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Consumer Behavior Analysis and the Marketing Firm:
Bilateral Contingency in the Context of Environmental Concern¹

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Abstract

If behavior analysis is to contribute to the amelioration of those aspects of environmental despoliation that are the result of consumption, it is necessary to show systematically that the consumer behaviors in question are contingent on their consequences and that environmental management strategies can be systematically addressed to their modification. Consumer behavior analysis (Foxall, 2001, 2002) provides an operant understanding of consumption as the result of the scope of the consumer behavior setting and the pattern of reinforcement that maintains it. The theory of the marketing firm (Foxall, 1999a) shows how organizations respond to consumer behavior by managing consumer behavior setting scope and pattern of reinforcement. Environment-impacting consumption and corporate attempts to reverse its impact can therefore be understood in operant terms. The question remains how we can understand the relationship between a complex contextual system like a firm, the behavior of which is predictable and controllable by considering its emergent operant consequences and the collective behaviors of consumers, each of whom is a contextual system responding uniquely to the peculiar pattern of contingencies that shapes and maintains its behavior. The paper seeks the solution in terms of bilateral contingencies and to relate these to issues arising from the theory of metacontingency and macro-behavior.

Keywords: consumer behavior analysis, marketing firm, bilateral contingency, metacontingency, environmental despoliation

**Consumer Behavior Analysis and the Marketing Firm:
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Levels**

We cannot do research that addresses complex human behavior, complex human problems, with the same conceptual apparatus and investigative methods that are so well-suited to experimental research into animal behavior. Methodological progression is inevitable as the principle of selection by consequences is progressively applied to the investigation of natural selection, operant conditioning, and cultural evolution (Skinner, 1981). This does not mean that we have to abandon the basic tenets of behavior analysis but it does require that we acknowledge the differences of degree and of kind between behavior that can be examined in the closed setting of the operant laboratory and that encountered in the world at large. There is a clear progression from the experimental space, the realm of individual behavior, through the organization, to society in general. Increasing methodological complexity is inevitable as we move from contingencies to metacontingencies to cultural contingencies.

It is this third area, defined in terms of cultural contingency, with which we are concerned when we seek to effect broad societal change. But seeking to act directly on cultural contingencies may not be the surest way to succeed. To use an idea that is commonplace among chemical engineers, we need to “scale up” from the situations that are more directly under our control to those that we wish to influence, even though they are not. Scaling up requires intermediate models that elaborate without replacing the three-term contingency, but which render it more appropriate for the analysis of behavior beyond the confines of the operant chamber. Such models must be empirically testable if they are to provide a basis for interpretation. Hence,

the fact that we are involved in the process of behavioral interpretation does not give us license to arbitrarily label events we observe as discriminative stimuli, responses and reinforcing stimuli. Our interpretations rely for their validity and reliability on a model of environment-behavior relationships that can be empirically demonstrated, preferably with the full rigor of an experimental analysis. Two such models are employed in this paper: the Behavioral Perspective Model of consumer choice (BPM) and that of The Marketing Firm (TMF).

Consumer Behavior Analysis and the Marketing Firm

First, the paper explores consumer choice as the outcome of operant contingencies (Foxall, 1990/2004), which has been supported by a wide range of empirical research, experimental and non-experimental, in behavioral economics and marketing science. Second, it addresses the behavior of the organizations that respond to consumer choice: marketing firms. The concept of the marketing firm (Foxall, 1999a) proposes that the *raison d'être* of the business organization is marketing, i.e., creating and keeping a buyer by responding appropriately to buyer behavior. A key tenet is that the behavior of the marketing firm can be predicted from and explained by its supra-personal consequences, predominantly the effectiveness of the marketing mixes – product, price, promotion and place utilities – it supplies to the market.² In other words, the firm is a “contextual system” or “operant system”, one predictable from its learning history and the behavioral outcomes made possible by its current situation (Foxall, 1999b). This feature of organizational behavior analysis finds resonance in work on metacontingencies (e.g., Glenn, [2004](#)).

² While the marketing department or function is responsible for the technical devising and implementation of marketing mixes, these can be optimally directed toward the profitable fulfillment of customer requirements only in the context of a customer-oriented perspective which the marketing firm supplies. Therefore, this paper refers to the provision of marketing mixes as a corporate-level responsibility of the marketing firm as a whole.

The essence of metacontingency theory is that the behavior of an organization is greater than or different from that of the combined repertoires of its members. The behavioral components of the system are enmeshed in *interlocking behavioral contingencies (IBCs)*. The supra-individual behavior of the system is inferred from the outputs it produces. Hence, each element of the marketing mix – the product, the price, the promotional communications and the distribution system – can be used to infer behaviors or behavior programs that denote the salient actions of the organizational system. Biglan & Glenn (2013) state that “the term *metacontingencies* can describe the contingent relations between IBC lineages with their products, on the one hand, and the consequent actions of their external environment on the other.” Metacontingency theory and the concept of the marketing firm have much in common if two emphases of the latter, with which this paper is centrally concerned, are appreciated. First, what metacontingency theory refers to as the “product” of the supra-personal behavior of organizations is actually in the context of the marketing firm the “product, price, promotion and place” that make up the marketing mix. Second, the concept of the marketing firm places a strong emphasis on the exchange relationships that bind the marketing firm and its consumerate together, which it analyzes in terms of bilateral contingencies.

The starting point is that both individuals and organizations such as the marketing firm can be considered as “contextual systems” (Foxall, 1999b); i.e., their behavior can be predicted from their learning history³ and current behavior setting.

³ [The question of how an organization can be said to have a learning history requires an answer that goes beyond the limits of this paper. An organizational learning history might simply be that of its leader or leaders; it might be that of a dominant coalition within the firm or consist in the tacit and explicit knowledge base within the enterprise, the procedures to which its members' behavior patterns conform; or the set of verbal behaviors and rules that govern its activities. For considerations that arise within behavior analysis, see Houmanfar,](#)

The marketing firm is an evolved environment that comprises a system of interlocking internal behavioral contingencies. It is also, by definition, an organization that is linked by a nexus of contingencies with an external public. The interdependence of the marketing firm and its customer base that is the subject of this paper has been analyzed through the concept of bilateral contingencies (Foxall, 1999a; Vella & Foxall, 2011, 2013). The paper explores the nature of bilateral contingencies that link a complex organization that is a contextual system in its own right with a public that consists of a myriad of individual contextual systems. Rather than do so in abstract terms, however, it concentrates on attempts to engender prosocial consumption to mitigate environmental damage. The aim of the discussion is not to provide novel solutions to this problem, though the analysis may clarify some of the issues involved; it is to elucidate the nature of the contingencies that account for the behavior of each of these types of contextual system not in isolation but as they form the exchange transactions that characterize market economies.

