

**"THE EPISTEMOLOGICAL ROLE OF METAPHOR
IN CONSUMER RESEARCH"**

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ABSTRACT

The central thesis of this paper is that knowledge generation for new domains takes place through a process of metaphorical mapping of existing theories onto referents in the new domain. The importance of Metaphor as an epistemological process in consumer research is examined. An account of the metaphor construction process is developed. Implications for consumer research are drawn. The concept of metaphor as a theory construction process is applied to specific cases in consumer behavior theory. Directions for future research are suggested.

The Epistemological Role of Metaphor in Consumer Research

Increasingly, scientific disciplines are examining the metaphors that underlie their discourse with the objective of gaining a better understanding of the process of theory creation, the encoding of knowledge, and the practice of "science" (Dennis 1990, Estes 1978, Hoffman 1985, Leary 1987, Morgan 1980, Oppenheimer 1956, Roediger 1980, Schneider and Dunbar 1992, Straus 1987, Weiner 1991). The role of metaphors and their value in theory generation has not gone unnoticed in consumer research, where the value of metaphor as a theory generating mechanism has been acknowledged (Arndt 1985, Mick 1986, Ward and Gaidis 1990, Ward and Ruekert 1984). However, scant attention has been paid to the process by which metaphor generates theories about consumer behavior and there has been little discussion of the implications of the use of metaphor on scientific practice. The objective of this paper is to demonstrate the importance of metaphor in consumer research and to lay out a framework to understand the *processes* which operate when metaphor is employed in consumer research. By understanding the mechanism of epistemological metaphor use and applying it to specific instances of metaphor in consumer research, implications for theory generation as well as theory testing are drawn.

WHAT IS METAPHOR?

Metaphor has been thought of as a useful rhetorical tool for persuasion, exposition, and the embellishment of language (see McQuarrie and Mick 1992). In scientific discourse, the positivist ideal of the scientist as detached observer and recorder of "facts" scorns the use of rhetorical or literary devices as deceitful and unscientific (Hobbes 1651/1968, H. Jones 1906, Shapiro 1985-86). Nevertheless, in a broader sense, metaphor has been pervasive in the creation as well as justification of scientific theory

(Hoffman 1980, Hesse 1966, R. Jones 1982, Kuhn 1979). Existing knowledge is often transferred to new domains by mapping known relations onto new phenomena, potentially providing testable hypotheses for study in the new domain. For example, known relations about the solar system (the base domain) provide a model for understanding a hydrogen atom (the target domain); the pump (the base domain) provided a useful metaphor for the heart (the target domain); computers (the base domain) may serve as models for the theorizing about the mind (the target domain) (Gentner 1983, Roediger 1980, Searle 1984). Transfers of this nature may be a means of creating knowledge because metaphor creates the common linguistic space required for scientific discourse. For example, in applying the computer metaphor of the mind, a language, based on an existing language about computers, is used. Within this language it makes sense to talk of processes such as human information processing and retrieval of information, and of constructs such as cognitive capacity, working memory, and processing speed (see Olshavsky (1985) for an example of the application of the computer metaphor in describing consumer choice). Referents for the original terms (memory store, retrieval, information processing etc.) are thus created through metaphor, in the new domain. These examples suggest that metaphor may be more than simply an expository, exegetical tool in scientific discourse: it may be a powerful means of developing new knowledge.

The view that metaphor creates new knowledge is known as the *interactionist* view of metaphor (Black 1962, Ortony, Reynolds and Arter 1978, Ward and Gaidis 1990). Other views of metaphor, such as the comparison view or the substitutability view, argue that metaphor is essentially replaceable by literal statements or comparisons and that it does not generate any new information. Black (1962) argues that the latter two approaches, while appropriate characterizations of the decorative function of metaphor, do not adequately capture the role of metaphor in scientific discourse.

Authors on metaphor have often struggled with a definition for the term. Ortony, Reynolds and Arter (1978) concede that a definition of metaphor is difficult, while Leary

(1990) argues that a broad definition in which analogy, simile and metonymy are included is a productive one. Gentner and Grudin (1985), in their study of metaphors used in Psychology, adopt a working definition of metaphor as a "nonliteral comparison in which either the mind as a whole or some particular aspect of the mind (ideas, processes, etc.) is likened to or explained in terms of a nonliteral domain" (p. 182). Thus, the term metaphor refers to a set of comparison processes by means of which we see a phenomenon in terms conventionally reserved for another. However, as suggested by the interactionist view of metaphor, there is more than just linguistic sleight of hand at work in a metaphor. In using terms from one scientific domain to study another, we bring to bear on the new domain a rich web of theoretical assumptions. Thus, metaphor serves as a means of translating models from one domain for use in another.

It has been suggested that thought and language are ultimately metaphorical (Danziger 1990, Lakoff and Johnson 1980, Leary 1990, Vico 1948). This view need not be dismissed outright. It has been argued that in conceiving explanations for an unknown or unfamiliar domain, we use a "known" set of relations (an existing mental model) to guide our understanding (Gentner and Gentner 1983). In doing so, we employ existing knowledge as a lens through which we examine the target domain. Naturally, what we see is at least partially determined by the lens (Gentner 1983, Hesse 1966, Turbayne 1970). As Black (1962) put it:

"Suppose I look at the night sky through a piece of heavily smoked glass on which certain lines have been left clear. Then I shall see only the stars that can be made to lie on the lines previously prepared upon the screen, and the stars I do see will be seen as organized by the screen's structure. We can think of a metaphor as such a screen and the system of 'associated commonplaces' of the focal word as the network of lines upon the screen." (p. 41).

