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Intern. J. of Research in Marketing 12 (1995) 227–244

International Journal of

**Research in  
Marketing**

## A means-end chain approach to consumer goal structures

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Accepted May 1995

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### Abstract

This paper presents a conceptualization of goal-directed consumer behavior in terms of a hierarchical structure of increasingly more abstract goals which are connected to one another through means-end relationships. The goal structure incorporates both the relatively concrete level of specific action plans, which is concerned with the how of behavior, and the more abstract level of values and motives, which provide the ultimate reasons for pursuing a course of action and thus constitute the why of behavior. We also discuss how goal structures can be assessed empirically, and we illustrate the procedure through an exploratory study of the higher-level goals underlying consumers' weight loss behaviors. To demonstrate the value of taking a structural perspective on goals, we provide evidence that knowledge of the means-end connections between goals yields important information about consumers' involvement with weight loss, and that this information cannot be gained from a knowledge of the goals alone.

*Keywords:* Goal-directed behavior; Means-end chain theory; Laddering

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### 1. Introduction

Consumer behavior is often depicted as purposeful and goal-oriented, yet surprisingly little research has been devoted to the study of goals. Models purporting to explain the behavior of consumers usually make scant mention of the notion of goals (for an exception see Bettman, 1979), and the neglect of goal concepts in consumer research is reflected in the impoverished treatment accorded to this topic in most consumer behavior textbooks.

There are signs, however, that motivational

research may be experiencing a renaissance in marketing and consumer behavior (Baumgartner, 1994). After a period of almost exclusive focus on the cognitive aspects of consumer functioning and the more recent emphasis on emotional phenomena (Kassarjian, 1994), consumer researchers are beginning to turn their attention to motivational issues in general (e.g., Celsi and Olson, 1988) and consumers' goals in particular (e.g., Bagozzi and Warshaw, 1990; Huffman and Houston, 1993). Important foundational work on goals has been conducted by researchers in psychology (see, for example, the collections of articles in Frese and Sabini, 1985, and Pervin, 1989), and the time seems ripe to more explicitly incorporate goals into models of consumer behavior.

The purpose of this article is threefold: (a) to

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offer a conceptualization of goal-directed consumer behavior in terms of a hierarchical structure of increasingly more abstract goals; (b) to outline a methodology for assessing goal structures empirically; and (c) to provide preliminary evidence on the usefulness of taking a structural perspective on goals by relating information from the goal structure to other constructs of interest. Our conceptual framework draws most heavily on psychological theories concerning the self-regulation of behavior (e.g., Powers, 1973; Carver and Scheier, 1981) and action identification (Vallacher and Wegner, 1985). Further, we extend the notion of means-end chain theory (Gutman, 1982; Olson and Reynolds, 1983) that the consumption of products is ultimately a means to achieving important values to the domain of goal-oriented consumer behavior. We describe a variant of the laddering methodology, which is used to construct means-end chains (Reynolds and Gutman, 1988), as a promising approach to modeling consumer goal structures, and we illustrate the potential of this technique with an exploratory study of the higher-level goals underlying consumers' weight loss behaviors. We analyze the information contained in the goal structure and relate it to involvement with respect to weight loss. The paper concludes with a discussion of consumer goal structures and with suggestions for future research.

## 2. Consumer goals and goal structures

A goal is the aim or end of an action (Locke and Latham, 1990). More specifically, it can be defined as "a mental image or other end point representation associated with affect toward which action may be directed" (Pervin, 1989, p. 474). As stated in this definition, goals serve two motivational functions. First, they influence the direction of behavior by expressing *what* people are trying to accomplish, and in a broader sense *how* they are planning to attain the goal in question and *why* they are pursuing the chosen course of action in the first place. Second, they influence the intensity of behavior by determining how vigorously a person will pursue a course of action

depending upon the desirability of the focal goal. Since many behaviors that are of interest to marketers are goal-directed and since goals are the essential regulators of such behaviors (Carver and Scheier, 1981), it seems important to study consumers' goals and their relationship to behavior.

Goals are often studied in isolation. To cite two recent examples, Huffman and Houston (1993) examined the effects of different processing goals on information acquisition, and Bagozzi and Warshaw (1990) investigated consumers' pursuit of the goal of losing weight as a function of their weight loss intentions and attitudes toward successful or unsuccessful goal attainment. However, we take the position that much can be gained from taking a broader perspective by considering the other goals in which the focal goal is embedded. We refer to such a network of interrelated goals as a goal structure. A goal structure comprises the set of goals that are relevant to a given behavior, and it specifies how these goals are organized. Usually, it is assumed that goals are organized hierarchically, such that a goal at some level in the goal hierarchy can be broken down into a series of subgoals which have to be attained in order to reach goals at higher levels (e.g., Bandura, 1989; Beach, 1990; Carver and Scheier, 1981; Emmons, 1989; Vallacher and Wegner, 1985). Goals at lower levels in the hierarchy serve as means to achieve higher-level goals as ends, and thus a goal hierarchy can be thought of as a means-end structure of sequences of subordinate and superordinate goals (cf. Bettman, 1979; Newell and Simon, 1972).

