

Some people may indeed say that they envisage a range of outcomes as ‘perfectly possible’ in a particular situation, just as Shackle expected, whilst viewing other outcomes as ‘less likely’. If so, and if they were really thinking about uncertainty in a similar way to Shackle, they ought to resist any attempt we make to get them to rate outcomes using the scale proposed in this section. If they did resist such a request, they ought to be amenable to being asked instead to rate each outcome on a 0–10 scale pertaining to how surprised they think they would be if particular outcomes eventuated. But it would be instructive also to ask them to take two of the ‘perfectly possible’ outcomes and tell us under what circumstances they imagine one might eventuate rather than the other. If they answered in terms of outcome-specific sets of drivers or barriers that might inhibit one outcome but not the other, this would imply they were not thinking along the lines that Shackle would have expected. Reference to outcome-specific drivers implies that though the outcomes are rivals, their prospects are interdependent: something that facilitates outcome A without facilitating outcome B is a potential barrier to B’s eventuation so they should not be viewing B as perfectly possible.

Where people say they see a number of rival outcomes as perfectly possible and would not be surprised if any one of them occurred what they may really be implying is as follows: as far as they can see, there is no clear reason why any of these outcome ought to be ruled out of contention, even though they may be able to imagine factors that might turn out to be decisive in shaping what actually happens. They may well have imagined what these deciding factors might be, but they are unable to predict with confidence what will actually be decisive. If so, this is different from Shackle’s conceptualization of a perfect possibility as something with nothing seemingly standing in its way. It would be a way of thinking more in line with Simon’s satisficing perspective. For example, in thinking about the likelihood that a particular person may get a particular job, we might note that this person is one of a number of candidates who meet all of the selection criteria, and hence that the members of the selection committee would have to use some kind of tie-break procedure to make their choice. We may be able to imagine a number of different procedures they might use but be unable to assess any
of them as more likely than the others. If so, despite envisaging procedures that could work against particular candidates, we may end up not expecting to be surprised by any outcome and seeing all as having the same chance of success.

Regardless of how we conceptualize uncertainty, we may find it cognitively too demanding even to keep a range of possibilities in mind for a single aspect of one option, let alone multiple ranges of possibilities associated with many options with uncertain performances in a number of dimensions. How will our minds have evolved to deal with this issue?

One strategy that comes naturally to us is to collapse ranges of uncertainty into simple binary summary constructs such as ‘high risk versus low risk’ or ‘probably OK versus might not be good enough’. In some contexts it may seem safe to ignore things that are statistically very rare and treat at certain the imagined outcomes that have high probabilities or against which we can envisage few credible barriers. Note here how terrorism works in developed economies via engineering small changes in the probabilities of events that people would otherwise have ignored, such as getting killed whilst commuting on public transport or walking on city pavements. Activities that people previously viewed as ‘safe’ are seemingly taken out of that category despite their statistical odds remaining very low.

Shackle’s extensive introspections on investment decisions led him to propose a different view of what the human mind does to reduce cognitive complexity. In essence, he concluded that, for each strategy they consider, entrepreneurs will end up focusing on just two imagined outcomes: the profit outcome that most excites them on the basis of both its size and plausibility, and the loss that most scares them on the basis of both its size and plausibility. He envisaged entrepreneurs as viewing gains and losses of rival strategies relative to what might be obtained via a strategy that minimized risk, such as keeping the funds on deposit. He called this reference point the ‘neutral outcome’. (We might also see it as the aspiration level for the dimension in question in cases where the decision-maker is not sure if some or all of the available options would perform satisfactorily in that area.) Figure 4.2 shows how he modelled the focusing process that he envisaged.

In Figure 4.2, the dashed line \( ACDB \) represents the entrepreneurs ‘potential surprise curve’ of conjectures about possible yields from a particular investment project. The set of outcomes between \( A \) and \( B \) is the set that the entrepreneur considers possible to some degree. Losses, relative to the neutral outcome, worse than \( A \) are viewed as impossible, as are gains greater than \( B \). The entrepreneur imagines being astonished if
such outcomes eventuated. By contrast, the entrepreneur would not be at all surprised if the outcome came in the range CD; these outcomes seem perfectly possible. Losses in the range AC and gains in the range DB have not been ruled out as prospects but the entrepreneur would be surprised in varying degrees if they occurred.