In the following sections an attempt is made to demonstrate the importance of metaphor to consumer research and to examine the mechanisms by which it operates as an

epistemological tool. First, the importance of the study of metaphor for consumer research is examined. Next, metaphor mapping mechanisms in theory development are examined. Philosophical and workbench level implications of the metaphor model are drawn. We then apply this framework by tracing the metaphor in certain current theories of consumer behavior and draw implications for research practice. Finally, we apply the metaphor framework reflexively on the mechanisms proposed in this paper and illustrate the need for researchers to constantly apprise themselves of the metaphors that they employ. We conclude by raising specific questions for future research.

WHY STUDY METAPHOR?

Post-positivist philosophy of science has reinstated the realm of theory creation on an equal footing with that of theory justification, or more accurately, it has blurred the distinction (Gigenzer 1991). The study of how scientists "discover" or construct theory is considered as important as, and not independent of, how such theory is justified or validated. In workbench terms, we have all too often ignored the aspect of our work that deals with the generation of hypotheses in favor of aspects that deal with the empirical testing of such hypotheses (Anderson 1986, Mick 1986, Zaltman, LeMasters, and Heffring 1982). As a result, while procedures for justification are well developed (e.g. statistical hypothesis testing), we have little insight into the process by which hypotheses are generated. Studies of the discovery of scientific theory have, until recently, provided explanations in terms of "aha" experiences, sudden illuminations, dreams and other occult phenomena. The reinstatement of discovery as a legitimate part of the scientific process requires a more serious examination of the processes of theory creation. Metaphor is one such process (Black 1962, Kuhn 1979).

The study of metaphor as an epistemological tool is a means of understanding the process of theory creation. This is particularly important for a field such as consumer

behavior for at least three reasons. First, consumer research has thrived, over the past two decades, on vigorous and fruitful borrowing of theory from eclectic sources (Zaltman 1984). Such borrowing may be construed as a process of metaphorical mapping. Theoretical constructs and relations borrowed from other disciplines are mapped onto phenomena in consumer research. For example, mental representations of products are thought of as *product categories*, as in mental categories (Claeys 1993; Cohen and Basu 1987; Sujon 1985a). Theoretical implications of such a translation include such assertions as "product categories are organized hierarchically", and "there are prototypical members of product categories." Another instance of grafting of theory is the conceptualization of cognitive effort in terms of the *cost* of thinking (Shugan 1980). By translating effort into cost, we create a framework within which it becomes reasonable to talk of cost-benefit trade-offs in considering additional alternatives or attributes in a choice setting (Hauser and Wernerfelt 1990). This allows us to bring well developed concepts from economics and apply them to "thinking." Because, as a field, consumer research is a net borrower of ideas, it is important for consumer researchers to understand the metaphor mapping process and its implications for our domain of study at the workbench level (Leong 1989).

A second reason why the study of metaphor is important to consumer research is that a large part of current consumer research deals with hypothetical constructs that refer to entities and processes of the mind. In studying an abstract subject as the mind, it is natural that we turn to more concrete domains for metaphors. Other disciplines studying the mind have generated a rich assortment of metaphors for the workings of the mind (Gentner and Grudin 1985, Leary 1990, Pribram 1990, Roediger 1980, Searle 1984). For example, Roediger (1980) traces the various metaphors used to describe memory, from the wax tablet on which an imprint is retained, to the telephone exchange. Consumer research has in turn borrowed from these disciplines, and like these disciplines may be particularly prone to the use of metaphor (Dennett 1984, Dennis 1990, Roediger 1980, Searle 1984).

Finally, metaphors are very often not recognized as metaphors even by those who use them (Danziger 1990, Gentner and Grudin 1985, Searle 1984). This may be especially true of metaphors that are pervasive and ubiquitous or part of the bedrock assumptions of a discipline. Such invisible or submerged metaphors are crucial because they may carry with them assumptions that are exposed only during the extension to the new domain, or which may remain untested in the new domain because they are taken for granted in the base domain. For example, in applying wave theory to light, certain key assumptions about our theory of the behavior of waves are put to the test in a new domain (Oppenheimer 1956). However, it is just as likely that we come to understand light as a wave and thereby neglect other possible conceptualizations for the phenomenon. Making metaphors explicit may allow one to expose and examine the assumptions behind mappings of constructs (Berggren 1962, Danziger 1990, Gentner and Grudin 1985). In addition, using a metaphor without recognizing it as such may unnecessarily narrow the range of concepts that we are willing to apply to the study of a domain by limiting explanations to a single metaphor. On the other hand, recognition that an explanation is based on a metaphor may allow the examination of other potential metaphors (Turbayne 1970). Consideration of multiple metaphors at the theory construction stage may perform a role as critical as the consideration of multiple hypotheses allows at the theory testing stage (Chamberlain 1911/1981, Platt 1964).

MECHANISMS OF METAPHORICAL CONSTRUCTION

An attempt to characterize aspects of the use of metaphor in theory construction is of necessity a metaphorical mapping of our existing knowledge about metaphors onto the phenomenon of theory construction. We will return to this reflexive aspect after we have considered the process of metaphorical mapping and characteristics of metaphors in epistemology.

The term *target domain* in the metaphorical mapping process refers to the event or phenomenon being explained. Similarly, the *base domain* is made up of a set of entities for which we have a theory (we'll call it *Theory A*) that explains relations among them. Theory A is a set of constructs and relations that putatively refer to the entities and their relations in the base domain. As part of the justification process, this reference would have been empirically validated through a set of measures.

Let us assume that the target domain is a relatively unfamiliar phenomenon. If Theory A is adopted as a model for explaining the target domain, there follows a metaphorical mapping of knowledge from the base domain (Theory A) onto the target domain. This mapping results in Theory B, a tentative statement of relations between constructs in the target domain. Constructs and relations in Theory B are thus modeled on those in Theory A. Based on this preliminary mapping, scientists generate hypotheses and predictions about the target domain and test them.