Several authors have attempted to specify the different levels in the goal hierarchy. Building on the earlier work of Powers (1973), Carver and Scheier (1981) distinguish between the program, the principle, and the system level, in increasing order of abstractness. *Programs* are in essence what Schank and Abelson (1977) call scripts (see also Abelson, 1981). They represent prototypical sequences of events for situations such as buying a present for a spouse. Their importance for goal-directed behavior comes from the fact that by specifying action rules and standards of appropriate behavior, scripts serve as blueprints or guides to behavior in given situations. *Programs*

are in turn regulated by *principles*, which are underlying qualities of specific acts and which provide general norms for behavior. An example of a principle is "being considerate" as the underlying motive for buying a present for one's spouse. Finally, at the highest level of self-regulation, *system concepts* contain information about such things as one's idealized self-image or sense of relationships, and these constitute the ultimate goals or standards for behavior. If values are understood as abstract goals or motivational concerns (Schwartz, 1992), then the principle and system levels essentially specify the values that underlie and guide a person's behavior in given situations.

A similar account of the hierarchical organization of goals and behaviors is provided by Vallacher and Wegner's (1985) action identification theory. This theory states that a given behavior can be identified at various levels of abstraction, ranging from very concrete levels in the behavioral hierarchy (e.g., describing eating as chewing and swallowing) to rather abstract interpretations

of the same act (e.g., treating eating as getting nutrition). At any given moment, some goal in the hierarchy is likely to regulate ongoing behavior. This is called the prepotent identification of the action. The prepotent identification specifies what the person thinks s/he is doing, or in the terminology of goal-oriented behavior, what the focal goal is that the person is pursuing. Vallacher and Wegner (1987) argue that the context in which an action takes place, the difficulty of the action, and a person's experience with the action determine the level at which an action will be identified. In general, however, behaviors are identified at an intermediate level, at which a goal can be pursued most effectively and efficiently. This idea is consistent with work on human categorization in general (Rosch, 1978) and research on event taxonomies in particular (Rifkin, 1985), which indicates that there exists a preferred or basic level of categorization in the perception of objects and events. Goals below the basic level deal mostly with the operational aspects of attaining the basic-level goal (the *how* of behavior), while

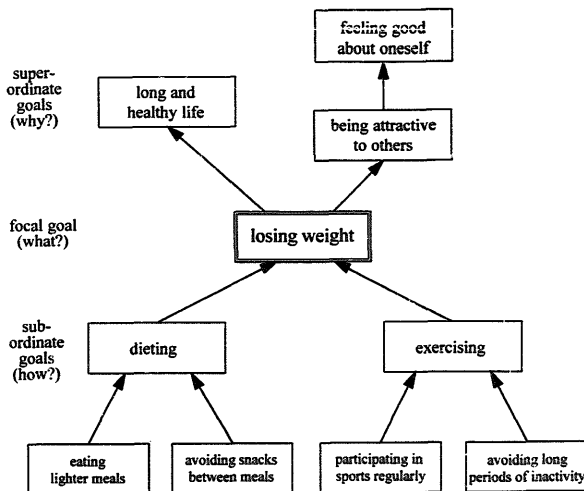


Fig. 1. Hypothetical partial goal structure for losing weight.

goals above the basic level provide the motives or reasons for pursuing a course of action (the *why* of behavior).

Previous models of goal-directed consumer behavior, if they have focused on goals at all, have tended to emphasize the lower levels of the goal hierarchy (i.e., the program level). For example, Bettman (1979) conceptualizes choice as a person's movement through a goal hierarchy, in the sense that a consumer has to develop a plan of action for bringing about a desired state of affairs such as the purchase of a product (e.g., a consumer has to look at *Consumer Reports* before she can call Store Y and so forth). In contrast, we suggest that to gain a more complete understanding of a consumer's goal-directed behavior, it is necessary to consider the entire goal structure, which specifies the hierarchical relationships between goals at all levels of abstraction - ranging from fairly concrete goals that guide specific acts to rather abstract goals in the form of basic values that regulate behavior.