In turn, the marketing firm model benefits from the distinction Biglan and Glenn (2013) make between the behavioral outputs of organizations that are metacontingencies and those of collectivities of persons who form the firm's consumerate. (For discussion of the notion of consumers as collectivities, see Housmanfar, Rodrigues, and [Smith](#), 2009). The firm's being a metacontingency means, then, that its behavioral output *emerges* from the behaviors of its members and is different from and greater than its members' combined behaviors. This behavior evolves in its own right as its consequences are selected or deselected by the environment, in this case by the firm's customers and potential customers. The

[Rodrigues, and Smith \(2009\). The conceptualization at which this passage hints, however, is broader than these, consisting in an abstraction of learning processes that influence the entire conduct of the firm within its market place.](#)

behavior of those consumers is of a different order, however. The behavioral output of the mass of consumers is simply the aggregated behavioral output of them all. We may perform statistical operations on measures of this behavior – aggregate it, average it, relate it to other measures – but however we treat it, it does not amount to anything but individual operant behavior. It is simply, “the operant behavior of many people that has a cumulative and measurable effect on the environment” (Biglan & Glenn, 2013). Crucially, it does not evolve as an entity in itself. It does not produce behavioral outputs over and above those of consumers *en masse* which can be differentially acted upon by a selective environment. Such behavior, albeit the behavioral output of a large collectivity, is simply macro-behavior (Glenn, 2004).

Environment-Impacting Consumption

Environment-impacting consumption is notorious for its broader physical and social consequences: such as fossil fuel depletion, air pollution and health disbenefits that result from excessive reliance on transportation systems, esthetic, health and economic demerits of indiscriminate waste disposal, depletion of fossil fuels and contribution to global warming in the case of over-consumption of domestic energy, and depletion of natural resources in the case of excessive water consumption (van Vliet, Chappells & Shove, 2005). These broader societal outcomes define the cultural contingencies that Skinner (1981) and others have drawn attention to. They involve a “tragedy of the commons,” in Hardin’s (1968) words: exemplified by the fact that farmers who share rights to common land feel no added burden if one of their number increases their flock by a single sheep but that all suffer severe disadvantages when every farmer does so (Foxall, 1979). It is in these circumstances that some management theorists and behavior analysts have advocated “social marketing” to address these concerns (Foxall et al., 2006). However, it is legitimate to question

whether the direct assault on cultural contingencies is the most effective strategy for change, to advocate a more intermediate level of analysis, and to examine the practical and theoretical implications of this approach.

Plan of the Paper

§2 shows how consumer behavior is contingent on patterns of reinforcement that derive from the functional and symbolic benefits of products and services. A behavior analytical model of consumer choice, the Behavioral Perspective Model (BPM), predicts economic dimensions of consumption such as product and brand choice, the sensitivity of demand to price, and the kinds of utility that consumers maximize; it also predicts consumers' emotional reactions to retail and consumption situations. This model is employed in §3 to interpret environment-impacting consumption in the spheres of private versus public transportation, waste disposal, the over-exploitation of domestic energy, and the domestic consumption of water, all themes that have been well-researched by applied behavior analysts. §4 illustrates the ways in which marketing firms respond to consumer demands by showing how a parallel behavior analytic model, this time the concept of The Marketing Firm (TMF), describes how marketing-oriented management can be interpreted in behavior analytical terms. §5 outlines how marketing firms have responded to problems of environmental despoliation. This makes possible an exploration of the bilateral contingencies joining marketing firms and their customer bases, which in turn permits an extension of metacontingency theory in the realm of cultural contingencies (§6).

Consumer Behavior Analysis

Consumer behavior analysis is the application of behavioral psychology and behavioral economics to understanding the market place of human purchase and consumption behaviors (Foxall, 2001, 2002a).

The Behavioral Perspective Model

The Behavioral Perspective Model (Figure 1) is an elaboration of the three-term contingency to sensitize it to the analysis of human consumption in the market place (Foxall 1990/2004). The setting in which consumer choice takes place consists not of a single stimulus but an array of discriminative stimuli and motivating operations that set the scene for consumption. The topography of consumer behavior settings is diverse, from stores and restaurants through ATMs and online banking to cultural events and lectures. Consumer behavior settings vary too in the extent to which they encourage or inhibit specific responses. A bar or a bookstore offers multiple choices among which to make our selection and we are not even constrained to remain in the setting. Consumer behavior settings like these which offer multiple responses are relatively open settings. Banks and cinemas, by contrast, allow rather more restricted behavior or pattern of behavior; gyms and emergency rooms, even moreso. Settings like these that offer one or at most a few behavioral options are relatively closed.

We have, therefore, a continuum of consumer behavior settings from the most open to the most closed which we can analyze in terms of discriminative stimuli and motivating operations as well as their *scope*: their openness/closedness and its implications for consumer choice. The scope of the setting is influenced by the way in which the consumer's learning history impinges on the stimulus setting to influence the probability of certain behaviors taking place and others remaining dormant. The learning history brings meaning to the behavior setting. The intersection of the consumer's learning history (or experience) with the behavior setting that define the *consumer situation* which is the immediate precursor of consumer behavior.

Human social and economic behavior is shaped and maintained by two sources of reinforcement. Almost any watch will provide us with the time. That is the utility we expect from a timepiece. However, for many people, a Rolex watch offers so much more: social status, self-esteem, honor, prestige. *Utilitarian* reinforcement, which we share with other organisms, is the receipt of functional benefits that confer material satisfactions, the utility of orthodox microeconomic theory, contributors to biological fitness in evolutionary theory. *Informational* reinforcement is performance feedback, an indication of how well the consumer is doing. As well as being positively reinforced by the consumer's acceptance of utilitarian and informational reinforcers or the avoidance of/escape from aversive consequences, consumer behavior is also punished by *aversive* consequences. For example, a luxury cruise is positively reinforced by the utility it supplies (the results of sunshine, rest, good food, etc.) and informationally (by the status it confers). Using a stain remover is negatively reinforced by the erasure of the mark on the carpet to which it is applied. Both consumer behaviors meet with aversive consequences, however: the surrender of hard earned money in the first case, the energy that has to be expended in the second. We can define consumer behavior in operant terms by reference to the relatively high or relatively low levels of utilitarian and informational reinforcement that maintain it (Figure 2). In summary, consumer behavior is shaped and maintained by (i) the scope of the consumer behavior setting and (ii) the pattern of reinforcement provided by available products and services.