This account of theory generation is not meant to imply that the process of establishing referents for theoretical entities is sequential and linear. Rather, it is more likely that it is iterative and driven by multiple objectives (Gigerenzer 1991). First, multiple mappings may be attempted, from this as well as other base domains, on to the target domain. Similarly, there may be a constant dialectic between the empirical measures and the conceptual level of Theory B. Both the empirical measures and the conceptual level would evolve over time, accommodating one another.

The process of metaphorical construction as a linguistic operation, has been described in previous research (Lakoff and Johnson 1980). However, despite the focus on understanding the underlying metaphors of scientific disciplines, researchers have not attempted to characterize the metaphorical construction process in epistemological terms. This section attempts such a characterization. The process of metaphorical construction is conceptualized in terms of two kinds of entities: states and functions. States are descriptions of situations of the metaphor at a given time. Functions are operations that

take place in the process of metaphorical construction. The account provided here makes use of three states and five functions. The three states are: Root Metaphors, Incompleteness of Metaphors, and Mixed Metaphors. The five functions are: the Directive Function, the Transformative Function, Abstraction, Reification, and Feedback. We now turn to a detailed description of each of these states and functions.

States of Metaphor

Root Metaphors or Archetypes

In the study of the mind, psychologists in the cognitive tradition have talked of phenomena such as memory in terms of metaphors of "storage", "retrieval", "semantic lists" and so on. These metaphors are based on the more fundamental metaphor, one that underlies other metaphors -- the *mind as computer* or, more generally, the *mind as information processor* metaphor. Such fundamental metaphors are called *Root Metaphors* or *Archetypes* (Black 1962). Root metaphors are not just unique to Theory A in the base domain, they characterize and organize an entire system of thought and may be composed of multiple metaphors or metaphorical mappings. Of course, what makes a metaphor fundamental depends on the level of analysis. For example, the use of the information processing metaphor in consumer research is supported by an even more fundamental metaphor of empiricism, that of language. It has been argued that empiricism bases its sharp distinction between the subject (scientist) and the object (phenomenon being observed) on the metaphor of grammar (Shapiro 1985-86). Other root metaphors that have been identified in related disciplines include: the *person as scientist* metaphor, the *person as judge/god* metaphor, and the *mind as statistician* metaphor (Gigerenzer and Murray 1987, Kelly 1955, Weiner 1991). The identification of such a metaphor provides organizing principles for the entire body of knowledge in the discipline. Further, the use

of such root metaphors provides coherence in theory development in that new findings can be interpreted in terms of the root metaphor.

Root metaphors are particularly susceptible to the collective imaginations of scientists and are not independent of the *zeitgeist* (Danziger 1990, Shanon 1990, 1992). Thus, over the course of the centuries, the human mind has been construed in terms of metaphors as diverse as wax tablets, clocks, telephone switchboards and computers, all of them drawn from contemporary technology (Gentner and Grudin 1985, Roediger 1980).

As is the character of metaphors, root metaphors do not spell out all the mappings between the base domain and the target domain. They provide a general flavor of similarity, leaving the details to be worked out. In working out the implications of a root metaphor, certain specific mappings may be hypothesized. These are *derivative metaphors*. In consumer research, as in psychology, the general acceptance of the consumer as information processor has led to hypotheses about different kinds of memory stores - long term store and short term store, or working memory and long term memory (Bettman 1979). The plausibility of derivative metaphors depends on the acceptance of the root metaphor.

Incompleteness of Metaphors

By definition, no metaphor is a statement of complete similarity. That is, the base domain and the target domain are never identical. Therefore, in creating a metaphorical mapping which highlights similarities between the two domains, it is important to specify the known differences between the base and target domains. In his description of the extension of Wave Theory from physical waves to sound and light waves, Oppenheimer (1956) states that "in each case it has been found one had to widen the framework a little, and find the disanalogy which enabled one to preserve what was right about the analogy" (p.131).

Metaphor highlights some of the relations between two domains, suppresses others, while on yet others it does not immediately provide evidence of relatedness. These latter aspects need to be clarified, usually through empirical testing. Thus, metaphor creates a framework which allows us to examine a phenomenon, or more exactly, those aspects of the phenomenon highlighted by the metaphor (Black 1962). For example, in applying the metaphor of a clock to understand the mind, the aspects of regularity, recurrence, continuity, predictability and machinery may be highlighted, while aspects of flexibility, adaptability and generativity are suppressed (McReynolds 1980). Thus, the incompleteness of metaphors may serve a theory constitutive function that allows scientific discourse about a new domain or phenomenon through an existing framework.

Mixed Metaphors

Often, more than a single metaphor may be employed in describing a phenomenon. Different metaphors may tap different aspects of a subject domain. Psychological theories based on the computer metaphor have been supplemented with representational theories based on a network metaphor (J. R. Anderson 1976, Estes 1978). A set of mixed metaphors applies in categorization theory. Categories are said to contain members - a bin metaphor; members are said to be organized in terms of nodes and connections - a web/network metaphor; they are said to be organized as a hierarchy - an orientation/spatial metaphor; they are said to have a graded structure - a solar system metaphor; category members are said to be retrieved by random sampling with replacement -- a statistical sampling metaphor; and their members are said to be more similar within than between categories - an Analysis of Variance metaphor (Gigerenzer and Murray 1987, Lakoff and Johnson 1980, Rundus 1973). Each of these metaphors serves to describe a different facet of categories and categorization.

