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VARIETY SEEKING BEHAVIOR:
AN INTERDISCIPLINARY REVIEW*

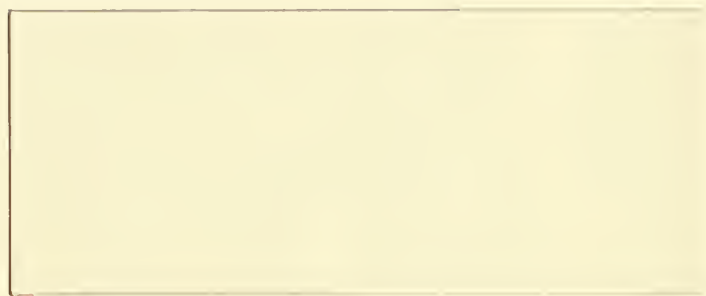
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Sloan W.P. No. 1287-82

March 1982

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*Support received from the University of Washington School of Business Summer Research Fund and from the Marketing Science Institute is gratefully acknowledged.

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ABSTRACT

In an attempt to organize the research findings that pertain to the various phenomena which have been termed "variety seeking" we offer a taxonomy of varied behavior. Within that framework the literature is reviewed. Seemingly disparate research traditions; one of which viewed the phenomenon as inexplicable, the other of which attempted explanation; are shown to be converging.

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VARIETY SEEKING BEHAVIOR:
AND INTERDISCIPLINARY REVIEW

Leigh McAlister and Edgar Pessemier

Variety, the proverbial spice of life, is a much discussed and much researched topic. Its antecedents, determinants, implications and correlates have been investigated by psychologists, consumer behaviorists, marketers and economists. The resulting accumulation of information exhibits seeming contradictions and inconsistencies. It is our contention that these discrepancies arise because the term "variety" is used to denote a number of different phenomena. In this paper we avoid the term altogether as we sort through the literature that has accumulated under its banner. Toward that end we offer a taxonomy of causes of varied behavior and review the literature within that framework.

A TAXONOMY OF VARIED BEHAVIOR

The phenomena of interest in this paper are those mechanisms which lead individuals to engage in varied behaviors. We include switching among product variants,¹ switching among service alternatives, switching among various activities, etc., under the umbrella of "varied behaviors." A taxonomy of explanations for such varied behavior is presented in Figure 1.²

- Figure 1 About Here -

The taxonomy suggests that there are two basic schools of thought concerning varied behavior. One school considers such behavior to be either inherently inexplicable or, if explicable, to be so complex as to render it operationally inexplicable. This school focuses research on the probabilities with which different behaviors will be enacted.

The other school of thought tackles the chore of explanation. We divide the explanations into two classes: those which view varied behavior as the result of some other motivation (DERIVED), and those which view variation as a

motivation in and of itself (DIRECT). Motivations from which varied behavior might drive are suggested. It is also suggested that direct varied behavior might result from internal (INTRAPERSONAL) or external (INTERPERSONAL) causes.

We propose that all these phenomena can cause varied behavior.

Furthermore, any given choice which differs from its predecessor may be the result of a number of these causes acting in concert. We are not attempting to invalidate any stream of research. Rather, we attempt to interrelate the evidence existing in the marketing, consumer behavior, economics and psychology literatures with respect to varied behavior. Our objective is to crystalize a few common concepts, identify their antecedents and explore their implications.

"INEXPLICABLE VARIED BEHAVIOR" AND STOCHASTIC MODELS

Our dichotomization of the literature into schools which consider varied behavior INEXPLICABLE and EXPLICABLE perhaps overstates their differences. Those who thought varied behavior too complex for explanation proposed probabilistic models of choice. The evolution of the probabilistic models has involved the incorporation of variables to explain the probabilities. So, little by little, the two traditions are converging.

A major contribution to the tradition of probabilistic prediction of behavior was Luce's (1959) axiom of choice. His axiom implies a correspondence between a set of numbers (measures of affect) and a set of choice objects such that the probability that an object will be chosen is given by the ratio of the number corresponding to that object and the sum of the numbers corresponding to all of the available alternatives.³ These probabilities are often interpreted as long-run frequencies of choice.