Environment-impacting Consumption

Environment-impacting consumption can be analyzed in terms of the BPM. That is, we can understand environment-impacting consumption in terms of the scope of the consumer behavior setting and the pattern of reinforcement that maintains the

behavior. We have a unique set of research findings that provide an independent analysis of these contingencies as they relate to (i) private transportation, (ii) waste disposal (specifically, littering), (iii) domestic energy consumption, and (iv) domestic water consumption. The applied behavior analysts who conducted this research, particularly in the 1970s and 1980s, employed different terminology from that of the BPM but the sources of reinforcement are similar: *incentives* correspond to what we would call utilitarian reinforcement, *feedback* to informational reinforcement, and *prompts* perhaps to discriminative stimuli and rules. Moreover, the applied behavior analysis research has had the goal of changing the behaviors it has investigated by the manipulation of the contingencies: as a result we have a dynamic demonstration of the contextual factors that actually modify these behaviors.⁴

Discouragement of Private Transportation

_____ The goal here has been to modify consumers' private transportation behavior in order to reduce fuel consumption, urban congestion, and pollution by discouraging unilateral use of private cars and promoting public or shared transportation. The evidence is that only high levels of incentives *and* feedback have had an appreciable effect on the number of miles travelled in private cars or the amount spent on fossil fuels.

While the discouragement of car travel can reduce mileage travelled by as much as half, the provision of feedback plays a strong role in reducing driving if it is combined with appropriate incentives. Each of these rewards relies on the provision of the other in order to be effective and it is the interaction of financial savings and feedback on changed performance that, as a combined source of reinforcement, influences driving

⁴ [Relevant reviews of](#) the applied behavior analysis literature on environmental conservation [include](#) Foxall, (1994, 2002b, 2002c, 2013) [and](#) Foxall et al. (2006). There are also excellent comprehensive reviews by Cone and Hayes (1980) and Geller et al. (1984). [The present exposition, summarizes](#) the results of these reviews.

behavior. Hence, feedback alone (on the number of miles travelled, operating costs, depreciation, social costs, etc.) exerts little if any effect on mileage travelled, performance feedback influences behavior by encouraging the driver to monitor behavior in order to achieve the incentives contingent on behavior modification.

In summary, both utilitarian reinforcement and informational reinforcement at high levels are required to change behavior and the appropriate operant class of consumer behavior is therefore *accomplishment*. This is borne out by consideration of the benefits of private transportation. *Private transportation* supplies high levels of both utilitarian and informational reinforcement: utilitarian reinforcement in the form of control, comfort, flexibility, reliability, privacy, speed, fun, safety, protection; informational reinforcement in the form of travel time reduction, cargo capacity, predictability, and above all autonomy and social status including self-esteem; it has important aversive consequences too: putting up with traffic congestion, stress, costs of purchase and maintenance, adverse comment. Moreover, a measure of the strength of this pattern of reinforcement on consumer behavior is apparent from the level of aversive consequences that the individual is willing to incur in order to continue with this product choice. In the case of private transportation, these are high.

Waste Disposal

_____ The goal here has been to reduce littering in public places by encouraging use of waste bins; to stimulate the recycling of irreplaceable materials; to enlist consumers in a process of waste recovery. Attempts at reducing littering have relied heavily on the use of prompts. The results have been generally disappointing except where the target behaviors were facilitated by provision of bins and rewarded by incentives. In the field experiments conducted by applied behavior analysts, even the provision of a dime or a

ticket for a movie had a considerable effect on recycling behavior. Exhortations, lectures, and relevant general education have proved largely ineffective.

In summary, the relevant operant class is *hedonism*: utilitarian reinforcement is high, while informational reinforcement is relatively low. This is borne out by considering the utilitarian reinforcement of littering, predominantly ease of disposal, and the informational reinforcement which consists perhaps in conspicuous consumption, social prestige, social status. The aversive consequences are also apparent: social disapproval (if noticed by others). The consumer behavior in question (littering, indiscriminate waste disposal) is maintained by immediately-acting contingencies that are countered by the availability of alternative methods of disposal such as rubbish bins. The adverse consequences apparently have little effect on a consumer who is adding litter or other waste to an already-infested site. The tragedy of the commons is only too apparent.

Domestic Energy Consumption

_____ The objective in this case has been to reduce over-consumption of domestic energy derived from fossil fuels, notably electricity for heating and lighting through the provision of prompts pointing out the long term consequences, feedback on individuals' and households' recent consumption levels, and financial and other incentives for reduced usage.

Attempted modification of consumers' domestic energy consumption has incorporated antecedent prompting, feedback, and incentives, separately and in combination. Prompting alone (e.g., information about environmental effects of pollution caused by over-consumption of electricity at peak periods had little if any effect on peak usage. The greatest behavior change was effected by consumer self-monitoring of current energy use. Energy usage proved especially sensitive to feedback,

especially if this was frequent: daily feedback on energy usage, especially when combined with group feedback and mild social commendation for prosocial behavior, is particularly effective, the combination of prompts and feedback with incentives even moreso. This is an area of consumption where a high level of utilitarian reinforcement in the form of instant power, heating and lighting is taken for granted; there is no opportunity for trade-offs here between lower prices and less efficient provision.

In summary, the operant class is *accumulation*: utilitarian reinforcement is essential but behavior change is particularly sensitive to informational reinforcement. Utilitarian reinforcement takes the form of warmth, use of electrical and electronic appliances, comfort, convenience; informational reinforcement, of status, self-esteem (these derive from direct availability of energy and, indirectly, from ability to acquire and operate gadgets, appliances. The principal aversive consequence is the financial outlay necessary.

Domestic Water Consumption

_____The objective has been to reduce domestic consumption of water, especially in washing, cleaning and gardening. There is less directly generated ABA experimental evidence for the behavioral economics of water consumption and conservation than for the other commodities and products considered but the limited evidence confirms the pattern of results found for other commodities. In Perth, Australia, that water consumption decreased by over 30% in both an experimental group provided with daily feedback on water use and a rebate proportionate to demand reduction, and a control group provided only with feedback, though change in climatic conditions may also have affected the results. The low elasticity of demand for water makes financial rebates less appropriate than for other classes of consumer behavior.

In summary, the operant class is *maintenance*: there are relatively low levels of utilitarian reinforcement and informational reinforcement. Utilitarian reinforcement stems from water use, cleanliness, hygiene; prevention of disease, while informational reinforcement is apparent in status and social approval. The aversive consequences are also considerable and include local taxes, charges, rationing, pricing, and metering.