Recent work in consumer behavior employs economics as a theoretical framework while examining its assumptions at the individual level through a traditional consumer

research experimental paradigm (Boulding and Kirmani 1993, Rao and Monroe 1988). For example, Rao and Monroe (1988) translate the "assumption that consumers are rational, deliberative agents, completely cognizant of their own utility functions, who perceive information cues accurately..." from economics, into terms that are familiar to consumer researchers. Thus, they argue that "This assumption of perfect information processing is *analogous* to the notion of familiarity based on prior knowledge in consumer research" (p. 254, italics added). They operationalize this construct as it is traditionally operationalized in consumer research in terms of objective and subjective knowledge (Brucks 1985, Sujana 1985b). The use of mixed metaphor provides obvious advantages to consumer researchers in their ability to generate hypotheses.

However, a word of caution needs to be inserted as the various metaphors employed to describe a given phenomenon may not always be compatible. Incompatibility may be structural (e.g. it may be difficult to reconcile the hierarchical structure of categories with graded structure) or it may be an incompatibility in terms of axiology (e.g. the attempt of naturalistic inquiry to adopt the scientific justification criteria of positivism (Anderson 1986; Lincoln and Guba 1985)). The former kind of incompatibility seems less serious as long as it is understood that metaphors are being employed and that these structures are not meant literally. For example, Bettman (1979), in describing the distinction between long-term and short-term memory stores, points out that "although the above discussion, if taken literally, implies that there are several physically distinct memory stores, the separate *functions* of these are the crucial element of the multiple-store view" (p. 38, italics original). As for axiological incompatibility, it can be overcome by adapting the borrowed material. For example, in the process of naturalistic inquiry, data collection methods and verification criteria were adapted to suit the justification model of positivism (Lincoln and Guba 1985).

Metaphorical Functions

Directive Function of metaphors

Metaphors are said to be directive in at least two ways. First, metaphors direct scientists' attention to the kinds of problems that are examined (Leary 1990). Existing knowledge raises questions or problems to which theory can be applied through metaphorical extension. In other words, questions can only be asked if one already knows enough to ask a question. This prior knowledge comes from the base domain. Thus, metaphors help choose and define target domains. For example, in recent years, consumer research has laid heavy emphasis on understanding the consumer as an information processor, with relative neglect of the social, emotive, and evolutionary perspectives of consumer behavior. This emphasis can be seen as a direct result of the focus on consumer choice and decision making in terms of cognitive processes.

Secondly, metaphors are directive in that they play a role in what is observed in the target domain. Given that observation cannot but be theory-laden, the model provides Theory A as a guiding metaphor for examining the target domain (Anderson 1986). Hypotheses are formulated in terms of the concepts provided by the base domain. Further, measures and methods are often provided by the base domain. In each such instance of "borrowing," a metaphor is present in that none of the three (the concepts, the measures, or the theory) have exactly the same referents in the target domain as they do in the base domain. To pursue the example of *consumer as information processor* further, it can be seen that the experimental method, and measures such as reaction times, paper and pencil measures, and cognitive responses are a direct result of the underlying assumptions that consumers are decision makers, that decision making is a cognitive (symbol manipulation) process and that these processes (or their results) are accessible through the experimental method and measures such as reaction times and cognitive responses. Thus,

metaphors help to frame problems such that the subject matter, and the method of study follow from the metaphor.

Transformative function of metaphors

The transformative function of metaphor needs to be recognized as a corollary of the interactionist view (Black 1962). The application of new metaphors will almost certainly change the way in which the target domain is understood. Specifically, what will change is the way in which the target domain is "carved at its joints." That is, new conceptual categories will be imposed on the target domain. Thus, metaphors have a tendency to transform the way we look at a phenomenon (Black 1962, Leary 1990). They transform our understanding of the target domain and reorganize the entities and relations into different concepts. For example, the moon belonged to the family of planets before the Copernican revolution, but the earth did not. The new metaphors of the Copernican revolution reassigned the entities to new categories.

The transformative function of metaphors may seem to follow directly from the directive function, but it needs to be independently stressed. As Kuhn (1979) notes, "That sort of redistribution of individuals [entities] among natural families or kinds, with its consequent alteration of the features salient to reference, is, I now feel, a central (perhaps the central) feature of episodes I have previously labeled scientific revolutions" (p. 417). The application of the fundamental metaphor of *mind as information processor* is said to be behind the "cognitive revolution" in some social sciences (Gardner 1987).

Abstraction

There is a general tendency for metaphors to travel from a more concrete domain to one that is more abstract (Johnson 1987, Lakoff and Johnson 1980). That is, the base domain is generally perceived as being more concrete or better theoretically developed than the target domain. Consumer researchers use this *abstraction* by using the more

concrete domain of a computer to understand consumer decision making. A similar tendency is observed in Psychology (Estes 1978, Searle 1984). Further, psychologists have tended to use familiar statistical tools as a basis for theorizing about mental processes (Gigerenzer 1991). One such tool that has gained acceptance as an account of recognition, including in marketing, is the statistical theory of signal detection (Singh and Churchill 1986). Within this theory, recognition is supposed to be based on the strength of the memory trace in long term memory. The measurement of the strengths of items in long term memory is said to be normally distributed and have equal variances. These assumptions allow researchers to explain recognition scores after adjusting for yea-saying and other "noise."

Reification

Through repeated use, time lapse or further development, a metaphor may no longer be perceived as a metaphor. While the concept of reification has been recognized in the literature on metaphors in science, there has been no account of the process of reification. An example may best illustrate the notion of reification. Experimental psychologists speak of "psychological distance" between concepts or representation in the mind. Obviously, the term "distance" is being used metaphorically - the base domain concept being the notion of physical distance. However, once we come to accept the term, it is an easy next step to treat psychological distance as though it were literally physical distance. Thus, the use of response time measures to evaluate distance between hypothetical mental representations assumes that there is a certain relationship between distance, time, and the speed of response time. Such a relationship, we know, holds in the physical domain. The only reason we could expect it to hold in the psychological domain would be that we were taking the notion of distance *literally* rather than metaphorically.