The unbroken curves in Figure 4.2 encapsulate Shackle’s view of the attention-arresting capacities of different outcomes, which he called the ‘ascendancy function’. Each point on one of these curves has the same attention-arresting capacity despite being a different outcome value/potential surprise combination. Shackle called these curves ‘iso-ascendancy curves’ and he argued that the attention-arresting capacity they represent rises as we move towards the bottom left of the diagram on the loss side and to the bottom right on the gain side. The point here is that outcomes that seem perfectly possible but only slightly different from the neutral outcome will be of little interest to us, and neither will very large gains or losses that seem highly unlikely. What will excite us with hope are large gains that seem to have little standing in their way, and what will make us highly fearful are large losses that have little that seems to prevent them from happening. Shackle’s hypothesis is that, for any scheme under consideration, there will typically be just one gain and one loss that has the biggest capacity to attract the entrepreneur’s attention and all of the other outcomes that have been deemed possible for each scheme end up getting ignored. He called these pairs of outcomes ‘focus gains’ and ‘focus losses’.

Figure 4.2: Focus outcomes for a single investment strategy
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Shackle’s theory of focusing has a very significant implication: the focusing process will result in us ignoring the extreme outcomes that we had not ruled out as possibilities. In other words, his theory implies a different kind of ‘inattention blindness’ from that considered earlier via the ‘invisible gorilla experiment’. It could result in catastrophic decisions if the worst fears we originally entertained turn out to be justified. For example, consider human-induced global warming where, despite the best efforts of climate modellers, there remains uncertain about how far temperatures will rise if particular policies are pursued. If Shackle is right, the downside focal outcomes the policymakers keep in mind during their negotiations about alternative mitigation strategies will tend to be rather optimistic compared with the worst-case scenarios that their advisors have raised as possibilities.

4.7 DEDUCTIVE AND INDUCTIVE THINKING

Much of what has so far been said in this chapter presents decision-makers as employing an inductive method for sizing up how things might turn out if they were to make a particular choice. By this I mean that they typically form constructs from new stimuli by categorizing what the stimuli represent in terms of things that they already know. They thereby extend the set of events to which they apply these existing constructs. For example, suppose a tradesman comes to give us a quotation for some renovation work and we notice that his truck is beautifully kept and everything in it seems to be really well organized. On the basis of this evidence, we may infer that if we give him the job things should proceed as promised: our inductive leap is to extend his way of looking after his truck to how he plies his trade. In other words, our rule is that if he displays pride in what he does in one context, then we can expect to see him generally displaying pride in his workmanship (cf, Veblen, 1914). Moreover, if this tradesman has been recommended to us by someone who has already used his services and had a drama-free experience, we will feel all the more confident in our expectation, and still more so if he shows us a folder containing copies of his trade qualifications and testimonials from even more customers. It all adds to what Keynes (1921) called the ‘weight of evidence’ for judging that probably he is someone we can trust to do a good job.

However, forming expectations on the basis of inductive reasoning is not a sure-fire route to successful transactions. The tradesman’s truck may be presented in the way that it is purely for show, and his evidence of
his successes could be fabricated. Our friend may have been a lucky outlier, and it may turn out that the uniqueness of our particular renovation task entails things that would result in the tradesman getting into a mess even if he is all he seems to be. The problem of induction is not just an issue in prosaic cases such as this; it may cause major embarrassment for economic modellers, for those who think they have found patterns in the way that financial markets operate that will enable them to predict the future, as well as for business strategists that fail to anticipate game-changing innovations by their rivals or market entry by firms whose track records had given them no reason to believe they would turn out to be competitors.

If we are to avoid nasty surprises or being unprepared for surprises that we could have used to our advantage, we may need to go about forming expectations in a more deductive way. This would entail using our creative and critical skills to consider where the bounds of possibility may lie and what could cause established patterns to break down. If something of relevance to our choice has so far not happened, this does not mean it is impossible. Hence we should ask ourselves what has been preventing it from happening so far and then consider the kinds of circumstances under which those obstacles could be removed.

This latter, deductive way of forming expectation is, of course, the way that Shackle presumed decision-makers to think in his possibility-based alternative to probabilistic thinking. Clearly, in not giving attention to the inductive side of human nature Shackle limited the contribution of his work as a means of explaining how decisions get made. However, this should not distract us from seeing the significance of his deductive approach to thinking for those who are keen to improve the quality of their decision-making. In his later years, Shackle (1972, 1974) emphasized the possibility of sudden ‘kaleidic’ changes in our environments. These changes might not be wholly without precedent—for example, the 2008 Global Financial Crisis was one in a long stream of such episodes—but each such change has unique aspects, making the prediction of its timing and fallout inherently hard to predict. Deductive thinking may provide a means, so to speak, of anticipating what could lie beyond the horizon. But this style of thinking does not come naturally to most people and it can have the disconcerting effect of making us see a wider range of possible outcomes for an action we are considering, when what we hoped to achieve was a more narrowly defined view of the range within which the outcome might lie.