Summing-Up

The main conclusions of this discussion are summarized in Figure 3. The question that arises now is how society responds to consumer behavior and in particular what form of response to environment-impacting consumption has been forthcoming. The marketing firm is the means of organizational response to consumer behavior and that the response to environment-impacting consumption has been uncannily sympathetic to the findings of applied behavior analysis.

The Marketing Firm

The Marketing Firm in Context

The organization that responds to consumer choice is the marketing firm. The idea of the marketing firm, which reflects aspects of the thought of Coase (1937), Drucker (2007) and Simon (1976, 1987), posits that the primary rationale for firms, given the structural nature of modern markets is to undertake customer-oriented management. That is, to respond to the general economic and social conditions that make production orientation unprofitable and which compel a customer-oriented strategy not only on the part of the marketing department or function but of the entire enterprise. [The marketing firm is not, therefore, simply a firm that undertakes marketing activities; nor yet does the term refer to the marketing department or](#)

function of the enterprise. It is the entire firm as it responds to the opportunities to satisfy consumer wants and the competitive threats enjoined upon it by the structural economic and social conditions that compel marketing-oriented management. (For elaboration, see Foxall, 1999b; Vella & Foxall, 2011). The conditions that compel customer-orientation are (i) supply or potential supply exceeding aggregate demand, (ii) high levels of discretionary income, (iii) intense inter-industrial competition among suppliers, and (iv) consumer sophistication (Foxall, 1981). These circumstances necessitate marketing planning and research, product development, market segmentation strategies (rather than the attempt to satisfy the entire market), and assiduity in planning and producing, implementing and managing, integrated marketing mixes that meet corporate goals (e.g., Kotler et al., 2012). All of these are matters so closely intertwined with the *raison-d'être* of the firm – why it exists, what it does – that the relationship of marketing and corporate strategies is more than alignment: it is coincidence. Both strategic perspectives involve answers to the questions famously raised by Drucker (2007): what business are we in? who is our customer? who will be the customer? The shelter of the corporate environment is required to ensure that these tasks are undertaken without their being observed by competitors. Whatever the historical basis for the existence of firms (e.g., Coase, 1937; Nooteboom, 2009; Sautet, 2000), this philosophy of management provides their contemporary rationale.

Only Marketing?

It is natural to ask why the marketing firm has been given a single function when surely firms produce, consult, and practice as well as market. The marketing firm concept is an extension of Coase's (1937) realization that firms exist because they minimize transaction costs, an insight that has become central to the definition of

economic institutions and the delineation of their unique nature. Transactions will be incorporated within the firm when the costs of coordination they entail become thereby smaller than if they were undertaken through individual contracting among independent producers. Coase's recognition of the implications of costs of transacting in the market place transforms understanding of the nature of business behaviour and of the business enterprise itself. It is possible, however, to extend his analysis to incorporate characteristics of the modern corporation that do not figure, at least not prominently, in his work. In particular, in Coase's purview, the firm is essentially a unit of production and, while he employs the term "marketing costs" (rather than "transaction costs"), his analysis says little of the firm as a marketing entity. This is conveyed by both the title and the tenor of his 1991 Nobel Lecture (Coase, 1993): even allowing for the inclusion of marketing activity within the term "production," this usage fails to discriminate the various kinds and functions of marketing costs understood as those of coordinating marketing intelligence and the profitable provision of consumer benefits. If we extend Coase's insight to include the marketing operations of firms, however, this leads to the bolder claims that, since the pursuit of marketing-oriented management is the prime motive for their current rationale, all firms are necessarily marketing firms; in short, marketing provides the *raison d'être* of the contemporary corporation. Another way of putting this is that Coasean analysis concentrates on the inputs to the firm's productive processes; the concept of the marketing firm extends the analysis by, first, incorporating the subset of these inputs that are ultimately involved in output decisions, and second, by considering the outputs themselves as entities that need to be coordinated as much as the inputs.

Bilateral Contingency

In general terms, firms attempt to manage their relationships with their customers. The marketing firm can be defined as an organization that responds to consumer behavior by producing marketing mixes that influence consumer choice by managing the pattern of reinforcement of the consumer and the scope of the consumer behavior setting. This entails the formation and management of *marketing relationships*, which are characterized by *literal exchange*, exchange of legal title to a product or service on one hand and whatever it is exchanged *for* (usually money) on the other (Foxall, 1999a). [This general observation translates well into an account of](#) into the activities of the marketing firm viewed in behavior analytic terms? We have shown that consumer behavior is a function of the scope of the consumer behavior setting and the pattern of reinforcement that shapes and maintains choice. The behavior of the marketing firm may be represented as a response to consumer demand that involves managing the scope of the consumer behavior setting so that the brand marketed by the firm becomes a more salient member of the consumer's consideration set, and managing the pattern of reinforcement by providing appropriate responses to the operant classes of accomplishment, hedonism, accumulation and maintenance shown by consumers (Vella & Foxall, 2011, 2013).

The means by which marketing firms respond to consumer behavior is by attempting to effectively manage the bilateral contingencies that link them with their customer bases (Figure 4). Firms undertake this by researching consumer behavior and wants, and designing and implementing marketing mixes that use product, price, promotion and place as effectively as possible in order to achieve corporate objectives by profitably meeting consumer requirements. Consumers respond by buying or rejecting the offerings of firms and thereby fulfilling or thwarting the financial objectives of the enterprise. The behavior of marketers thus provides as its outputs the

discriminative stimuli and motivating operations that embody the behavior setting of the consumer and the satisfactions (we would say, reinforcers) that shape and maintain consumer choice; in turn, the behaviors of consumers provide as their outputs the revenues and profits that influence corporate planning and operations.

The essence of *bilateral* contingency is that the parties are sufficiently closely connected to read clearly the behaviors of one another and for these, and their outcomes, to act as discriminative stimuli and reinforcers/punishers for further behavior (Foxall, 1999a, 2014b). While these relationships depend heavily on rule-governed behavior as well as that which is directly contingency-shaped, the bilateral contingencies involved allow the behavior of one party to be responsive with some immediacy to that of the other, to be in touch with the other party by virtue of proximal rather than distal, concrete rather than highly symbolic, reinforcements (Foxall, 2013).

Reponses to Environment-Impacting Consumption

The actual attempts to redress problems of environment-impacting consumption have followed the prescriptions of both ABA and the suggestions of the marketing firm. (European examples [have been chosen](#) because they facilitate the comparison of nations and cultures for which similarly-based measures apply. But these are supplemented by studies for the United States and Australia.)