In the 1960's, models appeared which focused on different potential determinants of these "probabilities of choice." Massy, Montgomery, and Morrison (1970) classified the models as dealing with either: (1) feedback from past experience with the choice object, (2) the influence of exogenous

market forces, or (3) the impact of factors indigenous to the household itself. The first determinant was modelled as the learning brought about through experience (Keuhn 1962). The second determinant was modelled as a time trend. The third was captured by assuming a distribution, across the population, of the parameters influencing the probability of choice. (Generally these parameters indicated differences in tastes.)

One stream of subsequent developments in this tradition has switched the focus to the managerial implications of macro models. Bass and his coauthors (e.g., Bass 1974; Bass, Jeuland and Wright ; Bass and Pilon 1979) favor this approach because "the randomness which characterizes individual behavior tends to be washed out by aggregation" (Bass 1974, p. 9).

Huber and Reibstein (1978) hypothesized that an individual's choice behavior is explicable and predictable given knowledge of the individual's ideal points for attributes characterizing the product class. However, since they posit that those ideal points are subject to random fluctuations, the final implication is that behavior is not predictable.

Blin and Dodson (1980) cross fertilize multiattribute attitude and stochastic models. They argue that "the consumer's attitude structure governs not actual choice on any single purchase occasion but relative frequency of choice over repeated purchase occasions" (Blin and Dodson 1980, p. 611). The cross fertilization they propose involves estimating the frequency with which a behavior will be performed as a function of the importance weights in an individual's linear compensatory preference function. The data are scaled so that the importance weights are all positive and so that the weights sum to one. They estimate the frequency with which a particular behavior will be performed⁴ to equal the sum of the importance weights for those attributes on which that behavior's value is the best available. One implication of this model is that those behaviors which do not dominate on at least one attribute will never be performed.⁵

This link between stochastic models and attitude structure is an important one. It stops short, however, of explaining why and predicting when an individual will elect to switch behaviors. Givon (1981) proposes a stochastic model to directly address the question of "why." The sequence of behaviors an individual performs, he maintains, is the result of two forces: (1) the utility derived from the behavior itself and (2) the utility inherent in switching, regardless of the behavior to which or from which one switches.

The above stochastic models do not address the question of "when" an individual will elect to switch behaviors. However, the incorporation of psychological constructs into the estimation of choice frequencies may foreshadow the emergence of a third research tradition incorporating the strengths of each of the existing traditions.

"EXPLICABLE VARIED BEHAVIOR" AND DETERMINISTIC MODELS

Derived Variation

Models which concern themselves directly with the explanation of varied behavior can be divided into those which view the variation as being DERIVED and those which view it as DIRECT. "Derived varied behavior" refers to that which results from external or internal forces which have nothing to do with a preference for change in and of itself. We postulate two such forces: multiple needs and changes in the choice problem.

Multiple Needs

Laurent (1978) developed and validated operational measures of the construct of varied behavior due to multiple needs. In that research he decomposed multiple needs into three subcategories: multiple users, multiple uses, and multiple situations.

Multiple users refers to those cases in which different members of a household prefer different objects. This heterogeneity of preferences within the household leads to the selection of multiple objects even if each uses only a single object.

Multiple situations refers to those cases in which the behavior is dictated by the situation. When the situation changes, the behavior changes. "Situations may differ in many ways: the social context of consumption, the location of consumption, time constraints on consumption, the quantity consumed, usage convenience (e.g., individual packages of cereal when humidity is high), variables dependent on emotional reactions, concurrent activities" (Laurent, 1978, p. 3). Srivastava, Shocker and Day (1978) and Belk (1979) have extended an approach proposed by Stefflre (1979) to develop a taxonomy of usage situations. Holbrook (1981) has developed a model incorporating situation specific ideal points.

Multiple uses refers to those situations in which an object is used in multiple ways. Examples include the purchase of one type of soup principally as an ingredient for a casserole and purchase of another type principally for its use as a course of a meal. One might also purchase one type of baking soda as a cooking ingredient and a different type as a cleaning agent. Multiple uses might logically be viewed as a special case of multiple situations. It is mentioned separately here to maintain consistency with Laurent (1978).

Changes in the Choice Problem

Varied behavior resulting from changes in the choice problem can be ascribed to changes in the set of feasible alternatives, changes in tastes or changes in the constraints facing the individual enacting the behavior.