Some corporations and organizations have, however, developed a Shackle-like view of the problem of uncertainty and practice something akin to a deductive way of evaluating strategies as part of a process
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normally known as ‘scenario planning’. The best-known exponent of this technique is the Shell energy company, whose former chief economist Michael Jefferson (1983, 2012, 2014) has provided some very useful accounts of Shell’s experience with it and how their thinking linked up with that of Shackle.

In Shell’s hands, the scenario planning technique is based on generating rival, internally consistent stories of how the future could unfold. These scenarios are not meant to predict the future but they are useful in helping Shell’s strategists to get a sense of where the firm could be vulnerable or of what it would need to do to profit from events unfolding in ways that break with past trends. However, and herein lies a lesson for decision-makers more widely, Shell’s scenario planners use their deductive skills in conjunction with inductive methods, the latter being used in assessing how seriously to take the scenarios. That is to say, although they are interested in avoiding being surprised by things that overturn current trends, they are not averse to looking at history to find precedents for elements on which they have built their scenarios. For example, in the late 1960s when they started to consider what a shift towards highly aggressive behaviour by the Organization of Petroleum Exporting Countries (OPEC), they checked to see whether cartels with large numbers of members had historically been able to stand firm. Prevailing economic theory held that the more members a cartel had, the bigger the probability that attempts by it to push up prices would be undermined by members trying to profit by covertly defying the agreed policy. The evidence from previous cartel histories from other industries was not particularly consistent with this prediction, and Shell decided to take seriously the possibility of OPEC engineering a sustained major oil price hike. The firm chose to invest in a strategy that would leave it well placed in the event that their OPEC vision eventuated, as it did in 1973. On that occasion the Shell team were lucky and had a scenario that was close to what happened, but the scenario would also have helped them had something else happened to limit supplies of crude oil.

Despite having the resources to work with a wide range of scenario during any particular planning phase, Shell came to work with just two, designed to embody worst-case and best-case futures for the firm. Originally they tried working with seven but this proved too confusing and attempts to work with three resulted in managers tending to operate as if the middle-case scenario set out how the future would actually unfold. Initially there was also strong resistance to scenario planning on the basis that planning tools should make the future more predictable, not heighten uncertainty.
Shell’s experience is consistent with humans having a tendency to try to use the process of expectation formation as a means towards removing uncertainty and achieving a clear basis for action. This tendency can enhance survival prospects by ensuring that human capacities for creative thinking do not prevent decisions from being made when they need to be made. But this tendency may be better attuned to the world of our hunter-gatherer ancestors than today’s world in which time spent embracing uncertainty can be time well spent.

4.8 RESOLVING COGNITIVE DISSONANCE

Where the mind is using its cognitive rules to characterize things in terms of multiple axes it is possible that rules from different subsystems will produce conflicting assessments of whatever it is that we are considering. In such situations, we feel uncomfortable and set about trying to remove the cognitive conflict by re-construing the situation. In terms of the analysis proposed by Festinger (1957), where we suffer from ‘cognitive dissonance’, our brains try to achieve ‘cognitive consonance’. The human tendency to look for ways of avoiding confronting uncertainty can be viewed as an aspect of this: uncertainty can be viewed as akin to cognitive dissonance, with different sets of rules producing conflicting views of the future.

Sometimes we remove cognitive dissonance by censoring the information that our brains have to process. For example, in one of the first papers on the economics of cognitive dissonance, Akerlof and Dickens (1982) note how technicians at nuclear power plants handled the inconsistency between the idea that they must be smart people, since they were doing a job that requires unusual expertise, and the idea that they were potentially putting their lives at risk by working where they do, as indicated by the requirement that they carry radiation monitors with them whilst at work. These workers dealt with the problem by ensuring that they saw no evidence that they were working in a dangerous place: they only wore their radiation monitors on the day they knew the monitors would be checked; otherwise, they kept the monitoring devices in a drawer—out of sight and less likely to detect radiation. The ‘out of sight, out of mind’ strategy is also common amongst those who have got into a mess with debt: they tend to stuff fresh bills into a drawer, often without even opening the envelopes in which they arrived, rather than facing up to the reality of their situation and seeking help in dealing with it (see Cameron and Golby, 1990; Lea et al., 1993; Lea et al, 2012). They thereby kid themselves that they can carry on as they have been, such as
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‘keeping up appearances’ by buying status symbols such as upmarket brands of trainer shoe for their children, at the cost of falling behind with their public utility bills.