Metaphors may become reified, in that they may begin to be taken as "true". Reification may be considered the scientific equivalent of a dead metaphor. A dead

metaphor is one that is no longer perceived by native speakers as being a metaphor. For example, in the phrase "foot of the hill," *foot* may not be thought of as metaphorical. As Berggren (1962) puts it, "...what begins as an imaginative construct, used to construe a theory, gradually becomes identified with the theory itself, and even assumes an independent and substantial reality of its own. While the classical mechanists, for example, may have begun by assuming that they were only construing the world as if it were a machine, they soon reified their schemata, and reduced to mere subjective appearance whatever did not appear therein" (p. 455). And later "When any scientific schema acquires sufficient scientific respectability, it, too, tends to be transposed into the domain of 'sacred play'" (p. 456). When this happens, the metaphor becomes invisible to the user. One of the factors that may facilitate the reification of a metaphor is the proximity of the base and target domains. Neural metaphors for psychological phenomena may be a case in point (Gentner and Grudin 1985). But caution should also apply to consumer researchers whose prime base domain is the close field of psychology.

Feedback of metaphors

It may be that the application of existing theories yields new conceptualizations or results that aid in understanding the base domain. This is true of the Psychology-Artificial Intelligence nexus, where the two fields have been feeding on each other's conceptualization (Boyd 1979, Estes 1978). Artificial Intelligence has been greatly influenced by the ideas of expertise, categorization etc. taken from Psychology. Psychology in turn has used notions developed in AI (e.g. Scripts, or computer languages such as Lisp) as representations for psychological phenomena. Consumer research offers promising ground for feedback to the base domains from which it borrows. Because it is at the nexus of the applied field of marketing and more basic disciplines, consumer research can serve as a testing ground, especially for mixed metaphors. As discussed in the previous section, recent consumer research draws on theoretical constructs from the

economics literature and operationalizes them in terms of individual level consumer behavior. This allows for empirical tests of assumptions related to these theories in economics, and feeds back to Psychology a set of theoretical constructs which can be examined at the individual level, and to economics, a test of assumptions (Boulding and Kirmani 1993, Rao and Monroe 1988).

Examination of the characteristics of metaphors in theory construction enables a better understanding of their epistemological role in consumer research. Making the process of metaphor-use explicit ought to aid in theory construction. First, by recognizing that part of the creative process rests in applying novel metaphors. Next, by creating awareness of the use of metaphor and allowing the recognition of a metaphor when it is used. This would allow assumptions to be made explicit. Finally, by removing any stigma associated with the use of metaphor in science that might remain from the positivist ideal of a rhetoric-free discourse, a more respectable place is accorded to the rhetoric of science. Philosophical and workbench level implications of the metaphor model are examined in the next section.

IMPLICATIONS

Recognition that metaphor plays a role in theory construction has implications for the philosophy as well as the practice of consumer research. These implications, including potential drawbacks of metaphor, are examined in this section.

Idea Generation

Current doctoral courses in consumer behavior are strong on methodology that provides tools for hypothesis testing, and weak on methods for hypothesis generation. Training in the explicit use of metaphors as an idea generation device might serve to

correct this balance. Exposure to the metaphors of other disciplines normally thought to be far afield from consumer research may provide new ways of looking at consumer behavior phenomena.

Recognition of Metaphor

Often metaphor goes unrecognized. The reification of metaphors, the detachment of the metaphor from the base domain, sets up the conditions under which users no longer realize that they are using metaphor. This may not hinder scientific progress in any way unless the metaphor carries with it assumptions that are not tested under the new conditions. Coming back to the example of *psychological distance* cited earlier, it is clear that a relationship between psychological distance and reaction time assumes that the relations between time, speed, and distance that hold in the physical realm will also hold in the psychological realm. In other words, psychological distance is equated with physical distance, when it was meant to be but a metaphor.

Recognition that a metaphor underlies discourse allows the researcher to explicitly consider the assumptions behind the metaphor. It also permits consideration of alternative metaphors for the same phenomenon.

Metaphor, Method and Data

The use of a specific metaphor is likely to dictate the choice of methods and the nature of the data to be used in any test of the theory based on the metaphor. The data are thus specific to this theory test. Contrary to the logical empiricist account, the metaphor model assumes that theory creates the data. Further, if it is assumed that the measures by which the data are collected are validated by means of an iterative process in which the theory plays an important role, the falsification of a theory is practically an impossibility.

Metaphor, Relativism and Truth

If a theory originates in a metaphor which allows us to focus on a specific aspect of the phenomenon being studied and thereby to understand it better, then what does it mean to say that a theory is True? Once theory is understood as a metaphor, the question of Truth of a theory becomes absurd. A metaphor cannot be true or false. It can only be appropriate or inappropriate, helpful or not, clever or confused. Framing theory creation in terms of metaphorical mapping may help dissolve the problem of determining the Truth of theory (Berggren 1962).

The use of a new metaphor can lead to a reassignment of entities in a theoretical system (e.g. the moon pre- and post-Copernicus was assigned to different categories). Any given assignment, therefore, is a function of the metaphor employed. Thus, an assignment can be appropriate or inappropriate, within a metaphor. But there is little sense in talking of a True assignment. This consequence is stated by Arndt (1985) as, "Adopting the metaphorical view of science means adopting a pluralistic perspective" (p. 17).