The feasible set might change for many reasons. New products are being launched continually and old ones discontinued. A change in the marketing mix (product, price, promotion or distribution) can be conceptualized as the addition of a new alternative to the set and the deletion of an old one.

Moving from one neighborhood, region or country to another could change one's set of feasible choice alternatives. By changing one's perceptions of the variants, the reduction of uncertainty inherent in learning also changes the feasible set.

That a change in behavior might result from a change in tastes is obvious. Tastes could be changed by external influences (e.g., advertising) or by internal influences (e.g., maturation).

Finally, a change in the constraints governing choice might lead to the selection of a different behavior. If one should suddenly have more (or less) wealth, free time, energy, etc., it would probably affect the selections she made.

Changes in behavior due to changes in the choice problem are phenomena with which economists have dealt thoroughly. Two notable economists (Stigler and Becker 1977, p. 89) claim that "all changes in behavior are explained by changes in prices and incomes." While many economists would also allow differences in tastes across individuals and across time, economics research focuses, typically, on the impact of prices and incomes. The parsimony of such a paradigm is both a strength and a weakness. It provides valuable insights into aggregate behavior (Horsky and Sen 1982). However, such models are often poorly explain and predict a particular individual's choice in a particular situation. Important work is being done (see Bettman 1979 for an overview of one such stream of research) to shed light on the internal process by which changes in the choice problem lead to changes in behavior.

Direct Variation

Psychologists (e.g., Berlyne 1960, Fiske and Maddi 1961, Driver and Streufert 1964, and Fromkin 1976) suggest that the motivation for varied behavior may extend beyond multiple needs, and changes in the choice problem. "Novelty," "unexpectedness," "change" and "complexity" are pursued, it is proposed, because they are inherently satisfying (Maddi 1968). Furthermore,

one's behavior patterns are typically influenced by those of her peers (Fromkin 1976). We believe that the inherently satisfying aspects of changing behavior are caused by forces both internal (INTRAPERSONAL) and external (INTERPERSONAL) to the individual. The internal forces have to do with the desire for the unfamiliar, for alternation among the familiar and for information. The external forces have to do with needs for group affiliation and personal identity.

Intrapersonal Motivation

Consumer behaviorists (e.g., Howard and Sheth 1969, Venkatesan 1973) have linked varied behavior to the existence of an ideal level of stimulation (novelty, complexity, incongruity, change, etc.). Their arguments are based on Driver and Streufert's (1964) synthesis of the theories of consistency (Heider 1946), complexity (Kelly 1955) and optimal arousal (Berlyne 1960). Driver and Streufert's (1964) theory holds that as stimulation falls below the ideal level, cognitive action will produce more input (e.g., exploration, novelty seeking). As stimulation increases beyond the ideal level, cognitive action will attempt to reduce or simplify input.

Raju's (1980) investigation of the optimum stimulation level suggests three factors which contribute to the level of stimulation: the desire for the unfamiliar, the desire for alternation among the familiar and the desire for information.

The link between the desire for the unfamiliar and the optimal stimulation level is frequently invoked to explain the purchase of "new products."⁶ Raju (1980) suggests that a favorable attitude toward risk is the primary motivator of innovativeness.

Alternation among familiar alternatives involves very little risk. However, it has been pointed out (Venkatesan 1973, Faison 1977) that the level of stimulation can be raised by switching from one product variant to another, even if the variant to which one switches is familiar. Early brand loyalty

studies (Tucker 1964, McConnell 1968) and a similar study in social psychology (Brickman and D'Amato 1975) document this phenomenon. Subjects in these studies made repeated choices from a set of initially unfamiliar stimuli. Two distinct phases of switching behavior were apparent. Initially subjects systematically explored all stimuli. Later in the experiment subjects tended to alternate among the elements of their favored subset of the stimuli. Brickman and D'Amato (1975) reason that after their initial search, subjects have weak preferences for some stimuli over others. Additional exposure to more preferred stimuli increases liking of those stimuli. It also creates boredom. The alternation observed in the later part of the experiments is attributed to the balancing of these two effects of repeated exposure.

Several models of alternating behavior have been proposed. Givon (1981), as was mentioned before, suggests that change is rewarding in and of itself regardless of the object from which or to which one changes.