Private Transportation

It is predicted on the basis of the preceding analyses in terms of ABA research and the market firm that the crucial marketing mix element will be the product; the pattern of reinforcement that must be maintained or enhanced is high utilitarian reinforcement and high informational reinforcement: accomplishment. The actual

marketing response: provision of benefits previously in the province of private transportation: comfort, speed, and reliability combined with enhancement of status. It is likely, however, that charges for the new services, whether recovered by pricing or taxation have risen.

Changes in mode and frequency of transportation can be implemented by fiat, e.g., by banning cars with particular index numbers from the streets on certain days. The approach known as “voluntary travel-behavior change” (VTBC), as employed in Australia, Germany, Japan, the Netherlands, Sweden, the UK and the USA, are claimed effective even though they do not rely on compulsion (Friman et al., 2012). Drawing on recent research by Friman et al. (2012, 2013), Redman et al. (2012), Richter et al. (2010, 2012), I would like to summarize the results of these so-called “soft” transport policies (in contrast to “hard” policies (which entail the use of punitive pricing, legislation and investment in infrastructure) in order to show how they approach the consumer. I want also to distinguish *market-based measures* as opposed to *coercion* and to draw attention to the fact that general cultural contingencies will favor one or the other depending on the society involved. Market-based measures include road and congestion charging, kilometer/mileage charges, fuel duty and parking charges, and public transport discounts and travel vouchers. Coercion includes taxation, road closure, punitive pricing, and so on. Most societies – perhaps *all* societies – combine market-based and coercive measures.

Another approach is *Voluntary travel behavior change* (VTBC) which encourages drivers “to make a voluntary switch towards a more sustainable travel mode”. There may be no such thing as voluntary behavior but we can easily understand these measures as offering drivers alternative behavior patterns that are positively reinforced, thereby expanding the scope of their consumer behavior

settings. VTBC can be combined with either market-based or coercive policies or all three can be incorporated in a comprehensive policy. There is indeed evidence of synergy between the hard and soft measures such a policy requires. Studies in the US and the Netherlands show that VTBC alone resulted in reductions of 5-15% in car travel, while reductions in car use by 20-25% were apparent when VTBC was used in combination with hard measures such as parking management and bus subsidy.

All of these types of measure involve either a corporate metacontingency or a government metacontingency or a combination of the two transacting with individual consumers. The behavior of road-users reflects patterns of reinforcement imposed by others. It remains that of individual drivers. If we aggregate it, it remains macro-behavior that does not evolve in its right. The actions of the metacontingencies in this case, however, are instrumental in extending rather than restricting the scope of the consumer behavior setting.

Waste Disposal

Applied behavior analysis and the marketing firm lead to the prediction that the crucial predicted marketing mix element is place; the pattern of reinforcement that must be maintained or enhanced is high utilitarian reinforcement and low informational reinforcement: hedonism. The actual marketing response has been more concentrated provision of bins which seeks to change behavior by enhanced utilitarian reinforcement. In addition, the agencies responsible have emphasized that greener areas promote pride.

It is unlikely that the effects of littering or more destructive forms of indiscriminate waste disposal can be assuaged by the market alone. Most anti-litter interventions are the result of action by local government or facility owners/managers but in either case they are enforced ultimately by systems of fining malfeasants which

require central government involvement. The emphasis on punishment (fines) may well encourage visitors to dispose of litter more carefully though still illegally. A study by Keep America Beautiful revealed that only two variables are significantly related to littering: availability of receptacles and amount of litter present. (KAB, 2009, 22). It has also proved possible to segment litterers. (Lyndhurst, 2012). And so, the behavior of individual consumers/disconsumers is aggregated into macro-behavior albeit at the level of the segment. Such behavior does not evolve.

Domestic Energy

The predictions of ABA and the marketing firm are that the crucial marketing mix element is promotion, while the pattern of reinforcement that must be maintained or enhanced is low utilitarian reinforcement and high informational reinforcement: accumulation. The actual marketing response has been smart metering giving (near-) instant feedback on consumption, allowing costs paid to be controlled by the consumer without reducing the overall utilitarian benefits obtained. The crucial factor is informational reinforcement. In addition, util reinforcement has been maintained by lagging, double glazing, insulation, building regulations.

In energy there is a concerted consumer-oriented program which has incorporated sound research and the encouragement of metering of domestic energy supplies. A summary of 21 studies on feedback between 1975 and 2000 indicates, in complete agreement with the earlier ABA research, that *direct* feedback constitutes the most effective means for generating savings in domestic electricity consumption. The greatest savings (c. 20%) were attained through providing consuming households with a table top interactive cost- and power-display unit, a smartcard reader for prepayment of electricity and an indicator showing cumulative cost of operating an electric cooker. Indirect feedback in the form of enhanced billing also influenced

savings. Twenty-one studies between 1975 and 2000 show that these direct interventions were responsible for up to 20% savings. *Indirect* feedback includes such factors as more frequent bills based on meter readings and historical feedback on consumption and costs of electricity (European Environment Agency, 2013). These interventions are generally less effective than direct measures.

All of these measures involve the identification and management of contingencies that influence the behavior of individual customers or households. The behavior of these individuals/units is then influenced by skillful management of these contingencies to produce an overall level of macro-behavior that fulfills corporate projections. Such macro-behavior does not evolve; it adjusts to changing contingencies imposed from without. We would say in terms of the BPM that the consumer behavior setting is relatively closed, therefore. The consumers has little or no option but to conform to the contingencies imposed and, although he/she may do so “willingly”, i.e., he/she is responding to positive rather than negative reinforcement, the scope of the consumer behavior setting remains highly restricted. Central agencies such as the European Environmental Agency can monitor and encourage the progress of whole nations in adopting an appropriate strategy. But the pattern of engagement is always between a corporate metacontingency and the behavior and macro-behavior of numerous individuals or households. The aim of the managerial intervention is to manipulate the pattern of reinforcement consumer face and to effect closure of the scope of the consumer behavior setting.

Domestic Water Consumption

The ABA-derived predictions in terms of the marketing firm are that the crucial marketing mix element is price (or perhaps value for money) while the pattern

of reinforcement that must be maintained or enhanced is low utilitarian reinforcement and low informational reinforcement: maintenance.