Potential Drawbacks of Metaphors

The use of a single metaphor may limit the kinds of hypotheses that will be developed. It limits the kinds of conceptualization that will be brought to bear on a problem. For example, the use of the *mind as computer* metaphor isolates or compartmentalizes this view from that of the mind as a biological or social entity (Estes 1978 p. 14). Focus on the information processing aspects of consumer behavior may have led us to ignore other important facets such as the sociological perspective (Hirschman and Holbrook 1982, Sheth 1981, Zielinski and Robertson 1981)

In describing the model of metaphorical construction it was stated that reference may be established as part of the process of empirical testing. That is, the theory, its operational measures, and the real world referents may be developed through a process of

iteration which may be called negotiation. As Dennis (1990) put it, "a metaphor... operates like a blueprint that predetermines the presentation of the phenomena themselves. In this manner, a metaphor generates the objects that exemplify it" (p.355). It is through this process of negotiation that reality may be "constructed." If this assumption is accepted, there is little likelihood of the theory being falsified, as described above. This may be seen as a drawback for those who believe that theory ought be drawn from the data.

The use of metaphor is often tacit or implicit. Often metaphors are not explicitly stated or recognized, and often they may not even be consciously applied. Metaphorical mappings may often carry with them a baggage of assumptions and presuppositions. Some of these assumptions may be taken as given in the base domain and therefore never tested in the target domain; others may be assumptions that make the mapping coherent (products as categories). Making such assumptions explicit might, at the very least, provide grounds for scientific debate of their validity and consideration of alternative sets of metaphors.

CHOOSING BETWEEN METAPHORS

It was argued that some metaphors may be incompatible. How, then, are scientists likely to choose between competing metaphors? By this is meant, what criteria should be adopted to make choices between metaphors? If a choice is to be made, the criteria used will probably be plausibility of the metaphorical mapping and its ability to generate further hypotheses (these qualities are not unrelated). A proposition can be judged as plausible only in relation to existing knowledge. That the earth is round may not have seemed plausible to many. Thus, linkage of the theory to existing knowledge is a benefit, and the more obvious this linkage, the greater the plausibility. The ability to generate hypotheses depends on the quality of the mapping. The mapping of features, for example, is a poorer

means of providing hypotheses than the mapping of relations (Gentner 1983). The mapping of key relations might be best. Thus, for example, the relations between the members of a mental category are described in terms of hierarchy (superordinate-basic-subordinate), and typicality (or goodness of example). These relations, once they are mapped on to product categories, serve to generate hypotheses. Thus, as a first step, the relation of typicality can be explored in terms of its relationship with existing constructs in consumer research such as preference and awareness (Nedungadi and Hutchinson 1985). Later, typicality relations may be used to predict consideration set formation, pioneering advantage (Carpenter and Nakamoto 1989), reactions to comparative advertising (Pechmann and Ratneshwar 1991). A combination of plausibility and richness will help decide which theories are considered by scientists. In terms of theory choice at the scientific community level, sociological factors may operate, such as political positions and the granting of scientific status (Collins 1975; 1981).

When is an existing metaphor to be discarded? Dennis (1990) suggests that once the empirically testable hypotheses have been tested to clarify the full ramifications of the metaphor, a decision as to the need for a new metaphor can be made. She suggests that a new metaphor may be needed when some relations that hold in the base domain are said to be incorrect in the target domain. This seems unnecessarily harsh. It may be more likely that existing metaphors will be transformed or adapted to meet the data, or that the data will be adapted (through the "adjustment" of measures) to match the theory, through the iterative process discussed above.

REFLEXIVELY SPEAKING, OR WHAT'S METAPHOR A METAPHOR FOR?

The characterization of metaphorical mapping as a process in theory construction can itself be examined as a metaphor. The framework developed here bears a metaphorical resemblance to a measurement model, in that theory and its real-world referents are said to stand in a given relationship and that this relationship is empirically determined through measures, exactly as in measurement theory (Nunnally 1978).

Implications for the model follow from the adoption of the measurement model as the "base domain." The measurement metaphor highlights similarities between the process of metaphor mapping and measurement, and allows a framework and a language within which we develop a coherent model. However, as stated earlier, there are aspects in which the target domain will differ from the base domain. No metaphor is perfect. Thus, it is important to spell out the fundamental differences. The measurement model assumes that real-world entities pre-exist constructs and measures. The model of metaphor construction, on the other hand, assumes that constructs pre-exist the entities; that they are borrowed from existing concepts and that entities are "given life" by being labelled. Thus, in this model, measures serve to locate suitable real-world referents for existing theoretical constructs. It is assumed that measures are developed based on the theory and adapted iteratively to approximate the theoretical constructs that they represent. Thus, it is likely that reference is established as an integral part of the empirical test of a theory. Further, in the metaphorical construction model, the relation between entities and constructs is recognized as being metaphorical and not one of valid representation. Finally, a measurement model assumes a one-to-one relation between entities and constructs. The metaphorical construction model, on the other hand, allows for carving reality in many possible ways, and thus can potentially admit one to many, many to one, and many to many relations.

The use of the term metaphor in the context of scientific theory creation is itself metaphorical. The original authors who used the term (Berggren 1962, Black 1962, Boyd 1979, Hesse 1966, Kuhn 1979, Roediger 1980) went to considerable lengths extending and redefining the notion of metaphor to fit the new phenomenon to which they were attempting to apply it. Thus, they pointed out aspects of the two meanings of metaphor that were to be mapped and those that were different and were not to be mapped. In so doing, the meaning of the term "metaphor" expanded by application to more than just figures of speech. It is currently applied to models and thought, rather than just to words, phrases, and literature. In borrowing the concept from rhetoric and literary studies, philosophers of science have also adopted a set of derivative metaphors such as *dead metaphors*, and *directive metaphors*. These metaphors are the result of specific mappings within the overall metaphor of *theory creation as metaphor*.