Farquhar and Rao (1976) propose that reward stems from the configuration of one's total collection of objects or behaviors. Their "balance" model for evaluating collections of items allows an item's attributes to have two kinds of influence on preference for the collection. The first is a simple linear increase or decrease (depending on whether the attribute is "desirable" or "undesirable"). The second has to do with the diversity of values for that attribute in that collection. If diversity increases preference for the collection, the attribute is termed "counterbalancing." If diversity detracts, the attribute is termed "equibalancing." The terms in their model involving "counter-balancing" attributes could be construed as reflecting the stimulation (novelty, diversity, complexity, etc.) of the collection. However, they posit a linear relationship between this term and preference for the collection. Such linearity is not consistent with the existence of an ideal level for stimulation. Rosenfeld (1981) developed a dynamic version of the balance model for evaluating potential additions to the collection.

Alternation among familiar alternatives might also result from satiation. Coombs and Avrunin (1977) cites evidence from physiological psychology in which single peaked preference functions have characterized individuals' reactions to the constituent attributes of stimuli. A single peaked function, like that in Figure 2, reflects decreasing, but positive, marginal value for incremental units of an attribute until the ideal point (or point of satiation), x_5 , is reached. The marginal value of additional units of the attribute becomes negative and continues to decrease as the total store of that attribute exceeds x_5 . Presumably one would change her behavior to begin acquiring some other attribute as her store of x approached x_5 .

- Figure 2 About Here -

Similarly, economists intimate that, prices and incomes constant, any change from one behavior to another is attributable to the decreasing marginal value of the original behavior (Silberberg 1978, p. 222). Following Lancaster (1971), the change could be attributed to the decreasing marginal value of the component attributes resulting from the original behavior.

An important implication of satiation is that the value of a behavior to an individual must be determined relative to her existing stores or "inventories" of attributes.⁷ Green, Wind and Jain (1972) and Green and Devita (1974, 1975) developed models of preference for item collections based on the premise that there was some sort of interaction among the items in the collection. McAlister (1979) proposed a model of attribute satiation to account for that interaction. Her model evaluates the selection of a collection at a point in time. One would be unlikely to select multiple replicates of the same item, her model holds. This results from the likely satiation with attributes in which that item is rich and the relative attractiveness of other items having attributes only meagerly provided by the first item.

Jeuland (1978) proposed a model to account for varied behavior over time. Preference for a behavior at time t , he posits, is a function of not only the attributes resulting from the behavior but also of one's "experience" with the behavior.⁸ "Variety seeking" (decreasing marginal value) dictates, he maintains, that preference for a behavior decline as one accumulates "experience" with it. However, "experience" fades if one goes some period without enacting that behavior. Therefore, preference for the behavior can recover. Hagerty (1980) points out that Jeuland's (1978) model implies that relative preference among unchosen behaviors do not change over time. Hagerty demonstrates in an experimental setting that the consumption of a product can lower preferences for similar products.

McAlister's (1982) dynamic attribute satiation model is similar to Jeuland's (1978) except that she postulates that accumulated inventories of attributes resulting from behaviors rather than accumulated "experience" with behaviors themselves dictate the selection of different behaviors over time. This difference speaks to the issue raised by Hagerty (1980). Similar behaviors definitionally have similar values on relevant attributes. Therefore enacting one such behavior should have approximately the same impact on attribute inventories as enacting a similar behavior. Preference for the similar (but not enacted) behavior will be reduced almost as much⁹ as it would have been had that behavior itself been performed.

The difference between McAlister's (1979) attribute satiation model and her (McAlister 1982) dynamic attribute satiation model has to do with timing. The attribute satiation model posits concurrent acquisition/enaction of behaviors. The dynamic attribute satiation model accommodates behaviors in successive periods. The dynamic model summarizes a consumption history by the inventories of attributes that that history generates. In the absence of consumption, these inventories dwindle over time. Their diminution corresponds to physiological processing and disposal of such attributes as

sugar content, nutritional value etc., or the "forgetting" of non-physiologically based attributes (Little and Lodish 1969). At any given point in time, preferences among behaviors are determined relative to current inventory levels. Differing inventory configurations at different points in time combined with the impact of attribute satiation yields an explanation for alternation among familiar alternatives.