The actual marketing response has been the installation of metering to provide instant/almost instant feedback on consumption and costs, and its judicious use provides close links between consumption and the benefits obtained. This enables cost incurred by obtaining utilitarian benefits to be minimized; encourages use of less water. Water conservation measures also rely heavily on metering so many of these considerations apply there too. The criteria for achieving sustainability in this area have been set out for the UK by Hetherington (2007) who, in a report to the WWF, encapsulates them in several “rules” of which the most indicative of the approach taken are that as a generalization the entire cost incurred by a water utility should be charged to consumers; water should be metered so that household tariffs avoid fixed annual charges (which are inefficient and encourage waste); and, ideally, the benchmark price of metered water prices should be the marginal cost of providing it (i.e., the extra cost of one more unit).

All of these rules respond to water consumers or households as individuals. Again, the macro-behavior of these units is the input to the corporate planning and operations of the utility companies, which are metacontingencies. The import of treating households as if they were units of consumption is that they are not expected to produce outputs other than the collective behavior of the individuals who compose them. The marketing mix is aimed at the management of the contingencies responsible for the pattern of individual behavior; this management is achieved by the provision to consumers of a pattern of reinforcement that will have the desired behavioral effects; the consumer’s/household’s behavior setting scope is reduced by the provision of single pattern of behavior which will be overwhelmingly preferred. I

am not making any judgment about the benignity of these measures, or the conduct of the utility companies, or the economic system in which they operate. My interest is solely academic: the relevance of metacontingencies and bilateral contingencies to our understanding consumer and marketer behaviors.

Principles of Contingency Management

It is apparent from this that several principles of corporate response are consonant with the prescriptions of metacontingency theory. First, it is necessary to maintain a similar pattern of contingencies to that currently maintaining less prosocial behavior, though consideration should be given to the levels of utilitarian reinforcement and informational reinforcement being enhanced. *This is in line with Biglan and Glenn's (2013) principle that prosocial behavior should be richly reinforced.* Second, the consumer behavior setting scope needs to be modified. One may see this as a closure of the setting in that at present the consumer has the choice between a problem behavior and the prosocial pattern we wish to engender, whereas we are seeking to restrict his/her choice to the latter. *This view would be in line with Biglan and Glenn's (2013) principle of setting limits for problem behavior.* Or it could be seen as enhancing the degree of choice available to the consumer by offering a new behavior pattern and thereby increasing the number of options available to the consumer. *This is in line with Biglan and Glenn's (2013) principle that prosocial behavior is encouraged by reducing or removing toxic conditions.* Insofar as the remoter, more long-run consequences of environment-impacting consumption are toxic, we are ultimately providing a more open setting for consumer behavior.

Symmetry and Asymmetry between Contextual Systems

The examination of how marketing firms have actually approached environmental problems permits further investigation of the relevant of

metacontingency and bilateral contingency to the analysis of firm—consumer interactions. These relationships can be understood in terms of their being symmetrical or asymmetrical.

Symmetry

By symmetry is meant the interaction of two organizations each marked by metacontingency such that their behavior can be analyzed in terms of an overarching metacontingent system. The advantage of symmetry is that there is a degree of equality between the parties to a transaction. If both parties to the transaction are metacontingencies, each has an output/product that enables the other to tailor its marketing mixes appropriately. For example, in the case of a marketing firm interacting with a corporate customer, each can read the other's behavior in terms of a unified marketing mix or purchasing policy from which it can infer the strategy of the other and respond to it strategically. This leads to more appropriate marketing mixes and acquisition strategies, greater efficiency and long term relationships that enhance product development. Each organization has control of its behavior setting to a considerable (though, of course, not absolute) degree. Each organization matters to the other sufficiently for its strategic ends to be taken into consideration in large degree by the other. Each party has the opportunity to assert its strategic aims and if it chooses not to transact with the other, this will have tangible effects on the other's fortunes. The result is a long-term relationship between the transacting organizations, so-called relationship marketing.

Asymmetry

Asymmetry, however, is marked by inequality of interaction in the following sense. If only one party to the transaction is a metacontingency, i.e., the marketing firm, it might be said that each member of the consumerate is pitched against the

marketing output of an organization that has the resources to plan a marketing mix that is to some degree imposed on the consumer. In all of the cases we have considered, the relationships are asymmetrical – there is considerable inequality of status between the marketing firm and individual consumer or household. The consumer is not in a position to develop a strategic stance let alone to act as a metacontingency that has strategic outputs. (A household might be considered a small metacontingency but it is not able to exert market power vis-à-vis the marketing firm.) There is no need in principle for the marketing firm to seek long-term relationships with its individual consumers in this case. As long as the marketing firm achieves its revenue, profit or other goals, it is immaterial whether it seeks to meet the requirements of each available market segment let alone each consumer. *However*, the exercise of environmental conservation by marketing firms has in practice been effective and many of the provisions (such as metering) have been welcomed by customers.

The explanation suggested here derives from the existence of bilateral contingencies which in a market economy ensure that consumers' setting scope is sufficiently open to allow them to transfer their business to another supplier. The nature of the bilateral contingencies that bind firms and their consumers also offers explanation of the different kinds of relationships we have identified (Figure 5). Bilateral contingencies differ in the extent to which they are firm or fragile, that is the extent to which they promote orderly exchange between customers and suppliers. Figure 5 places the four areas of consumption, ordinally, on a continuum from firm to fragile bilateral contingencies. *Energy* consumption is marked by a moderately firm bilateral contingency. Consumption occurs in a situation in which consumers have a choice of supplier since there is competition among providers. But they also have the

option of overconsuming if they prefer as long as they can pay for the energy they use. Metering does control consumption very effectively, however. *Water* consumption is marked by an even more firm bilateral contingency: there may not be competition for particular consumers among suppliers even though providers may be regulated by national bodies to provide an acceptable level of service. Despite some similarities in consumption and marketing between energy and water, water belongs closer to the *firm* pole of the continuum because of the low elasticity of demand that characterizes this commodity and the lack of competition among suppliers. Neither of these is true of energy consumption and provision. *Transportation* occurs in an even more open setting because of the high levels of competition among providers and the alternative of private motoring if the high levels of utilitarian and informational reinforcement that consumers demand are not otherwise met. Finally, most open of all is the setting in which *littering* is a possibility. There is no long-term relationship between marketers and their consumerate; indeed, we are dealing with a fleeting relationship which does not entail marketing in any generally-understood sense. There is no possibility of policing green areas such that littering will be eliminated. The contingencies are distant, you have to get caught, the fines seem remote and unlikely, and although everyone says they prefer a clean environment the fact that littering increases where there is already little undermines this. There is no immediacy of mutual reinforcement.

