7 Complexity and Tests of Adequacy

7.1 INTRODUCTION

Having studied the nature of consumer motivation, the kinds of choices that may be undertaken and the origins of expectations, we are at last ready to consider how deliberating consumers come to rank mutually exclusive action schemes in order of attractiveness. There is an obvious sense in which, after venturing outside the normal realm of the economics of consumer behaviour, we are back on familiar ground and are about to produce an analysis comparable with that discussed in Chapter 2. However, orthodox economists would be wise to permit themselves a sigh of relief at this prospect, for they are about to have their core tenets challenged from two new directions.

As in the previous chapter, we are going to be concerned essentially with judgemental processes: I want to uncover the rules—the choice heuristics—that deliberating consumers use to reach verdicts concerning the actions they should undertake. These rules should be seen as devices for handling confrontations between the consumer’s theories predicting particular possible properties of rival action schemes, and her theories predicting what it is appropriate for her to expect to be able to obtain. The rules are members of the set of expectation-forming judgemental rules according to which she organises her life, which was outlined in Chapter 6. However, although we already understand how rule-hierarchies determine verdicts concerning degrees of disbelief in possible events (for example, ‘could scheme X be better for me than scheme Y?’), the analysis from Chapter 6 is insufficient to explain how rankings are worked out. The deficiency is simple to see: while I have argued that expectations are assigned degrees of belief by the consumer’s hierarchy of rules, I have not considered the forms that these rules might take. In terms of our analogy with the judicial system, the point is still more obvious: the appeal court may be superordinate to the criminal court and hence able to pronounce on whether disputed verdicts of the latter are to be accepted, yet there are many different forms the two ruling bodies could each take. A criminal court jury, for example, might contain twelve members, with unanimity being required for each verdict; it might be constituted in a different manner, with a different number of members, a simple majority of whom could determine the verdict. In the present chapter I will examine the possible shapes of rules that determine a person’s preferences, and suggest why some shapes might be more easily disbelieved than others.

The rest of the chapter is structured as follows. Section 7.2 sets out the nature of the evaluation problem in relation to the decision maker’s evolving construct system. Section 7.3 considers possible choice heuristics that are variations on the ideas discussed in Chapter 2, and notes some of their problems. Section 7.4 then examines rules that do not involve the notion of compensation amongst attributes. I am by no means the first to make this departure from neoclassical notions of substitution in order to discuss choice in terms of ‘priorities’. However, these previous attempts have not met with widespread acceptance, so in proposing this kind of analysis once again I have the task of doing so in a different, more convincing way. Therefore, in sections 7.5 to 7.7, I will consider some refinements to the basic ideas of section 7.4. The conclusion, section 7.8, may come as something as a surprise after my spirited attempts to develop non-compensatory rules, for it suggests that it may be unwise to argue in favour of any one rule, compensatory or otherwise.

7.2 THE CHOICE MATRIX AND ITS IMPLICATIONS

Once a consumer has formed her expectations about the nature of her options, we might usefully see her task consisting in processing information underlain by what might be called her ‘choice matrix’. This matrix may actually exist on paper—for example, as a data chart in a consumer magazine in front of the decision maker—or it may exist only in the consumer’s mind, as something which could be uncovered through an application of
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repertory grid technique. The columns (or rows) are headed with the characteristics the consumer sees the action schemes to possess, and one row (or one column) is assigned to each scheme. For purposes of this chapter, we may keep things simple and imagine that the consumer does not have in mind any uncertainty as to the characteristics associated with each scheme; rules for dealing with uncertain prospects are considered in Chapter 8.

Brick versus weatherboard
Tiled versus tin roof
Western shore versus eastern shore (of the Derwent estuary)
House versus apartment
Three versus two bedrooms
Separate laundry versus laundry in bathroom
White goods included versus white goods excluded
Built-ins versus need to buy wardrobes
Detached versus semi-detached
Wooden versus oil heating
Mountain versus water views
Ergonomically sound kitchen versus cluttered kitchen
Stirring versus dull style
Large versus small
Good versus tasteless, shabby decorative order
Well-drained versus neglected garden
Expensive versus cheap

Figure 7.1: House-buying constructs

In order to provide a focus for the analysis, I would like readers to consider a choice matrix from my own experience—the task of house hunting on my arrival in Hobart. In all, I visited twenty-five properties in the space of two weeks, and the eighteen constructs in terms of which I evaluated them are listed in Figure 7.1. There are several things to be noted here. First: an eighteen by twenty-five matrix is a very demanding information structure for a boundedly rational consumer to be able to handle. I have an excellent memory, yet as my search progressed I was becoming increasingly confused and driven to take notes on what I was seeing; also, the whole process became very stressful and tiring, even despite the fact that I had already pruned down my list of options to twenty-five by rejecting many properties as 'not worth looking at', purely on the basis of a paper evaluation. Such problems arose because I was trying to flout Miller's (1956) empirical rule, that people can keep in mind at once only seven, plus or minus two, things, and because this was my second time in the business of house purchase, so there was much I knew I must look for. Often, consumer choice matrices will be much more restricted— for example, ten characteristics and half a dozen options.

Second, it should be recognised that even a restricted matrix exists within an hierarchical context. Quite often, the constructs in Figure 7.1 actually concern other elements (construction materials, cupboards, water views, and so on) which are themselves complex configurations of constructs. Quite a few of the constructs are actually superordinate to common constructs not on the list; many are constructs that in my mind determine how time consuming it could be to own a particular property (because they determine how much time I will need to spend on travel to work, gardening, decorating, getting the place warm in winter, and so on); many seem to affect how much it could cost in pecuniary terms to live in a particular property, or how easy it might be to resell. Some of the constructs are superordinate to several others, but not all such constructs are superordinate to the same sets; for example, which side of the river a property is located affects my travel time to the university, while my time is also affected by the state of the decor; however, the state of decor does not in large measure determine whether or not it is possible to enjoy a sunny aspect along with a good water view and a good mountain view, but location on a particular side of the Derwent river certainly does.

On the surface, it would appear that some characteristics related to constructs in my choice matrix are intrinsically incomparable: (how can one compare time savings and views, for example?). This will frequently appear to be so, and in my earlier work I have used this observation to argue against choice rules, of the kind discussed in the next section, that involve the aggregation of values. In the context of a car-purchase decision, for example, I could imagine a consumer being able to compute overall running costs, using estimates of depreciation, and insurance, fuel and maintenance costs. All of these economy related characteristics could be dealt with on paper, or with a calculator, in terms of money. I could also imagine the consumer being able to aggregate elements of style, such as interior decor
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and outward appearance. I found it rather more difficult to admit the possibility that the lay consumer might try to add together features that would have some bearing upon a vehicle's ability to provide driving excitement, if this happened to be desired. (I was quite prepared to concede that, the greater the consumer's expertise as a driver, the more likely it is that she might appreciate how elements such as acceleration, road-holding and braking interact to shape the overall performance of a car.) But I could not see how these different dimensions' scores might meaningfully be compared unless the consumer could ultimately reduce them all to units of what, for want of a better word, might be called 'utility'.

But now I can see a better word, a common unit: this unit is 'the implication', as discussed in section 6.4, in Hinkle's (1965) use of the word. I have depicted the consumer as trying to build up a system which she can use to predict and control events in a satisfactory manner. Her choices matter to her because, and in so far as, they seem to have constructive or destructive implications for the system of expectations she is trying to develop. In deliberating, she will try to assess the consequences of committing herself to a different consumption pathway from that around which she has thus far constructed her expectations. Compared with this 'no change' reference point, she may construe possible new courses of action as having arrays of implications—usually both positive and negative for each scheme—for the development of her system for coping with life. In so far as she construes schemes differently, she will have attached different patterns of implications to them. Given our analysis of motivation, it is natural to argue that, if the consumer can see these overall patterns of implications, she will rank her perceived options according to their net (that is, constructive minus destructive) implications relative to her 'no change of pathway' point of view, and she will be indifferent between schemes that she construes as having identical 'net implications' scores even if the patterns of their implications are very different. We could use the research methods described in section 6.4 to gather data from which we could infer not merely these implicational tallies but also relative total scores of rival options, and attribute weightings, in expectancy value models of the kind examined in section 2.6. Such arguments raise two key questions:

1. Given the ways in which a consumer has construed the implications of rival action schemes, can she in practice see each scheme's overall implications?

2. If, on occasion, the consumer has in mind a choice matrix of sufficient complexity as to prevent her from seeing overall implications, how, then, might she come to rank rival action schemes?