Secondly, people remove cognitive dissonance by constructing some kind of story that seems to eliminate the inconsistency. The imaginary case of our Landcruiser-buying greenie friend raised in section 4.3 when we discussed Kelly’s fragmentation corollary was designed with this cognitive strategy in mind. This may entail mustering supportive evidence that might otherwise not have sought. Note here the parallel with legal defence cases.) Such stories may be built on assumptions that might not turn out to be valid, but the mind allows action to proceed by applying the ‘We’ll cross that bridge when we come to it’ rule. Maital (1982) uses this kind of thinking to make sense of the uptake of extended credit facilities on credit cards. He considers a situation in which consumers who see themselves as ‘not the sort of person who gets into debt’ nonetheless succumb to tempting products that they cannot buy from their current savings. In evaluating these products they are prone to emphasize the benefit of seizing the opportunity by using their credit cards to make the purchase, at the same time telling themselves that, when they have to make their next monthly payment on these credit cards they will be in a position to pay off the balance in full. If it then turns out that they cannot do this, we would expect them to highlight the benefits from having made the purchase and to claim that they will pay off their balance in full soon. Despite this, when tempted again to spend, they may have a lower probability of seeing themselves as the sort of person who gets into debt; if so, they may no longer feel dissonance of that kind when considering doing further spending. It is rather as if, having lost their virginity as debtors, they then lose their inhibitions on that front.

A more extensive picture of the means by which people are able to arrive at a cognitively usable set of expectations emerges in John Steinbruner’s (1974, ch. 4) study of how politicians cope with major policy decisions in the face of uncertainty. Curiously, Steinbruner never refers to the theory of cognitive dissonance, despite drawing heavily on cognitive psychology. In essence, he argued that the mind is able to construct a workable view in the face of complexity and uncertainty by the following five means:

(a) Deploying images and arguments from analogy;
(b) Drawing ‘inferences of transformation’ (wishful thinking);
(c) Making inferences of impossibility;
(d) Highlighting negative images (exaggerating the potential downsides of the schemes they reject, as with ‘sour grapes’ attitudes);

(e) Attempting to obtain social corroboration.

But an important question arises if we accept that, via such techniques, dissonant cognitions can be rather malleable, namely, what determines the direction in which the mind twists them to achieve consonance? Festinger’s (1957) book was short on clues but the ideas of Kelly and Hayek imply plausible mechanisms. I will outline them quite briefly here, as we will build upon them in Chapter 5 when understanding openness to change. Though I worked out the Kellian analysis before reading The Sensory Order (see Earl, 1992; Earl and Wicklund, 1999), let us consider the Hayekian perspective first.

We have already noted that, in Hayek’s theory of the mind, the probability of a stored notion being called up from the memory and tried for its match with incoming stimuli is a function of both the cumulative activation of the sets of neural connections in which memories have been stored, and how recently these sets have been activated. Stored notions that we have been using for a long time and have been using recently will crowd out those that we have rarely had occasion to call to mind and/or have not ended up using recently to characterize anything. In evolutionary terms we might say that the former are stronger and fitter than the latter when it comes to competing for the right to be tried for their match with incoming stimuli. Weaker sets of stored connections only get activated when the patterns stored via stronger sets do not match incoming stimuli, leading us, as the expression goes, to ‘rack our brains’ for something that will come to our cognitive rescue. A situation of cognitive dissonance would appear from this standpoint to entail more than one interpretation of stimuli are vying for attention as potentially correct, with the dissonance then being resolved by the strongest one crowding out the other(s).

To get a sense of how this can go on in an entirely subconscious manner it is instructive to consider a famous case from experimental psychology in which the mind is tricked into a seemingly bizarre cognitive error (see Ames, 1952). To experience this, you should now Google ‘Ames room illusion video’ and peruse some of the YouTube items that come up. You will have the disconcerting experience of seeing someone appear to change their height as they walk across a room, something that you know cannot be happening. What is actually happening is that the person is walking across a room that has been constructed in trapezoid form rather than as a cube or rectangular box;
there are no right angles at the corners or anywhere else (for example, in window and door frames). The room is thus utterly at odds with our normal expectations about rooms: prior to being introduced to the Ames illusion, we probably have never seen a room whose alignment is ‘out of true’ to the extent that the Ames room is. But we have seen people change in height as their distance from us varies—nor actually changing in height but merely changing in terms of the number of retinal cells that their image activates. With the idea that rooms and right-angled corners go together being so firmly stored in our mind and so frequently activated, our mind is forced to deal with the illusion by allowing the person walking across the room to seem to change height, since in some contexts it ‘knows’ that this is what happens. The idea that people cannot change height is cognitively weaker than the idea that rooms consist of walls and floors that meet at right angles, so that latter wins in the battle for our attention.