How do the bilateral contingencies vary among these marketing and consumption patterns? Those at the *firm* end of the continuum are close or proximal (dovetailing the behaviors of marketers and consumers. They involve easily read stimulus profiles (the elements of supplier behavior that act as motivating operations or discriminative stimuli for customer behavior are very apparent and vice versa),

they are immediately acting (especially in the case of metered commodities), and they are reliable. At the *fragile* end, however, contingencies are remote or distal, not easily read, delayed, and unreliable (the chances are I will not be caught for littering).

Moreover, the relationships between water and energy utilities and transport organizations entail genuine marketing relationships: the exchanges are literal and embrace the whole of the marketing mix; those involved in the reduction of littering rely principally on persuasion, there is no literal exchange, though metaphorical analogs may be suggested. These fragile bilateral contingencies signal a sphere of behavior change that does not invoke marketing at the intermediate levels considered in this paper so much as real social marketing and cultural contingencies.

Conclusions

Environmental concern often stems from problems of consumption. If behavior analysis is to contribute to the solution of these problems, we need to understand what environment-impacting consumption is contingent upon, how response to environment-impacting consumption works, and how environment-impacting consumption and that response are related. Consumer behavior is contingent on pattern of reinforcement and consumer behavior setting scope; environment-impacting consumption is similarly contingent. Response to environment-impacting consumption is undertaken by the marketing firm which seeks to influence consumer choice via the modification of patterns of reinforcement and setting scope. Firms also manage bilateral contingencies which link them via networks of close contingency with their consumerates. Whereas marketing firms are metacontingencies, consumerates are composed of a mass of individual consumers whose combined activity is better characterized as macro-behavior. The relationships between marketing firms and consumerates are asymmetrical, but the skillful

management of bilateral contingencies can ensure that consumers remain involved in the process of alleviating environmental concern.

Metacontingency and Bilateral contingency

Each of the marketing programs we have examined involves an organization (a single contextual system) interacting with its customer base (a large number of contextual systems). The marketing firm generates a marketing mix, not for each of the consumers it seeks to respond to/influence, but for each segment of the market that is measurable, accessible, justifiable, differentiable, actionable (Kotler, Keller, Brady, Goodman & Hansen, 2012). This does not mean that it envisions each segment of its customer base as a metacontingency; rather a segment is characterized precisely by what Biglan & Glenn (2013) call macro-behavior: to the firm it is an aggregate of consumers who will act similarly in the face of the marketing mix the firm designs and implements for it. Each member of a segment responds to the marketing mix in a predicted way and as the contingencies contained in the mix vary the individual consumer's behavior will vary. But there is no overall output of the consumer base's behavior that is other than an aggregate of the behavior of each of its members. It is the marketing mix that produces sales, not any one element of it but the emergent bundle. It is unlikely that marketing firms know what their consumers are buying and while this may not matter if the market for widgets is large enough in the short to medium term it will affect the marketing firm's fortunes in the long term if technological advance overtakes its product offering. This amorphous nature of the marketing mix, the inability of the marketing firm to pin down precisely what generates its sales, is especially important for business-to-business marketing.

How would this be different if the marketing firm were transacting with a corporate customer? The customer in this case would itself be a metacontingency, a

complex of interlocking *internal* behavioral contingencies out of which would emerge a purchasing strategy that specified the kinds of products/services it required, its conception of value (i.e., what it would be willing to pay); this strategy would be revealed in negotiations with the marketing firm and would be an output of the behavior not of any individual or group but of the overall organization. This strategy would be a behavior pattern of the organization which would have consequences of its own in the market place in terms of the effectiveness with which it contributed to the overall strategic goals of the customer organization in which it originated. The relationships between the marketing firm and its customer would then be an interaction of metacontingencies. The amorphousness of the marketing firm's marketing mix is compounded by the amorphousness of the customer firm's purchasing strategy.

The marketing mix that is the supra-personal behavioral output of the marketing firm is met, in the market place, by the purchasing strategy of the firm which is its customer. In this case, while the marketing firm may produce a mix for each segment it serves, it is likely to tailor the mix for each customer firm each of which has its own requirements that are profitable for the marketing firm to meet separately. At the theoretical level, however, the interesting outcome is that the marketing firm is dealing with an emergent output from its customer that may be difficult to describe definitively.

Practical Implications

There will only be greater symmetry in the relationships between marketing firms and their ultimate consumers if consumers join forces by forming an association that develops an output a policy or strategy to guide its members' behaviors with respect to the marketer which is over and above the aggregate

behaviors of individual consumers. If this occurred, the consumerate would become a metacontingency and its relationship with marketing firms would be more equal. The strategic output of the consumer association would evolve the meet consumers' changing requirements.

The attempt to use social marketing – defined as an attempt to alter cultural or macro-contingencies directly – brings new organizations into play, the interests of which may not be those of the consumerate. This does not necessarily meet the need of the consumerate to develop countervailing power vis-à-vis marketing firms. There is no obvious bilateral contingency between the social marketer in this sense and the consumerate. There is clearly a need for behavior analytical research to address this practical issue. Fortunately, the concepts of metacontingency and bilateral contingency have proved consonant with one another, giving hope that further research will develop further their theoretical and practical implications.

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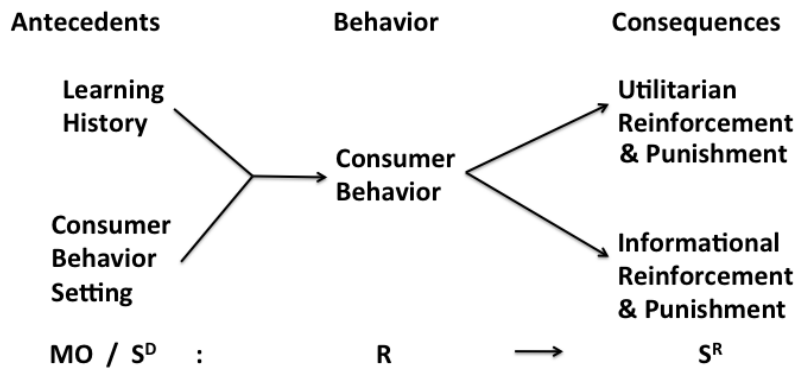