7.3 COMPENSATORY RULES

The procedures according to which a boundedly rational consumer might evaluate rival action schemes could take many forms, yet they will have a variety of things in common. They must, for reasons earlier explained, involve satisficing rather than optimisation, with choices being made from restricted agendas of options. They will also each imply terms upon which one kind of characteristic yield will be willingly compromised to obtained another. In this section, I will consider rules that enable schemes with poor performances in some respects the chance of dominating because they offer adequate or exemplary performances in other respects.

1) A Satisficing Expectancy Value Rule

This is essentially a trade-off approach to evaluation, of the kind discussed in Chapter 2 and alluded to in section 7.2. It only involves satisficing in the sense that, after requiring that the decision maker works out a set of overall (implicative) scores for the schemes on her agenda, it involves her in asking whether the highest of these scores is 'high enough'. If the answer is 'yes' she is not prompted to engage in search. For such a rule to be practically applicable, the decision maker must have:

(a) the ability to assign options to expected places on performance axes;

(b) the ability to transform the impacts of having more or less of a particular characteristic into scalar ratings in terms of a common numeraire;

(c) adequate computational powers.

In some contexts, these conditions may certainly all be present. The example of choices in design engineering makes this clear, as Steinbruner (1974, p. 104) points out:
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A ship designer is aware of the characteristics of water which make it necessary for him to increase the power he designs into his ship as a cube of the increase in its speed he might desire. This involves him in complex trade-offs with cost, range, fuel consumption, displacement, etc., which he constantly juggles with the aid of very explicit calculations.

The discussion at the end of section 7.2 should make it clear that I do not see condition (b) as an insuperable requirement, but the other conditions are by no means guaranteed. At best, a person’s choice matrix is going to be only as detailed as her limited repertoire of her constructs and their limited ranges of convenience will admit. This is not a problem as far as being able to reach a decision is concerned; but a real difficulty arises when the decision maker ‘hasn’t got a clue’ as to how she should construe things in certain dimensions. Here, condition (a) is violated and it can only be reinstated if the consumer can employ a subsidiary procedure (see section 8.6) to assign scores to each of the problem dimensions, or if she is prepared to disregard dimensions where she cannot make some kind of assessment. As far as condition (c) is concerned, the quotations at the end of section 2.6 would seem to serve as ample warnings that quite often the overall ramifications of possible action schemes may be ‘beyond’ the decision maker; if we recognise the fact of bounded rationality, we must admit the possibility that the consumer’s mental ‘hardware’ could prevent her from seeing net implizational impacts. For reasons of computational workability, rule (1) might often be replaced by another form of ‘software’. So let us now consider some less demanding heuristics.

(2) An Additive Differences Satisficing Rule
As the process of search continues, a consumer might ask herself how the most recently investigated possibility dominates over, or is dominated by, the ‘best’ of the options she has hitherto investigated. If the sum of these differences (in implications) is greater than zero, the ‘new’ option then becomes the reference point against which the next option investigated will be evaluated. Otherwise, the option is removed from the list of possibilities and the previous reference scheme is kept. Search stops when allotted search time runs out, or when the consumer fails to encounter better and better prospects and judges, in terms of some other rules, that she is insufficiently likely to discover anything better in her allotted search time. This kind of rule (discussed in Payne, 1976) makes smaller demands upon a person’s memory than does rule (1) (which envisages total scores being worked out independently before a comparison of options is made). Evidently, if this rule is being employed, the choice matrix is continually being updated (unless it exists already in printed form), and it should never consist of more than two lines of data. The use of this rule could be investigated in a laboratory setting, in relation to a supplied choice matrix, by employing sophisticated eye-position-sensing equipment (see Russo and Dosher, 1983, for a discussion of related work on eye-fixation patterns and evaluation techniques). Evidently, something is amiss if the consumer’s attention in any short period does not fit only between two rows of a matrix in which her options are represented in rows, or if she works down single columns, or if she comes back to rows that had formerly ceased to hold her attention. Certainly, in my house-buying experience, I recall having more than two properties in mind as serious candidates for much of the evaluation period.

(3) A Characteristics Cut-offs Expectancy Value Rule
An alternative way of simplifying a trade-off task is to assess the overall rating of each option by asking oneself a series of questions with ‘yes/no’ answers, whose results are then added according to some system of weights that reflects one’s judgement of the implications, for each characteristic, of a ‘yes’ or ‘no’. Thinking dichotomously is less demanding than making assessments in scalar terms, but this rule also works for bipolar scales where the consumer has in mind particular aspirational cut-off targets (for example, ‘at least three bedrooms’, or ‘no more than twenty minutes’ drive from work’). The last two compensatory rules that I wish to consider are even less demanding.

(4) A Simple Averaging Rule
Here, the consumer is thought of as if she rates schemes in respect of each of their attributes (in, for example, marks out of ten) and adds the scores together in an unweighted manner. To be ‘satisfactory’, a scheme must achieve a particular average score; if no such scheme is in her initial choice matrix, she may engage in search activity. She chooses the highest scoring of those
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(5) The Polymorphous Satisficing Rule
This variant on the satisficing theme (inspired by the work of Lea and Harrison, 1978) admits a scheme as satisfactory if it offers the prospect of meeting a sufficient number of unordered characteristics targets. Clearly, this rule requires a much smaller capacity for processing information than do the first four rules and, like rule (3), it involves satisficing in a dual sense. But, like rule (4), it seems to suggest that one views decision makers as if they lack well-thought-out value structures and are not concerned with ‘importance’ or with the implications of a failure to meet particular aspirations. Furthermore, its unordered view of targets means that it breaks down if several schemes tie as least bad options.

7.4 NON-COMPENSATORY RULES
With rules (4) and (5), we were beginning to see the consumer increasingly losing sight of the overall implications of the choices she might be making. Given the benefit of global rationality, the consumer who applied either of these rules might well regret her choices. Similar possibilities arise if the consumer uses either of the rules considered in this section.

(6) The Conjunctive Rule
The obvious alternative to trading-off one characteristic for another is to try to ‘have one’s cake and eat it’—that is, to seek a scheme of action that is satisfactory in all respects, and only to stop searching when such a scheme is discovered. This is what the conjunctive rule entails and the process it embodies is essentially akin to a search for a scheme which will fit into a mould, whose shape is determined by: (a) the characteristics the decision maker has in mind as relevant to the choice at hand; and (b) the decision maker’s aspirational targets in respect of each of these characteristics. And the search is carried out in the belief that something exists which will fit this shape, which will ‘fit the bill’. However, if a person has carved a very intricate mould, involving many different and highly demanding characteristic targets, and if she insists on meeting them all, her expectations may be sorely disappointed. Kelly’s (1963, p. 121) characterisation of women thinking about the possibility of marriage, from an implicitly conjunctive standpoint, makes this very clear. Potential husbands exist initially only as the intersects of mental construct dimensions. Where a woman has only a few dimensions in mind, it may not be long before she encounters someone who conforms with her expectation. She may thus end up marrying young, not long after meeting the man. By contrast, the ‘old maid’ is, in Kelly’s picture, someone who has imagined a husband as the intersect of many conceptual dimensions and ‘nobody ever lands on the precise point where all of them converge’. Unless she revises her expectations, she will very likely remain a spinster.

The ‘old maid’ in Kelly’s example might have fared better if she had set herself a ‘closing date’ by which time she would cease searching or ‘waiting for her prince to come’, and if she had worked out how to choose amongst potential marriage partners who could not match her mould in every respect, yet who differed in their mis-match tendencies. If the conjunctive method of choice leaves one incompletely satisfied, one needs a conflict-resolving tool that makes it possible to select the ‘best of a bad bunch’.

(7) A ‘Characteristic Filtering’ Rule
If the aggregation of values is possible, rule (3) would serve well as a conflict-resolving device in situations where a conjunctive rule breaks down. However, the use of an hierarchy of characteristics targets as a filtering device enables conjunctive conflicts to be resolved without undue demands being placed on the consumer’s computational powers. Rule (7) thus involves subjecting rival action schemes to a series of tests, in a particular order of priority. Only those schemes which pass the first test are
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7.4 NON-COMPENSATORY RULES

With rules (4) and (5), we were beginning to see the consumer increasingly losing sight of the overall implications of the choices she might be making. Given the benefit of global rationality, the consumer who applied either of these rules might well regret her choices. Similar possibilities arise if the consumer uses either of the rules considered in this section.