Psychologists and consumer behaviorists have also linked varied behavior to the acquisition of information. Hirschman (1980) focuses on the search for new and potentially discrepant information in her study of innovativeness, novelty and consumer creativity. As an aside, she hypothesizes that motives for varying choices among known stimuli do not concern information needs. Keon (1980) suggests just the opposite. He proposes that "as a consumer continues to purchase a particular brand, confusion arises as to the true worth of the brands not purchased." (Keon 1980, pp. 1126-1127; also see Pessemier 1978). According to Keon's theory, consumers switch brands in order to refresh their memories about brands not recently purchased.

The study by Raju (1980) suggests that the motive for seeking information may vary with the level of the stimulation ideal. Individuals with high stimulation ideals may seek information because of a genuine desire to explore something unfamiliar while individuals with low stimulation ideals may seek information to reduce the risk of trying an unfamiliar product.

Interpersonal Motives

One final motive for varied behavior is the desire for group affiliation or individual identity. Fromkin (1976) points out that social pressures for conformity create the need for subtle ways to express individuality. One such acceptable manifestation of uniqueness is the possession of commodities which are scarce or unavailable to others. This would account for the varied behavior stimulated by fashion, whose economic function, according to Robinson (1961), is to create scarcity. The obvious link between the desire for social

distinctiveness and a proneness to buy "new products" was affirmed in a dissertation by Szybillo (1973). Fromkin (1976) suggests that innovators are expressing a socially acceptable manifestation of the desire to see themselves as different than their peers. We might expect, then, that desire for social distinctiveness would tend to raise one's ideal level of stimulation.

It should also be noted that varied behavior may also be motivated by the desire to follow the changing behavior of peers. Here the need for affiliation will lead to imitation. Most of the literature on social class and on fashion behavior has emphasized the importance of "keeping up with the Joneses." The work of Veblen (1899) and Robinson (1961) are illustrative.

THE STIMULATION IDEAL POINT

Because of the centrality of the stimulation ideal to varied behavior we examine the determinants and implications of that parameter in this section.

A body of literature has developed concerning the determinants of the ideal point for stimulation. Some of this research (Berlyne 1960) suggests that there is a hereditary component to that ideal. However, it is clear (Barron 1953a, 1953b) from adult novelty preference data that learning can produce differences in these ideal points. Psychological studies have demonstrated that the intensity and variability of ambient stimulation in early life will affect preference for intense and varied stimuli later in life (Fiske and Maddi 1961, De Nelsky and Denenberg 1967). That is, exposure of one sense to variability tends to develop preference for variability of stimulation of the other senses.

One implication of this finding might be that those individuals who have high (low) stimulation ideal points for one product class would be likely to have high (low) stimulation ideals for all product classes. Robertson (1971) indicates that this is not the case. There is no consistency in innovativeness¹⁰ across product categories, he tells us. There is, however,

consistency within product categories and sometimes consistency among related categories. King (1964) suggests that innovators are active in product contexts consistent with their "psycho-social make up." This view is consistent with Driver and Streufert's (1964) conjecture that the stimulation ideal may vary systematically with the centrality of the plans or concepts involved.

We conjecture that an individual will display preference for similar levels of stimulation in product classes which are important to her. The level of stimulation preferred should be related to the level of stimulation she experienced early in life.

Experiences later in life can also impact the stimulation ideal. Dember and Earl (1957) hypothesize a "pacer" level of stimulation just higher than the ideal. When experienced, the pacer becomes the ideal. In this way the individual continues to increase her stimulation ideal. Driver and Streufert (1964) postulate that small deviations from the optimal level of stimulation tend to increase (for upward deviations) or decrease (for downward deviations) the stimulation ideal. Very large deviations, no matter which direction, are conjectured to lower the stimulation ideal.

There is agreement between the psychologists (Helson 1959, Driver and Streufert 1964) and economists (Stigler and Becker 1977) that the preferred level of any given stimulus should tend to stabilize with age. Helson (1959) argues that the preferred level is subject to radical shift in early years as the environment varies. Over time, an averaging process based on cumulative experience would make the preferred level less vulnerable to environmental swings. Stigler and Becker (1977) argue that the greater susceptibility of young people to change relative to the susceptibility of older persons can be explained by their stores of "human capital." "To change their behavior drastically, older persons have to either disinvest their capital that was attuned to the old environment or invest in capital attuned to the new

environment. Their incentive to do so is weak, however because relatively few years remain for them to collect the returns on new investments" (Stigler and Becker 1977, p. 83).