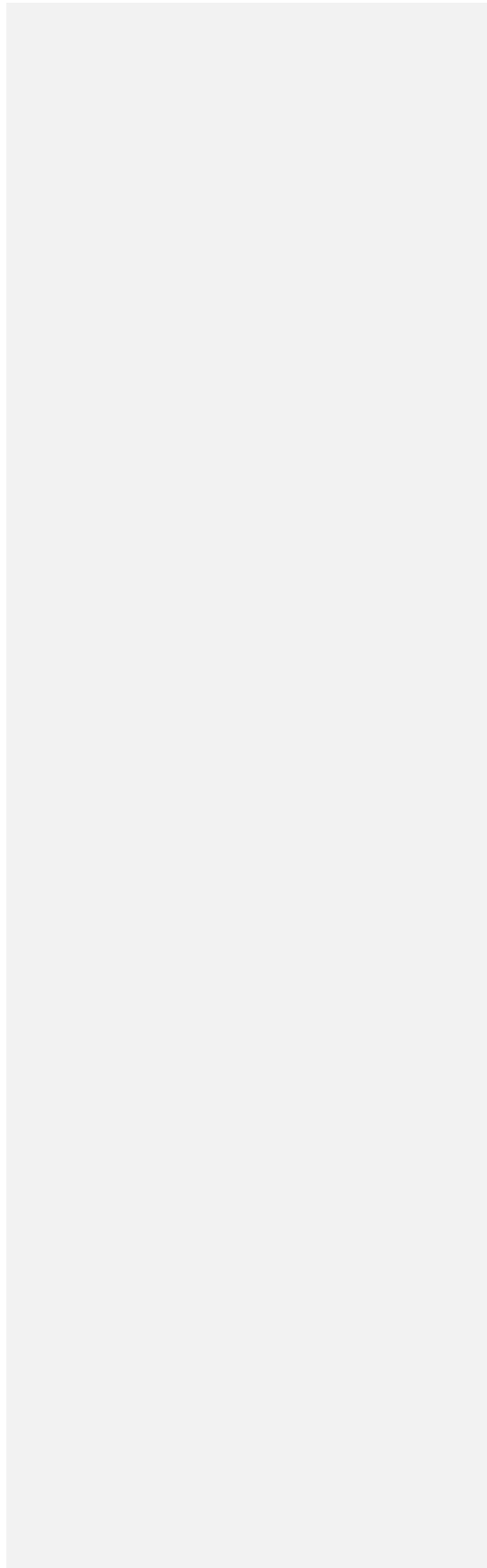
Figure 1. Summative Behavioral Perspective Model *Source: Foxall (1990/2004). Adapted by permission.*

		Informational Reinforcement	
		Low	High
Utilitarian Reinforcement	High	Hedonism	Accomplishment
	Low	Maintenance	Accumulation

Figure 2. Patterns of Reinforcement and Operant Classes of Consumer Behaviour.

Source: Foxall (1990/2004). Adapted by permission.

Field Code Changed



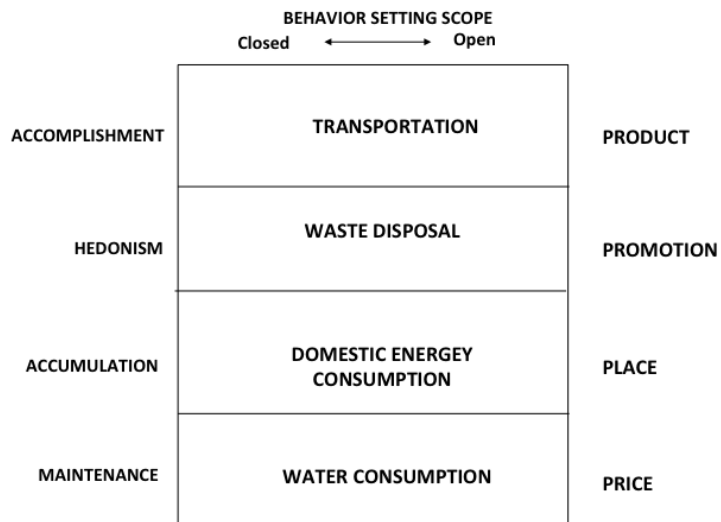


Figure 3. Environment-Impacting Consumption: Operant Classes and Dominant Marketing Mix Elements. *Source: Focall (2010). Adapted by permission.*

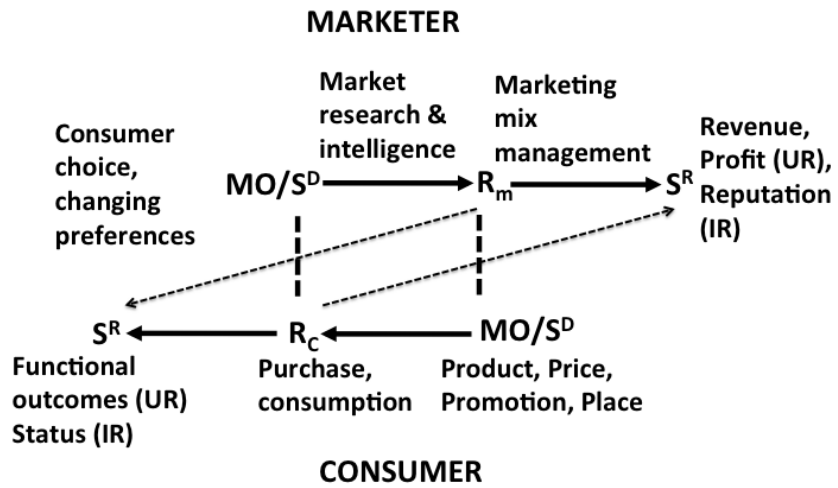


Figure 4. Bilateral Contingency. Source: Foxall (1999a). Adapted by permission.

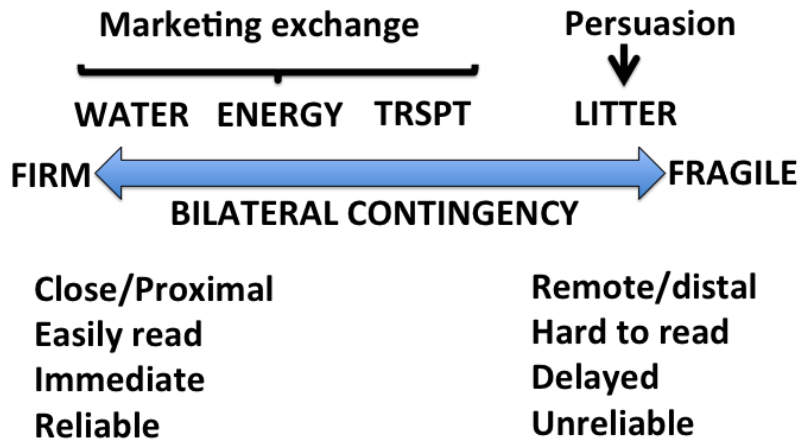


Figure 5. Bilateral Contingency in the Context of Environmental Concern.