From the standpoint of Kelly’s personal construct theory, this phenomenon can be explained with reference to the organization and modulation corollaries. Some notions have to be ruled out in order to allow others to be maintained but ruling out one idea may require us to change many other ideas that depend on it, leaving us with the need to construct alternatives for the latter. If we are going to have to abandon constructs that have previously served us well, we will be vulnerable in those areas until we have developed alternative rules for thinking. In evolutionary terms, our fitness will be enhanced if we have cognitive systems that cope with cognitive dissonance by twisting the construct whose revision has the fewest implications for the rest of our way of looking at the world. Whether we realize we are doing it or not, we select the view of the world that entails the least damage to our predictive system.

A different, but complementary view of what may going on during the process of eliminating or reducing cognitive dissonance is implied by Garfinkel (1967, pp. 113–14) when, without reference to cognitive dissonance theory, he canvasses the notion that the outcome of a process of choice might settled before we reason our way towards our decision. On this view the mind concocts a justification for a choices that has already been made by a process that did not depend on the evaluations that are used to support it. Thus for example, some of the foreign policy choices that Steinbruner studied could have been made in order to save face, with the justifications of the chosen and rejected strategies being constructed to provide a different, more publicly acceptable case for what was done. In such a setting, there may have been no doubt about which
strategy best suited the end that was ‘really’ driving the choice, but any debatable characteristics of the options in other senses would have provided room for ‘spinning’ a convenient yarn. However, given the tendency for ‘spin’ to be seen as a devious activity, it should be stressed here that in this kind of case decision-makers might not even be admitting to themselves the ‘real’ reasons for their choices. We will return to this issue in the next two chapters.

4.9 JUDGMENTAL HEURISTICS AND BIASES

The rules that we use in constructing evaluations and expectations can vary greatly in their effectiveness. Ideally, we would like to have nothing but the kinds of ‘fast and frugal decision rules emphasized by Gigerenzer et al. (1999), such as the rules that triage nurses are trained to use. Alas, as with the process of recognizing problems and gathering information, the processing of information and forming expectation is hampered by aspects of human nature that twist our assessments in predictable directions. These biases are in addition to those associated with our poor choices of personal rules. The good news is that although our inherited rules can have shortcomings, we may be able to over-ride them if we know what they are and have appropriate techniques at our disposal via, say, self-help books such as Belsky and Gilovich.

Given that our evaluations draw upon our memories, anything that inherently limits how we remember things can impact upon them. In a Australian television interview (ABC Lateline, 11 June 2012), Kahneman emphasized that the mind does not remember entire streams of experience, but instead stores impressions based on the most intense level of sensation and the level of sensation at the end of the event. His interviewer was immediately interested in how this might relate to childbirth. Women contemplated having further children will be basing their assessments of the pain they might experience during childbirth on a highly edited version of their first experience in labour. Kahneman’s point on how memories are formed could help to explain how people who initially were not afraid of flying could develop flight phobia after a flight involving an episode of significant turbulence and a bumpy landing. This may only be a small part of their total flying experience and yet it will loom large when they next consider possibilities that involve flying. Worse still, the more they recall their bad flight, the more likely they will be to recall it in future rather than ask themselves whether it is representative of their flight experience. In the context of buying a car, Kahneman’s point implies that we would seem wise to confine our test-
driving activities to mundane, everyday driving rather than seeing what each vehicle can do if pushed towards its limits: a car that is exhilarating to drive fast may perform far less well in typical driving conditions but the latter may fail to register if the test drive focuses on the former.

But first impressions are also prone to be over-weighted during evaluations, as acknowledged in the notion of ‘anchoring bias’. If a house is up for sale with an untidy front yard, prospective buyers will find this looming disproportionately in their minds as something they would need to fix. Worse still, they may take it as signalling more general neglect by its vendors and, to cap it all, the untidy front yard will also be the last thing that prospective buyers see at the end of a viewing. It is the anchoring process that makes us susceptible to prices whose first digits have been reduced at negligible cost to the supplier: we do not see $9.99 as the same as $10.00 or $29,995 as $30,000, despite the differences being of negligible practical significance. As behavioural economists, we know this but still we have consciously to overrule what our minds are programmed to do. Note, however, that from an evolutionary standpoint, anchoring could be fitness-enhancing: given that our attention may get diverted before we can get far into an evaluation, being programmed to take a first impression means we at least have a chance of remembering something.