Psychologists attribute the growing stability of tastes to accumulated experience. Economists, while acknowledging accumulated experience, attribute increased stability of tastes to future consumption opportunities. Both theories are consistent with the ideal level of stimulation decreasing with age.

In addition to these developmental effects on stimulation ideals, one's current environment can also have an impact. Schneider and Fromkin (1980), can be interpreted as linking the desire for social distinctiveness and the level of the stimulation ideal. In earlier work Fromkin (1968) has linked high self-perceived similarity to preference for scarce relative to plentiful experiences, and low self-perceived similarity to lack of preference for scarce relative to plentiful experiences. From this it can be hypothesized that, ceteris paribus, individuals in more homogenous environments will tend to have higher stimulation ideals.

Stigler and Becker's (1977) analysis of fashion and fads proposes an interesting explanation for an intuitive conjecture: resources devoted to fashion will be proportionally higher in wealthy environments. This follows from the fact that adherence to fashion, they claim, is an individual's contribution to her social distinction. The distinction she enjoys, however is also a function of the stylishness of her peers. Should she, alone, experience an increase in income, she would increase her demand for distinction and other commodities. However, should others in her environment experience a similar increase in income, they could also be expected to increase their distinctiveness, thereby reducing her overall distinctiveness. She would have to devote proportionally more of her income to fashion to adjust for this effect.

Robertson's (1971) summary of 21 studies on consumer innovators suggests further insights. Among the variables that were consistently positively correlated with innovativeness were income, education, occupational status, social participation, opinion leadership, venturesomeness and print readership. Age was negatively correlated with innovativeness. Number of children and whether or not the individual watched television were consistently uncorrelated with innovativeness.

Raju (1980) found that individuals with high stimulation ideals "feel less threatened by ambiguous stimuli and are more likely to respond rather than withdraw from such stimuli. Also, they are less rigid in their response patterns. However, there seems to be no differences [between individuals with high and low stimulation ideals] in openmindedness or tendency to perceptually categorize stimuli." (Raju 1980, p. 280)

Givon's (1981) analysis of the varied behavior in the Chicago Tribune 1958-1966, 1968 and MRCA 1962-1966 panels indicates that households with a wife under the age of 35 and households with higher per capita income were likely to seek more variety than others.

SUMMARY

The literature dealing with varied behavior was broken into that which considers such behavior essentially inexplicable and that which attempts explanation. The development of the stochastic models of the "inexplicable" school was outlined. Their evolution has been characterized by the incorporation of explanatory variables, obscuring differences between the two streams of literature.

That literature which has focused on explanation was broken into that which views the variation in behavior as an artifact of multiple needs or changes in the choice problem and that which views variation in behavior as inherently rewarding. The inherent rewards were hypothesized to be both intrapersonal and interpersonal. An ideosyncratic optimal level of

stimulation was proposed as representing the ideal level of varied behavior. The ideal level of stimulation is supposed to have both hereditary and environmental determinants. In particular, it is believed that the more intense and varied the stimulation to which a child is exposed, the greater will be her desire for stimulation as an adult.

This paper suggests that the long standing controversy about the degree of irreducible stochasticity in consumer behavior might be resolved by taking a more comprehensive view of the causes of variability. The literature which was reviewed also suggests a broad range of interesting hypotheses. It is our hope that the principal effect of this paper will be to encourage other investigators to devote their attention to both theory building and theory testing of more comprehensive, dynamic models of choice behavior.