(6) The Conjunctive Rule
The obvious alternative to trading-off one characteristic for another is to try to ‘have one’s cake and eat it’—that is, to seek a scheme of action that is satisfactory in all respects, and only to stop searching when such a scheme is discovered. This is what the conjunctive rule entails and the process it embodies is essentially akin to a search for a scheme which will fit into a mould, whose shape is determined by: (a) the characteristics the decision maker has in mind as relevant to the choice at hand; and (b) the decision maker’s aspirational targets in respect of each of these characteristics. And the search is carried out in the belief that something exists which will fit this shape, which will ‘fit the bill’. However, if a person has carved a very intricate mould, involving many different and highly demanding characteristic targets, and if she insists on meeting them all, her expectations may be sorely disappointed. Kelly’s (1963, p. 121) characterisation of women thinking about the possibility of marriage, from an implicitly conjunctive standpoint, makes this very clear. Potential husbands exist initially only as the intersects of mental construct dimensions. Where a woman has only a few dimensions in mind, it may not be long before she encounters someone who conforms with her expectations. She may thus end up marrying young, not long after meeting the man. By contrast, the ‘old maid’ is, in Kelly’s picture, someone who has imagined a husband as the intersect of very many conceptual dimensions and ‘nobody ever lands on the precise point where all of them converge’. Unless she revises her expectations, she will very likely remain a spinster.

The ‘old maid’ in Kelly’s example might have fared better if she had set herself a ‘closing date’ by which time she would cease searching or ‘waiting for her prince to come’, and if she had worked out how to choose amongst potential marriage partners who could not match her mould in every respect, yet who differed in their mis-match tendencies. If the conjunctive method of choice leaves one incompletely satisfied, one needs a conflict-resolving tool that makes it possible to select the ‘best of a bad bunch’.

(7) A ‘Characteristic Filtering’ Rule
If the aggregation of values is possible, rule (3) would serve well as a conflict-resolving device in situations where a conjunctive rule breaks down. However, the use of an hierarchy of characteristics targets as a filtering device enables conjunctive conflicts to be resolved without undue demands being placed on the consumer’s computational powers. Rule (7) thus involves subjecting rival action schemes to a series of tests, in a particular order of priority. Only those schemes which pass the first test are
subjected to the second test, and so on down the ranking until only one scheme is left. Of course, it could be the case that all schemes fail the first test, but do so in different degrees, and the decision maker does not anticipate that search could be fruitful. According to the characteristic filtering rule, the decision maker will, in this situation, select the scheme which misses closest to passing the first test, regardless of other considerations. She will behave similarly when she sees herself faced with an absence of satisfactory schemes in respect of lower priority tests. However, where no schemes pass a test but several tie as “least bad failures” the schemes that tie, but not the more dismal failures, are allowed on to the test test, unless the decision maker believes she can discover other schemes which will pass this test (and all the higher priority tests).

The characteristic filtering rule provides a plausible means of explaining why people often explain decisions to reject particular action schemes as being “because” of a single failing. Such “fatal flaws” are difficult to explain in terms of the application of any one of the first six rules we have considered; according to these rules, it makes no sense to “single out” a particular fault—unless in all other respects the rejected scheme is treated by the rule in question as if it is identical to the favoured option.

One might well infer that I applied a characteristic filtering rule in my house-buying decision. For I did not look at properties above a particular price (fortunately plenty were “within my budget”), or which were not on the western shore. Nor did I seek to inspect homes listed as having less than two bedrooms or which were listed explicitly as having other than brick and tile construction. By such means, I was able rapidly to reduce my choice set to the twenty-five properties I actually inspected. Amongst these were many that were subsequently rejected on the basis of particular failings. For example, two were “ruled out” because they were adjacent to large and unsightly concrete water tanks, even though these properties were in many other respects more than adequate. The presence of the water tanks conflicted with my world-view as far as a desirable residence was concerned, and I felt they could jeopardise resale prospects as far as buyers with similar views to my own were concerned.

Another obvious example of characteristic filtering at work concerns appointments’ committees in many American universities that immediately reject applications from candidates who lack doctoral qualifications. If one is snowed under with applications, and if one believes that somewhere in the pile is a curriculum vitae which would survive a conjunctive test, one dimension of which is the doctoral degree requirement, there is the prospect of saving considerable information-processing effort by setting up a series of priority screens. To begin with a conjunctive procedure could involve much time being spent in examining sequentially (though only partially, since each examination is halted once on failure is discovered) many applications that fail to offer the desired all-round adequacy, before a satisfactory one is discovered. Should no such candidate exist, it would then be necessary to backtrack and re-examine all the partially considered applications. By starting with priorities such a backtrack is avoided, along with the need to give more than a cursory examination to many of the applications. Of course, if there is no perfectly adequate candidate, the applicant who survives the most filters may leave the committee with a long list of prospectively unsatisfied goals. In priority terms, the operative question then becomes: “have enough tests been satisfied in order of importance, or is it worth searching (via a readvertisement) for a candidate who could pass some more tests and get further down the checklist without any failings?”

Disgruntled would-be house-sellers and academic appointees might well wish to challenge the wisdom of people who employ a characteristic filtering evaluation procedure. They would surely concede that, unlike rules (4) to (6), rule (7) accommodates observed tendencies for people to assign differing degrees of importance to particular characteristics, and it also avoids the information-overloading problems potentially associated with the weighting rules (1) to (3). However, they might justifiably argue that characteristic filtering is a procedure which is by no means guaranteed to result in a consumer selecting from her agenda the option that is least bad as far as the overall implications for the development of her world-view are concerned. Depending on how demanding are the consumer’s high-priority targets, the use of this procedure could well involve her in filtering out schemes with much higher ‘net implications’ scores than the one she actually selects.

It would be natural for the consumer to accord top priority to
subjected to the second test, and so on down the ranking until only one scheme is left. Of course, it could be the case that all schemes fail the first test, but do so in different degrees, and the decision maker does not anticipate that search could be fruitful. According to the characteristic filtering rule, the decision maker will, in this situation, select the scheme which comes closest to passing the first test, regardless of other considerations. She will behave similarly when she sees herself faced with an absence of satisfactory schemes in respect of lower priority tests. However, where no schemes pass a test but several tie as ‘least bad failures’ the schemes that tie, but not the more dismal failures, are allowed on to the test test, unless the decision maker believes she can discover other schemes which will pass this test (and all the higher priority tests).

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It would be natural for the consumer to accord top priority to
the characteristic goal which, if she failed to meet it, would present the biggest barrier to the development of her construct system along the lines she presently anticipates. (This developmental blow could actually take the form of a shrinkage in the range of convenience of her system.) The second priority would be accorded to the goal whose failure to be met would imply the second biggest barrier to the development of her system, and so on for successively lower-ranking characteristics (see the discussion, in section 6.4, of empirical work with ‘resistance to change’ rankings of constructs). Given a long enough list of characteristics, it is obvious that a scheme which failed to meet the top priority could have a better overall implicational score than one which is actually selected because it is the only option to pass, say, the first five priority tests. The favoured scheme might well be utterly deficient in respect of a long list of less important characteristic tests: it is, so to speak, favoured ‘at all costs’ by virtue of its ability to pass the high-priority tests. If the consumer can see this at the time of her choice, her rationality is not so bound that she cannot use a compensatory rule. However, the longer that the characteristic list would have to be for a rejected scheme to be able to dominate in principle in terms of its overall implications, the less likely it would appear that the consumer in practice will be able to comprehend that the application of the characteristic filtering procedure is inconsistent with her aims in life.

But it is by no means inevitable that the application of a characteristic filtering procedure will necessarily result in the consumer making choices that are suboptimal in terms of her overall predictive system. The implicational score attached to the first priority test alone could in principle be so great as to swamp the combined scores of all the remaining pertinent characteristics. If this were the case, and if there were only one scheme which came anywhere near to passing the first test, yet which happened to be dreadful in most other respects, it would be perfectly appropriate to choose this scheme on the basis of rule (7). The choice is precisely that which she would make if she were able to count up the overall implications seemingly attached to each of the schemes she considers. None the less, to an external observer it could seem a hopelessly irrational choice, since the observer may not see the same set of implications arising out of a failure to make the selection.