Since the use of an existing reference point is necessary when sizing up a new object or event, our evaluations will depend on what that reference point is. For example consider how behavioural economists with different backgrounds are likely to see the impact of heuristics on the quality of choice. Richard Thaler uses the reference point of the ideal world of conventional economics as his anchor, so he will tend to see heuristics in a negative way; by contrast, after decades of viewing economics from a Simon-inspired standpoint, I will tend to take a much more positive view. A pluralistic approach, with multiple reference points guards against making dysfunctional generalizations, but it is not what were are cognitively predisposed to use: we are programmed to want to find ‘the’ way to see things; dualistic (‘black and white’) thinking is cognitively much less demanding. The reference points that we use can also affect our evaluations as a result of our sensory systems working in a step-wise manner rather than registering differences along continuous scales: a difference in the performance of rival products that expert testers can measure may not be big enough to be noticeable to potential buyers.

If we are presented with several reference points the assessment we make of a given object is prone to change from what it would have been with a single point of comparison. Ariely (2008) discusses this using
examples involving buying a house or a television or deciding which potential mate to approach at a nightclub. A particular house or television might seem expensive in relation to a particular alternative but then suddenly seem to offer really good value for money if compared with something else that offers a bit more for quite a lot more money. Similarly, a moderately attractive person’s chances of attracting interest in a nightclub may be enhanced if he or she brings along a friend who is very plain and who will ‘make them look better’ by lowering the average level of attractiveness in their immediate vicinity. In short, we are susceptible to having our evaluations affected by the presence of decoys.

Thaler (2015) emphasizes how his research confirmed his early suspicions that human judgments are often affected by ‘supposedly irrelevant factors’ (SIFs), i.e., things that people would not factor into their decisions if they were thinking like ‘econs’. What he had in mind were not things such as using a person’s astrological star sign to evaluate their suitability for a job. Rather, he was interested in the impact that factors such as sunk costs and differences between recommended retail prices and actual asking prices have on decisions. We will be exploring these factors in some detail later in this book (see particularly sections 5.2 and 7.8). However, Ariely (2008, ch. 2) reports an anchoring phenomenon that initially seems a bizarre SIF of a different kind. With Drazen Prelec and George Lowenstein, Ariely conducted an experiment in which they asked MBA students to write down bids for bottles of wine after writing down the last two digits of their social security number and saying where or not they would be prepared to pay that number of dollars for the bottle in question. It turned out that the bids and social security numbers were correlated. This finding seems much less bizarre from the standpoint of Hayek’s *Sensory Order*, for when asked, in effect, to pluck numbers out of thin air, the mind needs some point of reference and as far as numbers go, the social security digits constitute its most recently activated pattern.

If Kelly is right to suggest that human actions revolves around attempting to predict and control events, behaviour is fundamentally based on the presumption that the world around us does exhibit some kind of coherence. Pending the development of our expertise in a particular area, the mind still strives to find patterns to use as bases for action. In the absence of anything better, it will use those whose causal connections are questionable. Using astrology or consulting an oracle were pre-scientific manifestations of this, but modern folk are no less susceptible to basing their choices on assessments that lack causal stories to connect variables that they treat as being associated. For example, a person may expect to
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do well in an examination if he or she is armed with a ‘lucky charm’ that they had with them on a previous successful day in the examination hall.

Such behaviour is in essence superstitious but the more unpredictable something is the more we seek forecasts on which to base out choices rather than accepting its unpredictability and focusing on how well our options are suited to handling the possible range of variation. Gimml and Dakin (1984) see the commissioning of many business forecasts as a symptom of this and suggest that modern managers and other policymakers are just as prone as primitive tribes to buying into spurious causal notions. Building an international airport for a city and hoping it will cause tourists to arrive because this has been observed in other cases is, they suggest, little different from being part of a primitive cargo cult. Overseas tourists may indeed come in larger numbers and arrive via the international terminal, but they might well have come anyway, flying in via an existing hub and taking a domestic connecting flight. The rise in their numbers might reflect something else, such as rising incomes in source countries.