At the first level, the metaphorical use of metaphor has permitted the creation of a framework within which to examine theory creation. However, there are a number of other metaphors also at work in the model we have proposed. The *mapping of entities* from one *domain* to another is a metaphor that relies on set theory. The distinction between the conceptual and empirical levels relies on the analogy with measurement theory, as well as on an orientation metaphor of *up is conceptual* and *down is empirical/factual* (as in the down and dirty work of empirical testing versus an overarching conceptual framework). The formal reification model relies on an analogy with the *splitting and inversion* model. The notion of "carving up the world at its joints" is drawn from categorization. Root metaphors and derivative metaphors are concepts based on the metaphor of a tree where derivatives are built on the foundations of roots. The *feedback* of metaphors takes information feedback models as a base domain, which in turn may have extended the concept from signal detection theory. Finally, scientists are treated as cognizing subjects with *mental models* of the world that may be formalized as

theories. This view itself relies on metaphors of the *scientist as hardware, mental models as software design, formalized theories as programs* and so on.

Almost any new conceptualization is replete with metaphors from existing fields of knowledge.

METAPHORS IN USE: SOME CORE ASSUMPTIONS IN CONSUMER RESEARCH

Consumer research is characterized by some fundamental metaphors that help to define specific examples of borrowing. The root metaphor of *consumer as information processor* has, at its core, certain basic assumptions about behavior. One such assumption is that human behavior is a result of information processing or thought. Derivative assumptions from this metaphor include *limited cognitive capacity, cognitive economy and efficiency, rationality, and representation*.

It is common to come across explanations of consumer behavior in terms of information processing constructs such as *attitudes, categorization, and consistency* (Lutz 1975, Sujan 1985b, Meyers-Levy and Tybout 1989). Many, if not all of these constructs are refined, "scientised" versions of folk constructs (Kelly 1992, Stich 1983). In folk Psychology, these terms may be used to characterize a set of behaviors that appears in clusters. For example, certain personality labels are shorthand for a set of behaviors -- an "extrovert" is generally friendly, outgoing, has a sense of humor, and so on. The term "extrovert" is a summary word for all the behaviors that characterize an extrovert. In the transition from folk psychology to scientific psychology, these shorthand terms take on a causative role. Thus, a person is said to behave in a certain way *because* s/he is an extrovert or *because* they hold a given attitude. The treatment of a shorthand term (personality trait, attitude etc.) as a cause of certain behaviors is consistent with the mechanistic view that the *consumer as information processor* metaphor implies.

The assumptions of limited cognitive capacity, cognitive economy and cognitive efficiency are basic to consumer research (Bettman 1979). These assumptions are also part of the deeper *consumer as information processor* metaphor. Such metaphors reflect the basic technological slant of the information processing metaphor. They also reflect the bias of a society based on technology. Capacity, economy, and efficiency are common criteria for judging the performance of machines (Danziger 1990).

Within this broad framework, theories and constructs are mapped from the base domain to the target domain. In recent times, the base domain of choice for consumer researchers seems to have been psychology (Leong 1989). A characteristic case of borrowing has been that of categorization theory.

Categorization theory and Consumer Research

In the psychology literature of the 1970s, a category was thought to be a collection of objects organized around a prototype or exemplar and defined by the similarity of category members to the prototype (Komatsu 1992, Rosch 1975, Rosch and Mervis 1975, Smith and Medin 1981). For example, a *robin* is a prototypical member (or exemplar) of the BIRD category. Since objects were said to be included or excluded from the category based on their resemblance to the prototype or exemplar, the key to the structure of such categories was similarity. Further, since not all members were equally good representatives of the category, this introduced an internal graded structure. This meant that members that shared more features with the exemplar or prototypical members of the category were more central, and an object was a member of a category if it shared features with other category members (Rosch 1978, Tversky and Gati 1978).

Consumer researchers initially applied categorization theory to one of the principal problems, that of explaining/predicting affect or attitude toward products/brands (Cohen 1982, Sujon 1985b). The mapping was undertaken with the result shown in Figure 1a. The following metaphors seem to be operational: *category as product category*, and *category members as brands*. Such a mapping preserves the basic relation of similarity in

that product categories are composed of various brands that share features. Further mappings lead to a number of interesting hypotheses such as, are prototypicality structures related to preference, recall etc. (Loken and Ward 1990, Nedungadi and Hutchinson 1985, Ward and Loken 1986). Thus, the basic mapping depicted in Figure 1a allowed the generation of a number of researchable hypotheses and increased our understanding of how consumers view and represent products (cf. section on *choosing between metaphors*).

However, one purpose of research is to constantly test the limits to which the metaphor can be stretched. Thus, there comes a time, when the metaphor is found not to be totally satisfactory, and for a specific purpose, it must be adapted/changed or discarded. The mapping in Figure 1a was successful in consumer research because it brought to bear the accumulated knowledge about the behavior of categories on our understanding of product and their mental representation by consumers and was productive in that it generated a number of researchable hypotheses (Bettman and Sujan 1987, Cohen and Basu 1987, Roedder-John and Sujan 1990, Sujan 1985b). However, the appropriateness of the metaphor is tested when one attempts to explain the behavior of other semantic entities which are important in consumer research, such as brands. In studying consumer responses to brand extension for example, some researchers have found it expedient to treat brand as a category composed of one or several products, as in Figure 1b (Boush and Loken 1991, Dawar and Anderson forthcoming). Such a mapping is useful because the central problem of brand extension research is to determine how consumers transfer their knowledge and affect about a brand onto a new extension product. A problem arises in treating a brand as a category is that products under a brand may not share features (e.g. Yamaha Stereos, Yamaha Motorcycles). A solution to this problem comes from more recent theories of categorization that contend that the structure of categories may not depend on similarity alone. Instead, category members are held together by a *theory* or conceptual coherence criteria (Komatsu 1992, Lakoff 1987, Medin 1989, Murphy and Medin 1985). Thus, some brand extension researchers have adopted conceptual

coherence as a criterion for category structure (Bridges 1990, Dawar and Anderson forthcoming). A new metaphor has been brought into consumer research, that of categories as conceptual coherence structures (as opposed to similarity structures), because the earlier metaphor could not be extended without undue strain.