Although a characteristic filtering procedure may sometimes generate choices radically different from those which would be dominant in a counting-up of implications, I must emphasise that I do not see the typical user of this procedure as someone blindly pursuing priorities at all costs. A consumer may not be able confidently to say to herself that she can sum together with tolerable accuracy the net implications associated with many different dimensions of choice. But she may certainly be smart enough to see that, if she sets a target, the number of implications directly associated with meeting it will depend on the size of that target. She may also be not unaware that the pursuit of a demanding high-priority target is possibly going to have some kinds of cost in terms of foregone advantageous implications associated with other characteristics which she will suffer if she fails to moderate her high-priority requirement. However, if she cannot see the overall implications of moderating one aspiration and making a number of aspirations more demanding—not necessarily in identical degrees—her awareness of opportunity costs among characteristics is too fuzzy for her to employ a compensatory rule. In such a situation it seems entirely reasonable to choose, as a means to choice (yet another of the ‘strange loops’!), a set of priorities and associated aspirations which, it is hoped, will select schemes in a manner which approximates to the unworkable procedure of counting up overall underlying implications. The characteristic filtering procedure is certainly non-compensatory, but its rationale lies in ignorance of the magnitude of opportunity costs, not in ignorance of their existence in ‘broad’ terms.

A set of characteristic filters—or, for that matter, any other decision-making heuristic—should be seen as a personal construct, tentatively selected and potentially open to revision if it does not match up to expectations. A consumer’s first priority may indeed be that which, by virtue of the aspirational requirement assigned to it, has the highest implicational tally. Such a priority may also filter options by treating slight under-attainments as identical to large ones, despite the fact that the target is personally selected rather than intrinsic. This in turn means that a scheme which nearly passes the first test and which would have dominated in subsequent tests—had it been allowed to take them—is dismissed without any weight being given to the fact
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that it 'nearly' passed. However, the consumer is setting up her filters in the hope that the results—in terms of the number of priorities met, and their associated implications—will be good enough. If she does see her personal development suffering as a result of the particular characteristic filtering procedure she has constructed, she will have reason to redesign her priority rankings and/or her aspirational requirements.

In such a situation, it may be obvious to the consumer that, for example, her first priority test is 'too tough' and how 'near misses' can be compensated for by exemplary performances elsewhere. If so, she is not suffering from so much bounded rationality that she cannot switch to using an efficient compensatory choice heuristic. But it may merely be obvious that the first priority test is too tough, and not obvious how failures could be compensated for on disparate other tests. If so, how far to lower the target, or whether to lower the ranking of the characteristic, or both, will not be easy to decide upon. The consumer must therefore experiment. (This argument has been made with respect to the top priority, but it can be made with respect to any characteristic filter, of whatever tentative ranking, which seems to stand out as excessively intolerant and holding up the development of the consumer's world-view.) On some occasions, the consumer's mould-reshaping experiment will be a personally crucial one; we should make no presumption that gradually, by repeated choices, she will stumble across a set of priorities and targets that will guide her to make choices which are optimal in terms of their overall implications.

7.5 SHORT CUTS WITHIN PRIORITY SYSTEMS

In this section I am going to make some refinements to the characteristic filtering idea, in order to show how a priority-based choice rule can accommodate modes of thought that would seem on the surface to be inconsistent with rule (7) yet not at odds with compensatory choice rules. A critic might well argue, from introspection, that she does not feel people always look first at the 'most important' characteristic desired in a scheme of action, or evaluate choices matrices one characteristic at a time rather than one scheme of action at a time. On this basis the critic could reasonably contend that everyday talk of 'priorities' or 'orders of importance' (such as those elicited by market researchers) could relate, not to priority rankings, but to sizes of various weights consumers have in mind as they choose according to compensatory procedures.

To refine the characteristic filtering idea, I will merge it with some other behavioural findings on how people simplify the process of decision making. My starting point is Simon's (1955) original satisficing model. This was notable not only for its satisfying nature but also for its introduction of the notion of sequential search. Simon suggested that, to economise on the costs of evaluating action schemes in situations of uncertainty, decision makers investigate the most promising, nearby solutions first of all and only expand their search 'acts' if these fail to appear satisfactory; that is to say, they try out obvious options they already have in mind, or generate potential plans of action one at a time. Lasson's (1967; 1973) empirical studies of firm relocation decisions produced findings not inconsistent with this view: when firms were prompted by problems to seek new factory sites, they only troubled to look outside their existing localities if their initial investigations failed to find a satisfactory local site. This idea meshes very obviously with rules (1) to (6), where one scheme is evaluated at a time, and the choice matrix possibly built up as the evaluation proceeds. Evidently, if the consumer has reason to believe that a particular scheme of action could well be adequate in a conjunctive sense, she stands to save herself some information-processing effort if she focuses her initial attention on it alone. If her conjecture is well founded, she will have no need to investigate other promising options unless she is afraid she has set some of her targets unnecessarily low. Even if she ends up having to explore several schemes in detail, she may still incur smaller evaluation costs than those which she would incur if she applied a series of priority tests to all thus-far-uneliminated options. By evaluating individual schemes according to her priorities, she comes to see how far down her checklist they get without failing. If soon she comes across one which gets to the bottom, all is well and good; but if there is actually no scheme which would pass a conjunctive test, she has at least avoided the need to backtrack which would exist if she carried out individual conjunctive appraisals, applying aspirational tests in no particular
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priority order. In the context of screening job applicants, for example, much time could be saved by looking at candidates who are rumoured to be strong contenders, for the choice matrix embodied in the pile of applications initially exists largely as a set of unknown quantities; the rumours may efficiently bias the screening process, for until shown to be wrong they are pieces of information that have already been processed, possibly without error.

A particularly important example of decision making (though not in the context of consumption) which illustrates a combination of sequential search and priority ideas concerns Soviet planning with material balances. The time limit under which the planners must operate, and the huge scale of their problem, means that their rationality is bounded even though they can make extensive use of computers. The input–output nature of their problem means that it is natural to try one plausible plan first and see how it performs in respect of all the relevant targets, instead of asking the computer to assess a variety of plans in respect of a single-valued utility function. Iterations can then be attempted to improve the fit, after changing the demands that will be placed upon enterprises. But when time runs out, or it seems unlikely that more can be asked of enterprises, priorities have to be used to define a plan solution. Priorities are similarly applied when shortfalls occur during the operation of the chosen plan (see Ellman, 1975). The parallels between this example and my discussion (in section 3.3) of the budgeting problem in the context of household production systems should be so obvious as not to require elaboration.

Sequential search is a possible short-cut way towards a decision. But it is not necessarily the best short cut to take during complex processes of choice. An alternative short cut is sequential screening, discussed by Gallagher (1971) in relation to problems of research and development in the chemicals industry, and by Loasby (1976, pp. 50–5). Instead of trying the most obvious solutions first, the decision maker begins by attempting to eliminate the least likely solutions on her agenda of possibilities. This makes eminent sense if the ‘promising’ but as yet uncertain ‘solutions’ require a great deal of investigation and if the less-promising options are easier to decide upon. The second refinement I wish to make to the characteristic filtering idea is a short-cut procedure that essentially lifts this idea from the product/goods space to the characteristics space. The essential point to bear in mind is that, especially in situations where the choice matrix is not given but has to be constructed, the appropriate sequence for a set of screens depends on conjectures of evaluation (construct-forming) costs as well as on underlying orders of priority.

Suppose I have reason to believe that very many schemes may meet my top priorities. If my conjecture is well founded, I can reduce my decision-making costs by starting my evaluation process some way down my priority ranking and finding out from this basis which scheme is implied as the winner; that is to say, I begin with a test that I believe a good many of the options will fail and, having thus reduced my agenda, continue on down the ranking. I may even apply this short cut more than once if I have a very long list of attributes that are relevant to the problem at hand; that is to say, I jump down the list in stages, stopping off at those characteristic targets which seem likely to be powerful discriminators. By these means I arrive at a preliminary choice, whose performance I can then assess against the higher-ranking aspirations that were missed out in the short-cut process. If the ‘preliminary choice’ meets all the remaining tests with no gaps, I have achieved a considerable information-gathering and processing economy. And I may still achieve this if I am forced to look again at the scheme which reached second farthest down the preliminary filtering list (or even at the third and fourth schemes), owing to some high-level failing becoming apparent in my preliminary choice. In terms of our academic screening example, it could be the case that the ‘doctoral degree requirement’ is by no means the top priority. However, it may usually serve as a good proxy for other desired attributes, and act as a powerful screen against many conjunctively inadequate candidates (for example, ones who are still writing their dissertations and are running out of money, who might be less prone to give their attention to teaching, or who might be people who will never complete and publish research projects).