Many of the dubious causal links that people construct are manifestations of what is known, following the work of Kahnemand and Tversky (1972; Tversky and Kahneman, 1971) as the ‘representativeness heuristic’. In part, this entails finding similarities between things and inferring associations between them. For example, if food looks ‘fatty’ we may infer that if we avoid it, we will not get ‘fat’, little realizing that excessive intakes of sugars such as fructose may actually end up being stored as body fat. Poor outcomes from using the representativeness heuristic also arise because people are prone to base their evaluations on unrepresentative small samples and do not understand how to work out compound probabilities. These failings can be exacerbated by a tendency to give undue weight to vivid case examples relative to evidence from large samples.

An example of the latter sticks in my mind over thirty years after seeing it in Nisbett and Ross (1980). It concerns a prospective new car buyer who has done his research very thoroughly, including consumer satisfaction reports and is on the verge of buying a new Volvo when he has a conversation at a dinner party with someone who recounts the case of someone he knew who had a very bad experience with a Volvo that was an utter ‘lemon’. One the basis of this single horror story, he abandons his plan and buys a different brand. This is an example of what, with their focus on the social side of judgment, Nisbett and Ross call the ‘man-who syndrome’. It is the outlier experiences of others that stick in our minds and loom large when we are making decisions. Evaluations
that are formed socially are also prone to being twisted in conformity with social beliefs (as satirized in the fairy-tale of ‘The Emperor’s New Clothes). In the absence of a well-focused chairperson and strict evaluative guidelines, a panel of decision-makers may compound it ira members’ tendencies to use inconsistent sets of evaluation criteria across the options. Such tendencies are a good reason for university professors to mark assignments and examination papers with the aid of grading templates.

Human statistical incompetence is not confined to the use of inadequate samples and mistaken probability assessments. Another issue is over-confidence bias that arises due to people not accepting statistics pertaining to their areas of expertise or having failed to seek advice from those with more experiences about the odds of particular kinds of outcomes in the kind of territory into which they are planning to go. Kahneman (2011) suggests that lawyers are prone to take more cases to court than they should due to focusing on the singularities of the cases and believing they can exploit these to beat the established odds for success. Regarding the failure to seek advice, Kahneman candidly reports on his unsuccessful experience in a team designing a decision studies curriculum in Israel. After the project had dragged on way beyond its expected completion data, he discovered this was entirely normal with such teams, due to failures to allow for the impacts of factors such as team members’ ill-health, personal problems and job changes on a team’s progress.

It also seems that, consistent with Shackle’s anti-probabilistic view of the world, people commonly do not even recognize that they face decisions in which it makes sense to think probabilistically. For example, consider how willing people are to buy extended warranties for their consumer durables. These warranties might make sense for, say, those with low incomes and poor access to credit (for example, students buying laptop computers), or for elderly consumers who buy extended warranties for what they hope will be their ‘last’ television and expect to have no need to buy any other consumer electronics products. For most of us, however, the fact that we are continually buying such products and being offered extended product warranties should signal that it might be wise not to treat each purchase as a singular act and instead see it as one instance in a large sample that we will amass through time. If so, our rule should be to decline extended warranties and instead simply repair or replace those items that fail outside of the standard or statutory warranty period. In this way, we would save money as we would not be contributing to the profits of the firms that offer the warranties.
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The human tendency to treat events in isolation rather than as elements of particular long-term sets may also help explain the so-called ‘equity premium’ whereby a diversified portfolio of equities tends over the long term to earn a higher rate of return than risk-free government bonds. Although individual corporations may fail and equity markets in general may go through boom–bust cycles, investors should not require compensation for putting their money into equities rather than risk-free government bonds unless they are getting close to retirement. For the rest of us, a ‘kaleidic’ collapse in the share market will sooner or later be comfortably offset by a market upswing. The risk of such a collapse thus should not worry us unless we are considering borrowing money to speculate and fear that a temporary collapse could leave us unable to service the loan.

4.10 THINKING FAST AND SLOW

In his 2011 book Thinking, Fast and Slow Nobel Laureate Daniel Kahnmen provides a detailed account of the research by which he and Amos Tversky identified many of the heuristics and biases that have become core to modern behavioural economics. But he also presents a dual-system view of the workings of the human mind. He argues that, if left unchecked, the mind will use simple heuristics and its associative memory to make judgments swiftly (System 1). However, this system can be reined in by a slower, more deliberative analytical system that avoids jumping to conclusions and processes information more thoroughly (System 2). Ideally, this dual system mode of thinking would ensure that decisions are not held up unnecessarily due to unwarranted attention to detail and concerns about ambiguities.