As an alternative strategy, researchers may decide to adapt the metaphor so as to provide a better explanation of the phenomenon under study. For example, categories were conceptualized as carrying affect when translated to explain phenomena in social psychology and consumer behavior.

FUTURE RESEARCH

This paper has attempted to explore the role of metaphor as an epistemological tool in consumer research. A framework of the metaphorical construction process is developed. This framework, it is readily acknowledged, is one means, among others, of examining the topic of theory construction; it is but one metaphor among many possible metaphors. It was stated as part of the exposition that it may be too limiting for scientific explanation to rely on a single metaphor. Thus, future research might profitably explore the applicability of other explanations of the process of theory construction.

Further development of the metaphor of metaphorical construction of theory may benefit from examining the roles of each of the different rhetorical tropes that have been grouped under the general term of metaphor in the philosophy of science literature as well as in this paper. For example, a metonymy is a part-whole relation where the part is taken for the whole. A metaphorical mapping highlights certain aspects of similarity between two domains, while necessarily ignoring others. Thus, in a metonymy, a part of the relationship between two domains comes to represent the whole relation. In practical terms, this may mean that part of the relation is obscured due to the metaphorical

mapping. The directive nature of metaphors may, in part, be explained in terms of metonymy.

Elaboration of how metaphors are chosen by a research community and the criteria that are applied to choosing between metaphors are potentially rich areas of future research. In terms of choice of metaphors, the criteria of choice may be formulated in terms of plausibility and ability to generate hypotheses, but might just as profitably go beyond these factors and consider the important role of sociological determinants of these criteria (Collins 1975, 1981, Pinch 1980, Pinch and Bijker 1984, Woolgar 1988). Indeed, scientific metaphors seem to be "collective representations," inextricably linked to the contemporary *zeitgeist* (Danziger 1990). For example, an examination of the various metaphors for memory in Psychology demonstrates how intertwined the contemporary status of technology and theoretical explanations of memory really are (Gentner and Grudin 1985, Roediger 1980).

In the framework presented here, theory in the target domain is constructed based on concepts borrowed from base domains. An interesting question for future research concerns the way in which the theory in a *base* domain is constructed. A different way of asking this question is: is metaphor essential to theory construction? If so, is theory construction in the base domain also metaphorical? If it is, it leaves us with a potential infinite regress - at some point, some theory must be grounded in more than metaphor. A second possibility is that theory is constructed based on observation statements agreed upon by scientists in the discipline. This is an old argument. The problem with it is that theory is represented in conceptual terms. If it is generated on the basis of empirical observation, there is a likely problem of induction. Thus, an explanation of theory construction that is not based on metaphor is difficult to support without a positivist basis. However, returning to the first argument that all theory is metaphorical, we could argue that scientific theory is in effect a creation of discourse. And if that is all it is, it need only be grounded in other conceptual structures.

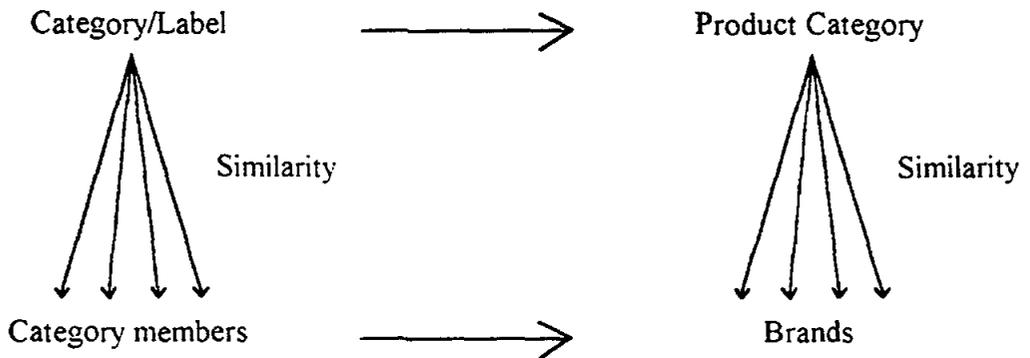
FIGURE 1

Mapping of Categorization Models

a) Traditional Mapping

Base Domain (Prototype/Exemplar theories)

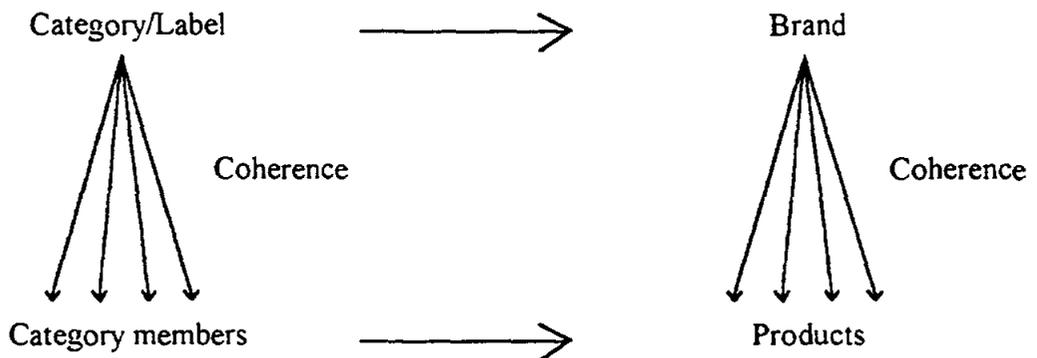
Target Domain (Product and Brand Structure)



b) Adapted Mapping

Base Domain (Coherence Based Theories)

Target Domain (Product and Brand Structure)



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