Figure 1 : A TAXONOMY OF VARIED BEHAVIOR

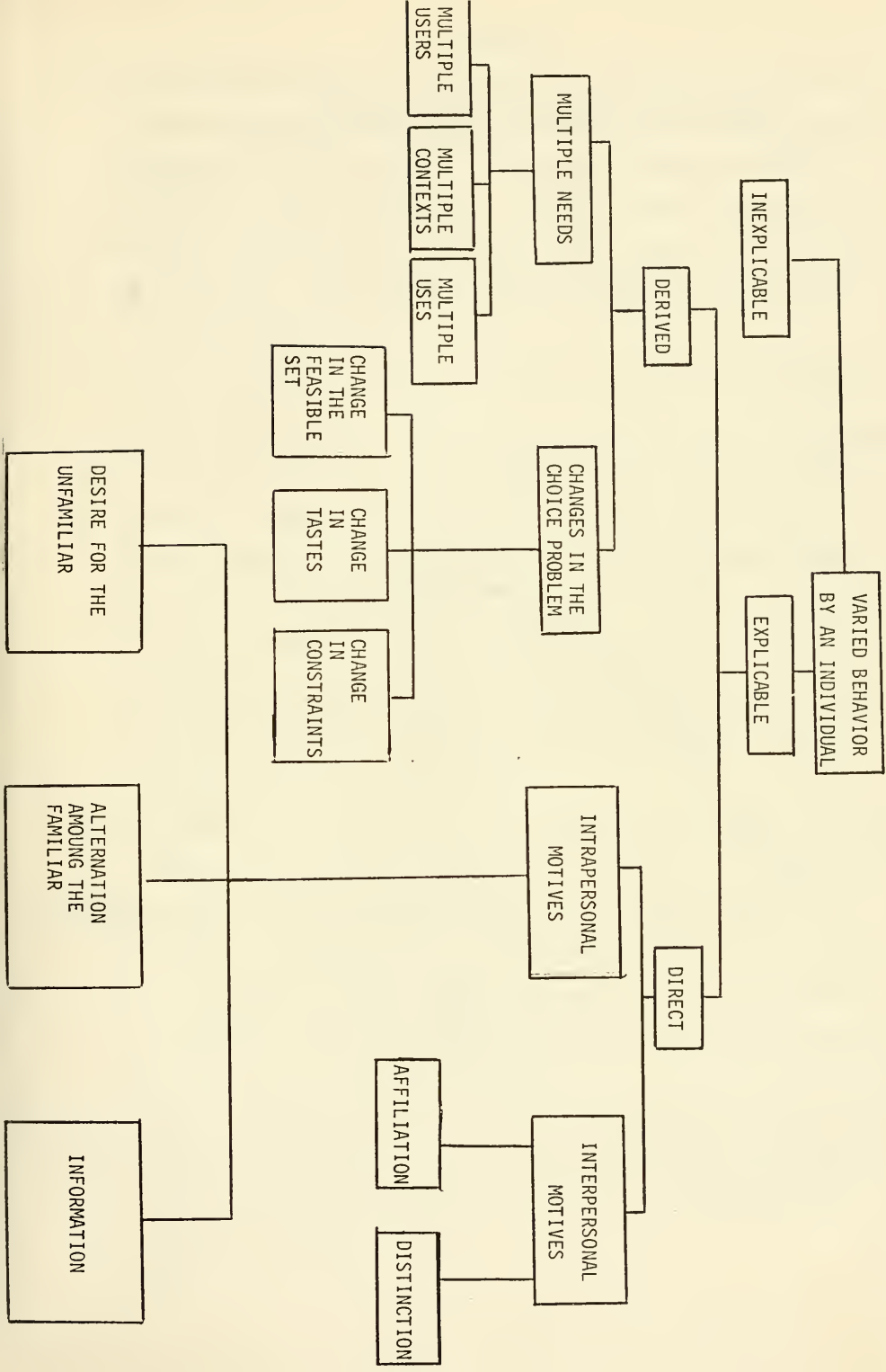
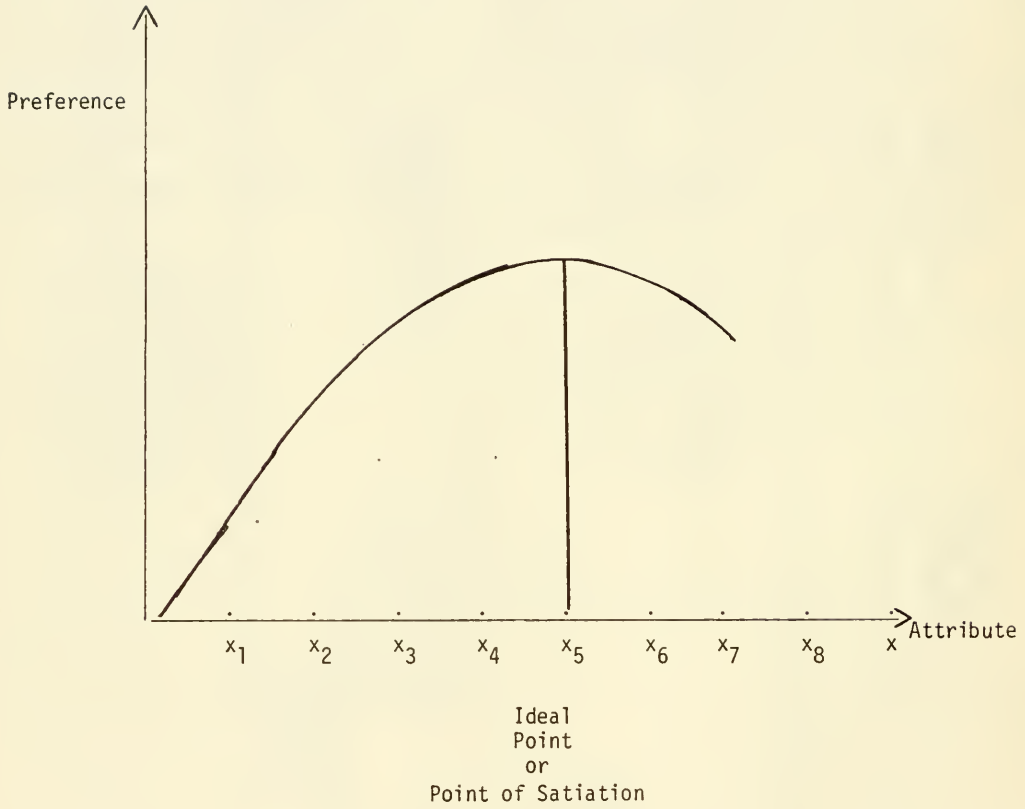