The trouble is, System 2 operates in a lazy manner, rather like a poorly motivated boss who only occasionally checks what his or her subordinates are doing. We need our System 2 to allow System 1 free rein some of the time because there is not enough time to deliberate about everything, but System 2 tends to leave too much to System 1. We thus under-utilize our System 2 capacity, wasting time that we might have used profitably to think more before selecting some of our actions. This can result in poor judgments, as when students quickly interpret examination questions as those for which they have prepared rather than looking at the wording carefully and thereby noticing that something more challenging is entailed. If our System 2 operates in a very slack manner we may go through life as if driving whilst asleep at the wheel,
rarely reflecting critically on how things are and on the judgments and choices that we and others make. Although, as we saw in Chapter 3, the allocation of attention cannot be optimized and has to be rule based, many of us probably need to be more ‘mindful’ (cf. Langer, 1989) about how we allocate our attention. Some things, such as climate change, warrant serious attention but in matters relating to them System 2 often allows System 1 to shape what we do, using rules that worked in the past.

Many economist who read Kahneman’s book probably end up thinking that ‘fast’ thinking is the focus of behavioural economics and invariably causes departures from ‘rational’ choices, whereas when people take the trouble to think slowly and reason properly, then they will behave like the ‘econs’ in standard economic models. This is not the message to take from the book, at least not as a general conclusion. To be sure, better choices might come from greater reflection if it results in us deciding to seek advice from those with more experience than ourselves or if it results more generally in us ask ourselves if there might be other ways of looking at our options. (Shell’s scenario planning philosophy could be viewed as a systematic attempt to inculcate System 2-style thinking and resist System 1-style tendencies to assume existing trends will continue.) Such reflection might also serve to dent our tendencies towards over-confidence—but only if we are prepared to allow this to happen and possibly at the cost of us failing to plunge into ventures that would have greatly enhanced our wellbeing. Trying hard to form a clear picture of the potential consequences of making one choice rather than another may simply overwhelm us and leave us ‘failing to see the wood for the trees’ if we lack effective rules for handling information and judging what is important. Whilst we are struggling to figure out ‘the truth’ about our options, opportunities may slip away, either in the context in question or in other parts of our lives to which we have been unable to give attention. Moreover, if we are statistically incompetent and hopeless at calculating compound probabilities when we think fast, we will probably be just as challenged in these respects if we try to stop and think more carefully about the likely properties of our options.

4.11 CONCLUSION

When the mind sets about evaluating options and forming expectations about the consequences of making particular choices it does so on the basis of its systems of associative rules that it has developed via past experience. The process may take place unconsciously or it may entail conscious thought. The depth of analysis that we undertake may vary
considerably depending on the context. At the most basic level, we may use the brand/model name of a product for presuming many things about it that we then do not trouble to check. But we may go somewhat deeper and apply simple rules for assigning performance ratings, including summary statistics prepared by experts or past purchasers. At the other end of the spectrum, our evaluations may result from in-depth processing of considerable information from diverse sources, plus our own deductive reasoning about possible drivers of, and barriers to, a particular option being about to perform to a particular level as a means to an end that we seek to meet. Some of the rules we use may be remarkably ‘fast and frugal’, whereas others may bias our assessments in a dysfunctional manner. Either way, regardless of how deep our analysis goes, it is ‘rules all the way down’, including rules that determine how deep we go in undertaking our analysis.

In making evaluations and forming expectations we create new cognitive connections, so the process of making up our minds can also be a process by which we change how we see the world. These evaluations and expectations are means towards the end of being able to make a choice. However, they actually require us to make choices about what to believe. Moreover, as we noted when considering the resolution of cognitive dissonance and how expectations can be malleable in the face of uncertainty, our assessments may actually be shaped to justify choices that have already be made by other means, without us realizing that this is happening. In the next two chapters we explore what determines our responsiveness to changes in our external environments and how we use our evaluations and expectations to make our choices. As with this chapter, the analysis will focus on the rules that our minds use, but our focus will particularly be on the significance of structural relationships between the sets of rules in our cognitive systems.
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This paper begins with a critique of the option value argument used by economists to explain and justify the precautionary principle. The argument is shown to misrepresent both uncertainty and irreversibility. An alternative
justification of the precautionary principle is discussed, under conditions of Keynesian uncertainty, and irreversibility interpreted in terms of incommensurability. Recent formal decision theories under Keynesian uncertainty are reviewed and their limitations explored, with particular reference to the insights that decision theory can bring to understanding the precautionary principle. Throughout, the decision problems under consideration are those faced by climate change policy makers.


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