The use of this kind of short cut offers a way of explaining observed tendencies for decision makers to neglect paying attention (since attention has its costs) to ‘objectively important’ characteristic targets when evaluating schemes of action. For
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Sequential search is a possible short-cut way towards a decision. But it is not necessarily the best short cut to take during complex processes of choice. An alternative short cut is sequential screening, discussed by Gallagher (1971) in relation to problems of research and development in the chemicals industry, and by Loasby (1976, pp. 50–5). Instead of trying the most obvious solutions first, the decision maker begins by attempting to eliminate the least likely solutions on her agenda of possibilities. This makes eminent sense if the ‘promising’ but as yet uncertain ‘solutions’ require a great deal of investigation and if the less-promising options are easier to decide upon. The second refinement I wish to make to the characteristic filtering idea is a short-cut procedure that essentially lifts this idea from the product/goods space to the characteristics space. The essential point to bear in mind is that, especially in situations where the choice matrix is not given but has to be constructed, the appropriate sequence for a set of screens depends on conjectures of evaluation (construct-forming) costs as well as on underlying orders of priority.

Suppose I have reason to believe that very many schemes may meet my top priorities. If my conjecture is well founded, I can reduce my decision-making costs by starting my evaluation process some way down my priority ranking and finding out from this basis which scheme is implied as the winner; that is to say, I begin with a test that I believe a good many of the options will fail and, having thus reduced my agenda, continue on down the ranking. I may even apply this short cut more than once if I have a very long list of attributes that are relevant to the problem at hand; that is to say, I jump down the list in stages, stopping off at those characteristic targets which seem likely to be powerful discriminators. By these means I arrive at a preliminary choice, whose performance I can then assess against the higher-ranking aspirations that were missed out in the short-cut process. If the ‘preliminary choice’ meets all the remaining tests with no gaps, I have achieved a considerable information-gathering and processing economy. And I may still achieve this if I am forced to look again at the scheme which reached second farthest down the preliminary filtering list (or even at the third and fourth schemes), owing to some high-level failing becoming apparent in my preliminary choice. In terms of our academic screening example, it could be the case that the ‘doctoral degree requirement’ is by no means the top priority. However, it may usually serve as a good proxy for other desired attributes, and act as a powerful screen against many conjunctively inadequate candidates (for example, ones who are still writing their dissertations and are running out of money, who might be less prone to give their attention to teaching, or who might be people who will never complete and publish research projects).

The use of this kind of short cut offers a way of explaining observed tendencies for decision makers to neglect paying attention (since attention has its costs) to ‘objectively important’ characteristic targets when evaluating schemes of action. For
example, a questionnaire investigation by researchers at Cranfield Institute of Technology (reported in the Financial Times, 19 May 1981) revealed that buyers of new cars tended to focus on economy and reliability and neglect safety-related features; only 3 per cent claimed to look for good brakes when buying a car. Few of these motorists, I suspect, would knowingly have purchased reliable, cheap-to-run cars with very poor braking systems, but many would surely have felt it rather trying to carry out emergency stop or 'brake fade' tests, particularly with a salesperson beside them. But it would not be unreasonable to suppose that car buyers typically assume that all cars on sale have been forced to undergo stringent tests before they reach the showrooms (for example, government 'type approval' tests for new cars and compulsory roadworthiness tests for second-hand cars beyond a certain age). Such 'commonsense' knowledge might lead many decision makers to neglect this sort of feature entirely unless something happened to make them question the adequacy of particular vehicles on their agendas (for example, they might be surprised and alarmed about how far they had to depress the brake pedal to elicit a response in Volkswagens and Fords designed by heavy-footed German engineers).

In so far as choices are prompted by problems encountered with existing activities, it seems natural that a decision maker's attention may locate first on attributes in respect of which she is failing to meet her aspirations. For example, suppose rising petrol prices are causing havoc with my budgeting because my existing vehicle is not very economical. In this situation it would be illogical for me to begin to seek a solution by examining alternative cars for, say, their road-holding capabilities rather than their economy, even if I accord road holding a higher priority. If my existing car has adequate road-holding properties, I will only want to check the road-holding capabilities of those cars that seem likely to solve my economy problem. It is a waste of time for me to start at the top of my list and test drive an assortment of cars selected without prior reference to fuel economy, or to begin by reading test reports of how cars within my budget range hold the road—especially when fuel economy is something I can usually assess simply by inspecting a column of figures in a motoring journal.

It should be becoming apparent that, once theory formation and validation are recognised to be a costly exercise, the idea that the consumer puts together a choice matrix to which she then applies tests of adequacy may at best be a useful theoretical simplification. Often, tests of adequacy of one kind or another will be applied during the expectation-forming stage, with only a limited number of schemes surviving to make up a choice matrix of the kind outlined in section 7.2. In some situations the nature of the search and evaluation environment is such that the decision maker is pretty well forced to adopt sequential search and there is then no chance of going back to select an option once rejected as less than adequate. A likely example of this concerns the choice of marriage/cohabitation partners in societies where serial monogamy is the custom. Here, too, back-tracking priority appraisal methods may be used. For example, a person may accord a much higher priority to being able to live with someone in a satisfactory manner (a notion which might be simplified into several subpriorities concerning 'different' types of behaviour), than she does to matters of physical appearance. But to evaluate in detail whether or not any one partner is likely to be satisfactory in this respect could take a good deal of experimentation. Cultural norms prevent her from being able to perform such experiments with several partners simultaneously, while a partner she initially rejects may subsequently be unavailable, having entered into another relationship. She must either forgo such experiments and arrive at a decision on the basis of her initially hazy impressions—evidently at considerable risk—or she must search sequentially with a series of trial cohabitants. If she has no idea about how it might be to live with any of her prospective marriage partners, she can only make a trial decision on the basis of criteria that have implications in respect of her lower priorities, and then see whether or not the partner fits into her high-priority mould.

The arguments in this section may help to show how difficult it may be to judge, merely on the basis of casual introspection, which decision-making procedures are most popularly used. A tendency for decision makers to evaluate schemes of action as wholes and/or start making up their minds by looking at relatively unimportant attributes seems, on the surface, to lie most easily with a view of choice that sees 'importance' from a compensatory perspective. But the procedures appended in this section to
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non-compensatory rules offer a new perspective on what may be happening. And these procedures are not ad hoc, arbitrary amendments to save the notion that very often deliberative choices depend on a series of tests of adequacy in a particular priority order. The procedures actually involve a greater recognition of the problem of bounded rationality and of the possibility that some means of gathering and processing information in a world of complexity may be more efficient than others.

7.6 TIE-BREAK TECHNIQUES AND THE RESOLUTION OF DILEMMAS

The next theoretical refinements relate to my suggestion that it may often be appropriate to view the boundedly rational consumer as ideally seeking a scheme of action that will fit into a conceptual mould in a satisfactory manner. I suggested the characteristic filtering procedure as a device for dealing with the possibility that there is no option which will fit a mould defined only by a set of characteristics and their associated aspiration levels. A priority system further defines the shape of the mould and determines how far the prospective schemes of action can be made to fit. (Inadequate high-priority attainments prevent a scheme from being pushed very far into the mould; it is rather like trying to put a ring on one's finger and finding that it gets stuck at the first joint.) But in some situations it may be the case that several schemes on a consumer's agenda fit her mould of tolerance. She is, in common parlance, 'spoilt for choice'. She needs a means for breaking the tie between schemes that her choice procedure labels as equally satisfactory.

These possibilities come to mind as worthy of serious consideration. The first is due to Kornai (1971, pp. 108–9). Whereas I have been assuming prior to this section that the consumer is normally forced to choose to meet some characteristic targets at the expense of others, Kornai presumes that people use a conjunctive choice procedure that usually generates several adequate options. He therefore proposes that ties are broken by random decisions. One could most readily accept this suggestion where the consumer had arrived at a tie after making overall assessments of rival schemes using, say, rule (1) or (2)—for then she would be truly indifferent. But a general belief in random choices seems to imply a belief that the mind will generate random impulses instead of trying to reason things out. By contrast, the other two ways of breaking such ties, which I will now propose, involve attempts to apply reason; my belief is that if one perceives activities as different one cannot rest happily with a mould of tolerance that, in effect, labels some of them as identical. In order that a 'conjunctive tie' may be broken, the mould of tolerance must be modified.