Figure 2: SINGLE PEAKED PREFERENCE FUNCTION



1. Following Laurent (1978, p. 1), we say that "two units of a product are different variants of the product if they bear different brand names or if, while sold under the same brand name, they represent different varieties or forms of the product. For example, Breck and Prell are different variants of shampoo; Taster's Choice Caffeinated and Taster's Choice Decaffeinated, while sold under the same brand, are different variants of coffee."
2. It should be noted that this taxonomy is an outgrowth of one formulated by Laurent (1978).
3. The hypothesis that such a correspondence between measures of affect and probability of choice should exist has appeared as an ad hoc assumption in the psychology literature many times. For example, Thurstone (1930) and Gullikson (1953) proposed this correspondence in learning theories in which the "measure of affect" was interpreted as "response strength." Statisticians have also concerned themselves with such a model. Bradley and Terry (1952) present maximum likelihood estimates for quantities analogous to Luce's measures of affect.
4. This frequency is conditioned on there being no uncertainty in the choice situation. Blin and Dodson (1980, p. 611) cite two potential sources of uncertainty. "(1) internal uncertainty about which attributes are relevant to his choices, what weight they should be given, and how each choice alternative performs on each attribute scale; and (2) external uncertainty due to environmental influences such as availability, dealing, etc."
5. Similar conclusions have been drawn by Muller (1979) and Hauser and Semmie (1981) under the assumption that individuals consume multiple variants in order to achieve a combination of attributes which are not currently available in any single variant.

6. The term "new product" is an ambiguous one. Robertson (1971) offers four possible definitions: (1) newness from existing products (i.e., innovation), (2) newness in time (e.g., within the first 6 months of the introduction of the product), (3) newness in terms of sales penetration levels (e.g., having achieved less than 10% of total potential sales), and (4) consumer newness to the product. It is this fourth meaning that we invoke. A "new product" will be one which is relatively unfamiliar to the individual in question.
7. Consider Figure 2. The attractiveness of a good offering 2 units of attribute x when one currently has only x_1 units will be much greater than when one has x_7 units.
8. Jeuland operationalizes "experience with a behavior" as a quantity which diminishes exponentially over time. Each time the behavior is performed "experience" with that behavior receives a positive increment of one unit.
9. The relative reduction in preference for behavior 1 when behavior 2 is performed will be a direct function of the similarity of the attributes provided by the two behaviors. If they are virtually identical, enacting behavior 2 will cause a decrement in preference for behavior 1 equivalent to the decrement that would result from the performance of behavior 1 itself. If the behaviors are only somewhat similar, the effect should be more moderate. The decrement due to their similarity will be counterbalanced by an increment in preference related to those characteristics on which they differ.
10. Here we presume that level of innovativeness is in a one-to-one relationship with the level of the ideal for stimulation.

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