One obvious modification is for the decision maker to deepen the mould, that is, to add to her list of sought-after characteristics. Consider, for example, the comment of motoring journalist David Taylor ('Peugeot 205 road test', Punch 11 April 1984, p. 46):

all these contenders are so finely matched in the supermini sector that really there are only hair-splitting differences. The choice is so bewildering on merit that what it'll come down to is a subjective decision that this one looks a bit different from next door's or that the other one happens to be recommended by the local garagiste or yet another is there in the showroom in the colour you happen to fancy. It may seem a bit reckless to spend £4000 in quite such a cavalier fashion, but can it matter a damn when there's truly so little in it?

In fact, the number of occasions when consumers find themselves in this sort of situation will tend to be limited by the natural tendency for them to become connoisseurs in some degree during the process of search—they will be gathering information from friends, salespersons and published sources about 'things worth looking for'. Where characteristics are ordered in terms of priorities, new attributes may be added to the list at the bottom, or may be slotted in elsewhere among pre-existing targets. The addition of new characteristics to her priority ranking may sometimes cause the consumer to rerank some of her pre-existing priorities if these relate to the new characteristics and have come to be seen in a somewhat different light; for example, an executive who is introduced to the possibility of purchasing a luxury car with an antilock braking system may become more safety conscious than hitherto and raise other safety-related features in her ranking. Of course, such rerankings may occur during the process of search, even if no new characteristics are discovered,
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A second modification—which neither excludes nor is excluded by the first—is to tighten up the mould in respect of pre-existing characteristic targets. Where a tie has occurred, it is unlikely that the schemes in question have each happened barely to meet all the original aspirations. Generally speaking, schemes that are seen as other than identical will tend to perform beyond the minimum targets in different ways; for example, one house might have a much more than adequate view, yet only just be big enough, while another might have a view that was just about satisfactory but be much more than adequately spacious. Several schemes are rattling around in the mould, but they are making different noises as they do so. To revise some aspirations in an upward direction in accordance of what now seems attainable has the effect of tightening up the mould and eliminating the slack that allowed the tie to result.

The idea of a mould of tolerance being refashioned in the light of changing perceptions of what is possible is a notion concerning individual mental processes that is an analogue of the firm-level analysis of the uptake of organisational slack in the work of Cyert and March (1963, pp. 36-8; see section 3.5). How much slack there is in a firm at any moment depends upon how the rival coalition members have adjusted their aspirations in relation to potential attainments. The distribution of slack payments to coalition members is shaped by the degree of moderation in the demands made by other coalition members with different goals. The presence of slack in the Cyert and March model makes determinate outcomes difficult to predict. Slack payments arise because ignorance of the minimum payments that rival coalition members would accept, combined with the uncertain costs of attempting to discover their bounds of tolerance, makes members in some degree moderate their own demands. It will therefore not be obvious which personnel in the coalition have hitherto been earning a return that they are prepared in some degree to sacrifice, or who will most rapidly lower their aspirations levels and thereby create some room for manoeuvre.

A similar problem of indeterminacy looms threateningly when we extend the idea of slack uptake into the realm of the individual's mind: how can we predict which aspirations will move most rapidly into line with potential attainments? In my original (1983c, p. 88) attempt to deal with the tie-break issue, I unwittingly offered a pair of possible solutions that involved slack uptake, both of which have a certain a priori appeal, despite the fact that they are poles apart. On the one hand, I suggested that the consumer might break a tie by opting for the scheme that she expected to perform best in respect of the lowest-ranking characteristic on her list. This would seem not unreasonable if the consumer has come to set a low aspiration for this characteristic as a result of the past experience of her failure to be able to meet high requirements in its respect, given the demands she makes in respect of high priorities. We might imagine the housebuyer who in the past has got used to the idea of uninspiring views, though ideally she would like a panoramic spectacle, for in the past she has never been able to find an inspiring view in a property whose selection would not involve her in compromising higher-priority wants such as the number of bedrooms. In her new environment, however, she may discover that such compromises do not have to be made, and break a tie by choosing the house with the best view.

The implicitly polar alternative that I suggested was that, in choices involving monetary transactions, a tie could be broken by choosing the cheapest option. Implicitly, I was suggesting that the decision maker was redefining her budgeting filter (I wish to spend no more than $...”) in order to take account of information she had acquired following her initial budgeting choice. This is a `polar' act of redefinition since, in monetary choices, the budgeting filter may often be thought of as the first hurdle that schemes on an agenda must cross. This tie-break procedure makes sense if the budget strategy that the consumer had previously chosen involved the expectation that attainments would be compromised in respect of priorities that rank lower than those catered for by the act of buying a house. For example, the consumer may be pleasantly surprised to find she can have a perfectly adequate house at a price which leaves her in a position to be able to meet lower-ranking goals, such as `having $... cash/unused borrowing power “for a rainy day”, or “running a second car”.'
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However, *satiation* in respect of top- or bottom-ranking characteristics could arise in some cases, and thereby ensure that tie-breaks centre on the raising of intermediate-ranking thresholds of tolerance. Satiation is here taken to mean a situation where ‘ideal’ requirements, and not merely previously defined constructs of ‘adequacy’, seem open to realisation. Three possible causes of satiation come to mind within the analysis of motivation I have proposed. First, some characteristics might be strictly dichotomous: for example, in some societies, people considering potential marriage partners might make unquestioned virginity their top priority. Clearly, this could not be a characteristic of use in breaking a conjunctive tie between rival marriage partners.

Second, further movements along a scalar construct might, beyond some point, begin to carry more negative implications than positive ones. For example, consider a consumer in her working environment as a top-level decision maker, whose first concern is with her own self-image. Up to a point, she will be concerned with the safety of the decisions she makes, for the loss of her job as a result of an error could have disastrous implications for her self-esteem (see section 8.4). However, if it seems that quite a few options look safe enough, she may not opt for the safest of these in the event of a tie. For the implications of being seen to pursue safety beyond a certain point might harm her self-image (‘too cautious’). For this reason she might be much more interested in displaying an enhanced span of control over other personnel. But satiation could also set in at some point with respect to the latter goal: the implications of being seen to be ‘power mad’ might detract from the implications positively attaching to a dramatically widened span of control. With this second view of satiation, we effectively have a situation where the priority test for a characteristic is double edged: to be satisfactory, an action scheme must fall within a particular range, in the midst of which lies the ‘ideal’ attainment position.

A third kind of satiation may be said to occur if there comes a point at which further movements along a scalar construct cease to have any implications (other than those concerned with opportunity costs, however vaguely perceived and computed) for the consumer’s predictive system. For example, a point may come when, although ‘objective’ differences exist, the potential buyer of a hi-fi sound system cannot distinguish between the reproduction qualities of rival combinations of equipment. Having an ‘objectively’ better quality of sound reproduction may not enhance her ability to make sense of the (seemingly undistorted) music of composers whose works fascinate her. All she may see implied is that the pursuit of ‘objectively’ superior sound quality may have some kind of cost attached to it—for example, in relation to the aesthetic appeal of the sound equipment, adequate though the supposedly better-sounding system may appear as a piece of furniture.

It would seem on the arguments considered so far that if we accept the mould-tightening idea, we are faced with indeterminacy; it is by no means a priori obvious that either high-or intermediate-or low-priority aspirations will generally be the most likely ones to be adjusted when it is discovered that all pre-existing targets seem likely to be met. It is here that advertisements may stand to exert a good deal of leverage in so far as they can focus attention on particular characteristics and the levels of attainment that their respective products can offer.

Two possible procedures to determine how moulds of tolerance are tightened up come to my mind at present; though there could well be others, just as the seven basic choice heuristics considered in sections 7.3 and 7.4 were by no means the only ones possible. First, it might be the case that satiation tests are already embedded in the shape of the mould of tolerance in many of its dimensions. If so, and if only a few options have reached the tie-break stage, it may not be beyond the consumer’s computational powers to bring an additive differences procedure into action. That is to say, she will look at the overall implications of differences involved in choosing one option rather than, say, either of one or two rivals. The application of such a procedure at this late stage in the evaluation process is by no means guaranteed to result in the choice that would have been made had the consumer attempted initially to employ rule (2) rather than rule (6/7). For many possibilities may have been long since ruled out of court for particular failings, despite possible differential advantages.

Second, the consumer might be unable to compute totals for implicational differences, but she might none the less be able to form some picture of the overall difference between her present ‘adequate’ mould and her ‘ideal’ one. If so, she might tighten up
However, satiation in respect of top- or bottom-ranking characteristics could arise in some cases, and thereby ensure that tie-breaks centre on the raising of intermediate-ranking thresholds of tolerance. Satiation is here taken to mean a situation where 'ideal' requirements, and not merely previously defined constructs of 'adequacy', seem open to realisation. Three possible causes of satiation come to mind within the analysis of motivation I have proposed. First, some characteristics might be strictly dichotomous; for example, in some societies, people considering potential marriage partners might make unquestioned virginity their top priority. Clearly, this could not be a characteristic of use in breaking a conjunctive tie between rival marriage partners!

Second, further movements along a scalar construct might, beyond some point, begin to carry more negative implications than positive ones. For example, consider a consumer in her working environment as a top-level decision maker, whose first concern is with her own self-image. Up to a point, she will be concerned with the safety of the decisions she makes, for the loss of her job as a result of an error could have disastrous implications for her self-esteem (see section 8.4). However, if it seems that quite a few options look safe enough, she may not opt for the safest of these in the event of a tie, for the implications of being seen to pursue safety beyond a certain point might harm her self-image ('too cautious'). For this reason she might be much more interested in displaying an enhanced span of control over other personnel. But satiation could also set in at some point with respect to the latter goal; the implications of being seen to be 'power mad' might detract from the implications positively attaching to a dramatically widened span of control. With this second view of satiation, we effectively have a situation where the priority test for a characteristic is double edged: to be satisfactory, an action scheme must fall within a particular range, in the midst of which lies the 'ideal' attainment position.

A third kind of satiation may be said to occur if there comes a point at which further movements along a scalar construct cease to have any implications (other than those concerned with opportunity costs, however vaguely perceived and computed) for the consumer's predictive system. For example, a point may come when, although 'objective' differences exist, the potential buyer of a hi-fi sound system cannot distinguish between the reproductive qualities of rival combinations of equipment. Having an 'objectively' better quality of sound reproduction may not enhance her ability to make sense of the (seemingly undistorted) music of composers whose works fascinate her. All she may see implied is that the pursuit of 'objectively' superior sound quality may have some kind of cost attached to it—for example, in relation to the aesthetic appeal of the sound equipment, adequate though the supposedly better-sounding system may appear as a piece of furniture.

It would seem on the arguments considered so far that if we accept the mould-tightening idea, we are faced with indeterminacy; it is by no means a priori obvious that either high- or intermediate-or low-priority aspirations will generally be the most likely ones to be adjusted when it is discovered that all pre-existing targets seem likely to be met. It is here that advertisements may stand to exert a good deal of leverage in so far as they can focus attention on particular characteristics and the levels of attainment that their respective products can offer.

Two possible procedures to determine how moulds of tolerance are tightened up are to my mind at present, though there could well be others, just as the seven basic choice heuristics considered in sections 7.3 and 7.4 were by no means the only ones possible. First, it might be the case that satiation tests are already embedded in the shape of the mould of tolerance in respect of many of its dimensions. If so, and if only a few options have reached the tie-break stage, it may not be beyond the consumer's computational powers to bring an additive differences procedure into action. That is to say, she will look at the overall implicational differences involved in choosing one option rather than, say, either of one or two rivals. The application of such a procedure at this late stage in the evaluation process is by no means guaranteed to result in the choice that would have been made had the consumer attempted initially to employ rule (2) rather than rule (6?7). For many possibilities may have been long since ruled out of court for particular failings, despite possible differential advantages.

Second, the consumer might be unable to compute totals for implicational differences, but she might none the less be able to form some picture of the overall difference between her present 'adequate' mould and her 'ideal' one. If so, she might tighten up
all presently unsatiable tests by amounts that are functions of the proportionate differences between actual and ideal ratings on the scales in question. Adequacy targets that had hitherto been set a long way from ideal notions would be raised more than those that were already close to ideal, with the distances serving as proxies for the implications of less-than-ideal attainments. Schemes in the tie-break could then be re-examined in terms of the new priority mould. The tightness of the mould could be adjusted until only one scheme survived in conjunctive terms.

Related to the question of how a consumer breaks conjunctive ties between schemes is the question of how she behaves when she finds herself on the horns of a dilemma. In the present context, I will consider the nature only of those dilemmas that concern choices between known characteristics. If no scheme is adequate in all respects, and if the characteristics of rival schemes are clearly defined, the decision maker ought to be able to reach a decision using a characteristic filtering rule; so how, one might ask, can she find herself paralysed by indecision?

An inability to choose in a straightforward priority-based manner, when the properties of rival schemes are not perceived as uncertain, is something that I see as resulting from uncertainty about what constitutes an appropriate ordering of priorities in the context at hand. The consumer knows she cannot have everything, but because she is unsure of the implications attaching to the known characteristics she does not know what she should try to sacrifice and which aspirations she should continue to try to meet. If she can choose one priority ordering rather than another, her choice is defined, but she hesitates, asking herself, 'is characteristic X more important than characteristic Y?'. Her task, then, is not so much to choose between the competing schemes, but to choose the mould into which she is going to attempt to fit them. Her task, quite literally, is to 'make up her mind', and the choice between rival moulds is an example of the general problem of choice under uncertainty discussed in the next chapter.

To conceptualise the task of resolving dilemmas in this way is to move still further from the orthodox idea that decision makers choose in respect of a fully specified preference ordering that they possess at the start of the decision process. The orthodox view leaves room for advertisements merely to serve the function of aiding the decision maker as she attempts to decide which characteristics are possessed by rival schemes. If one sees the consumer as approaching an act of choice with a partially open mind, the possibility emerges that advertisements (or, in non-market contexts, other attempts at persuasion) may shape her view of what she is looking for, and not merely affect what she sees.

7.7 RULES WITHIN RULES

As this chapter has proceeded, it has become evident that the process of choice is by no means as simple as I initially depicted it to be. We have run up against various problems that may make some rules unworkable, and have identified risks that it may be worth taking to simplify the task of decision making. In practice, the consumer, too, is likely to find that she initially attempts to process information with heuristics that sometimes break down due to information overload, that fail to generate unique solutions, and that involve the pursuit of 'red herrings' rather than the realisation of successful short cuts. During a complex evaluation task, we should not be surprised to find that many different heuristics are employed, in a contingent, problem-solving sequence (for a similar conclusion, and some relevant empirical work, see Payne, 1976, Bettman, 1979, and Svenson, 1979). Some examples may help to clarify this important idea.

A manageable preliminary choice matrix may be created from a potentially unmanageable set of possibilities via the use of a filtering procedure, applied to only a limited number of characteristics. We saw this in my house-hunting example; it is also conspicuous in 'multiple tests' in consumer magazines which compare 'front-wheel-drive family saloons', 'hot hatchbacks', 'programmed 35 mm SLR cameras', 'top-loading automatic washing machines' and so on. However, if possibilities are restricted by the scarcity of available types, such a characteristic filtering procedure may not be necessary. (For example, when compact disc players were launched in the UK, only two models—one from Sony, the other from Marantz—were available. However, note that some prior filtering—compact disc versus other ways of improving the quality of one's audio system—could still have
all presently unsaturated tests by amounts that are functions of the proportionate differences between actual and ideal ratings on the scales in question. Adequacy targets that had hitherto been set a long way from ideal notions would be raised more than those that were already close to ideal, with the distances serving as proxies for the implications of less-than-ideal attainments. Schemes in the tie-break could then be re-examined in terms of the new priority mould. The tightness of the mould could be adjusted until only one scheme survived in conjunctive terms.

Related to the question of how a consumer breaks conjunctive ties between schemes is the question of how she behaves when she finds herself on the 'horn of a dilemma'. In the present context, I will consider the nature only of those dilemmas that concern choices between known characteristics. If no scheme is adequate in all respects, and if the characteristics of rival schemes are clearly defined, the decision maker ought to be able to reach a decision using a characteristic filtering rule; so how, one might ask, can she find herself paralysed by indecision?

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been going on.) In this latter case, the consumer may be able immediately to apply a compensatory rule without too much bother.

An initial filtering procedure might narrow down the number of options sufficiently to permit an evaluation of those that survived the preliminary appraisal in terms of an additive differences rule. For if many of the powerful initial filters were dichotomous in nature, the differences between the schemes that survived might not relate to many scalar dimensions. On the other hand, as with the house-hunting example, the choice matrix that emerges from the initial filtering process might still be so complex as to preclude the immediate application of a compensatory procedure.

A major reason why this could be so is that, although the option set has been pruned down, a subsequent detailed evaluation could involve many more characteristics, so the choice matrix thereby constructed could actually have more elements than did the potential matrix that was subjected to the filtering procedure. In such a situation, the next procedure to be employed might be a conjunctive one. Then, if no scheme passed in conjunctive terms, the consumer might be driven back to characteristic filtering (though, this time, the filtering will concern information discovered after the initial pruning-down of the list of possibilities).

Alternatively, a conjunctive procedure might result in a tie, and the prospect for breaking this by trying to see which other characteristics might be worthy discriminators might look stronger than that for resolving the matter simply via an additive differences procedure. But if no new worthwhile characteristics are uncovered (characteristics with zero implications for the person’s construct system will not serve as discriminators), the additive differences rule might then be tried. Failing that, and failing the procedure of tightening the mould of tolerance according to relative ideal/adequate distances, the consumer might end up tossing a coin. Alternatively, she might conclude that the real problem is that she does not know what it is best for her to select, because she cannot see the overall implications of the rival choices. In this case, having thus reframed her problem, she might apply one or more of the procedures discussed in the next chapter.

In my house-hunting experience, three serious contenders eventually emerged from the twenty-five options that survived the initial filtering process. The intermediate filtering process was clearly non-compensatory, but mold tightening proceeded apace during the process of search. I began to see that, even if I reduced my budget by 20 per cent, I still ought to be able to find a nearly new, detached three-bedroom house with an acceptable water view; originally I had been prepared to consider two-bedroom apartments, but that was before I had a chance to see that, out in the suburbs but within an acceptable driving time from work, much more could be had. The house I ultimately purchased was slightly smaller than its two rivals, less well decorated and with a barely adequate kitchen layout, but it was cheaper than both its rivals and had better views. This all sounds like a final three-by-five choice matrix, which should have been amenable to evaluation with an additive differences rule. However, my impression is that my chosen home was selected because it passed a conjunctive test, when the other two did not; in the other two cases I kept having doubts about whether I would be satisfied with the views—in one case there were trees partially blocking the view; in the other, telegraph wires got in the way—and I felt I could do better without compromising any of my requirements. The chosen house was the last I went to see.

Evidently, one could simulate possible complex contingent networks of choice heuristics in the form of computer programs. It would then be possible to examine which contingent system correctly predicted a consumer's ranking of options on the basis of constructs elicited from her. But this would by no means be an easy simulation task, particularly since there is an additional sense in which rules may be networked together that I have so far not discussed explicitly.

Most of my attention in this chapter has been devoted to procedures for appraising ratings on rival characteristics scales. I have sometimes mentioned that several characteristics may often relate, in principle, to other characteristics. On some occasions, complexity may prevent or deter a consumer from aggregating their related implications. However, this need not mean that the potentially related characteristics are not in some way grouped together. It is possible that the consumer may apply a conjunctive test in respect of a group of characteristics, in order to determine whether any schemes are adequate in respect of a subordinate characteristic. For example, the consumer may judge whether a
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car could be sufficiently economical to run by asking herself whether it promises a particular target fuel consumption figure, whether it comes within a particular insurance category, and whether its major service interval is after no less than so many thousand kilometres. Only if it passes all three tests is it deemed adequate in terms of economy. On other occasions the consumer may be able and inclined to apply a compensatory test to a grouping of characteristics—in which case we may have expectancy value procedures being employed within conjunctive or characteristic filtering procedures.

In this connection I would like, finally, to come back to the ‘simple-averaging’ and ‘polymorphous’ rules that I criticised, in section 7.3, as being at odds with the willingness of consumers to assert that some characteristics are particularly important. But it could indeed be the case that the consumer does lack an ability to order some characteristics, since she is not sure of their implications. In such a situation, she may find herself faced with a dilemma which she resolves by grouping the features together as if they were a single dimension of choice, and then applying to the group a satisfying rule with a simple-averaging or polymorphous form. (Something akin to this procedure is employed in Shaw’s (1984) hedonic study of the market for cassette decks. In order to reduce the number of dummy variables and the total number of variables in his equations, Shaw pooled seemingly minor features, such as memory-rewind facilities and automatic head demagnetisation, and then counted up, for each cassette deck, how many of these features were offered. These scores (out of a maximum of twelve) were then treated as if they referred to a single characteristic in its own right.)

7.8 CONCLUSION: NO GENERAL RULES

It should be evident from this chapter that I am very favourably disposed to the idea that, for reasons of bounded rationality, consumers will very frequently employ non-compensatory filtering procedures during deliberative decision-making processes. This is a major challenge to the mode of thought of the orthodox economist. However, in this book, I am not going to claim that deliberating consumers are always forced to employ non-compensatory filtering procedures. Here, readers may construe a change in my position since I wrote The Economic Imagination: for in that book I attempted to argue that consumers in the process of deliberation generally use a characteristic filtering approach to choice, and not an expectancy value one. Some reviewers did not challenge this view, but John Hey (1984, p. 207) suggested that I was ‘going too far’. He pointed out that ‘just because people are not transcendent geniuses, does not mean they are morons; just because they cannot trade-off a large number of commodities, does not mean they cannot trade-off a few’. (Note that Hey’s remarks are expressed in commodity terms, with no mention of characteristic trade-offs, and that they beg the question of how the ‘few’ get selected.) Of course, I was indeed going too far. In seeking a general model, I was displaying a behaviour tendency that, as Skinner (1979) has shown, is a long-standing one amongst scientists. My argument that the characteristic filtering procedure is the only one used in deliberative decision making was without doubt flawed; yet, as an ‘as if’ generalisation, it might be less misleading to assume that characteristic filtering is used rather than an expectancy value approach to choice. Now I do not wish to propose, as a description, that one particular choice heuristic is used; instead, I wish to assert that deliberative choices are generally rooted in sets of contingent procedures, which may take many forms. A single example of such a set, and perhaps one which Hey might find it easy to envisage being fairly commonly employed, would be: first, characteristic filtering—to select a sufficiently simple choice matrix—and second, the application of an additive differences procedure to resolve the trade-off between the limited number of distinguishing characteristics associated with the restricted set of possibilities that survived the first round of tests.

If economists are interested in anticipating patterns of consumer behaviour, then they will have to investigate seriously the kinds of contingent rule systems according to which consumers reach their decisions. Some sets of rules may be more commonly employed than others (I would expect characteristic filtering sequences to figure very often). However, it would be a mistake to take the most common of these as one’s ‘general’ set of predictive heuristics. Rather, predictions should be constructed by segmenting the population of consumers according to the
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choice rules they use as well as according to normal psycho-
graphic criteria. Simplifications may have to be made to make
this procedure workable; for example, it might be necessary to
look at how well single rules, rather than sequences of rules,
predicted choices, so that some consumers might approximate
more closely to one rule than to others. The researcher could
then employ the methodology developed by Bruno and Wildt
(1975) for discovering predictive complementarities between rival
heuristics that seem to fit rival market segments in different
degrees. The suggestion that economists should bear in mind that
consumers make up their minds in different ways, depending on
the contexts and on the workable information-processing stra-
tegies they have evolved, does not carry the implication that
economists should cease trying to anticipate patterns of choice. It
is a suggestion that should open up the possibility of improved
predictions.

8 Rules for Evaluating Uncertain
Prospects

8.1 INTRODUCTION

If a person's expectation-forming processes admit that an action
scheme is an uncertain prospect in respect of a particular dicho-
tonous or scalar characteristic, she is admitting that its selection
has rival sets of possible implications attached to it in respect of
this characteristic. In the event, only one set of implications will
come about and this set may be one which is neither precisely
defined (it may not be clear what has actually happened) nor one
which the consumer has thought of as possible for the character-
istic in question. Rules for dealing with uncertain prospects must
somehow deal with the mutual exclusivity amongst those sets of
implications that the consumer does not reject as totally un-
believable prospects. It would be natural to expect these rules to
be variants on the rules considered in the previous chapter, for
those rules were also devices for dealing with rivalry amongst sets
of implications. Thus one might expect neoclassical theorists to
want to assume that consumers somehow 'weigh together' the
implications of rival outcomes for a characteristic, just as these
economists assume consumers weigh up overall scores for the
various characteristics a scheme might contain. Similarly, one
might expect an economist like myself to prefer to think of
consumers as if they subjected a scheme's set of rival possibilities
to a non compensatory 'mould of tolerance' test, each individual
possibility for a characteristic being treated rather as if it were a
characteristic in its own right. In fact, this is precisely what one
finds in the literature—though it is noteworthy that almost all the
literature on choice under uncertainty is concerned with single-
characteristic outcomes (for example, bets concerning gains and
losses in terms only of money).

Like Chapter 7, this chapter explores first the most-commonly-