An example adapted from Pieters (1993) illustrates these ideas (see Fig. 1). Assume that a consumer has decided that s/he wants to lose weight. Assume further that the desire to lose weight represents the focal goal for this consumer (the basic level at which the behavior is identified). This goal then regulates the pursuit of subgoals such as the need to diet and the need to exercise, and even more specific subordinate goals such as eating lighter meals and participating in sports on a regular basis. These behaviors are the operations that, according to the consumer, are instrumental in attaining the goal. On the other hand, the desire to lose weight is motivated by, and ultimately itself a means to achieving, higher-level superordinate goals such as being attractive to others or feeling good about oneself. At the most 'abstract level, these superordinate goals are the most basic values that define who the person thinks s/he is or wants to be.

Our conceptualization of consumer goal hierarchies bears a close resemblance to the notion of means-end chain structures of consumers' product knowledge (Gutman, 1982; Olson and Reynolds, 1983). The objective of means-end chain theory is to understand what makes prod-

ucts personally relevant to consumers by modeling the perceived relationships between a product (defined as a collection of attributes) and a consumer (regarded as a holder of values). Attributes of products are assumed to lead to various consequences of product use which in turn satisfy consumers' values. The result of a means-end chain analysis is a hierarchical value map (Reynolds and Gutman, 1988) or consumer decision map (Reynolds et al., 1994) showing the salient linkages between attributes, consequences, and values for a group of consumers in some product class. The map indicates which values make products personally relevant, and this information is useful in developing positioning concepts and advertising strategies (Reynolds and Craddock, 1988; Reynolds and Gutman, 1984; Reynolds et al., 1994).

A goal structure and a consumer decision map share as a defining characteristic the idea that the elements of the structure are organized hierarchically, with lower-level elements serving as means to achieve higher-level elements as ends. Furthermore, the elements at more abstract levels are essentially equivalent. Goals at the principle and system levels specify norms for desirable conduct and being and thus perform a function similar to values. In fact, some authors (e.g., Schwartz, 1992) regard values as abstract goals or enduring motivational concerns. At lower levels in the hierarchy, however, important differences emerge, owing to the difference in focus of the two perspectives. In the case of goal structures, the interest is in explaining consumer behavior in terms of goals and action knowledge at various levels of abstraction (Carver and Scheier, 1986). Behavior is assumed to be controlled by goals at intermediate levels in a hierarchy of goals. More abstract goals (or values) provide the motivation for pursuing the focal goal, while goals at lower levels in the structure deal with the operational aspects of how the focal goal can be attained (Vallacher and Wegner, 1985). In the case of consumer decision maps, the interest is in understanding how products derive personal relevance (Reynolds et al., 1994). Values are assumed to provide the motivation for choosing a product with certain attributes, and the aim is to relate product at-

tributes to the self via consequences of product use (Walker and Olson, 1991).

### 3. Goal structures and consumer involvement

Although a description of the goal structure of consumers in a particular domain is inherently interesting, we believe that it is important to show that the goal structure is related to other aspects of consumer behavior that are expected to either influence the goal structure or be influenced by it. The nomological validity of goal structures is supported if information from the goal structure is associated with other variables. Involvement plays an important role in models of consumer behavior, and as shown below, it is conceptually related to consumer goal structures. We therefore examine the relationship between goal structures and consumer involvement.

Involvement refers to the perceived personal relevance of an object or event to a consumer (e.g., Zaichkowsky, 1985). It expresses the intensity of motivation as experienced by an individual (Ratchford and Vaughn, 1989). Previous research has investigated the consequences of consumer involvement on various cognitive processes. For example, consumers who are involved with a product category tend to devote more attention to relevant advertising, focus their attention on product-related information in the ad, exert greater cognitive effort during comprehension of the ad, and engage in more elaboration of the product information during comprehension (Celsi and Olson, 1988). These more intense attention and comprehension processes should result in increased persistence of attitudes over time, increased resistance of attitudes to persuasive attempts, and increased attitude-behavior consistency (Petty and Cacioppo, 1986). In addition, more involved consumers seem to be willing to expend more effort to enact their behavioral intentions (Ostrom and Brock 1968; Mitchell, 1981; Stone, 1984).

In view of the pervasive effects of involvement on consumer behavior, research on the antecedents of consumer involvement is relevant, particularly work on the structure of those an-

tecedents. There is general agreement that consumers experience involvement when an object or event is connected to important goals (Mitchell, 1981; Mittal, 1989), centrally held values (Ostrom and Brock, 1968; Houston and Rothschild, 1978) or the self concept (Bloch, 1981). Hence, we expect that goal structures are significantly related to the involvement that consumers experience in a particular domain. The question is which aspects of a goal structure affect the level of involvement that consumers experience? A goal structure contains goals and connections between goals, and goal structures of consumers may differ with respect to the goals, the connections between goals, or both.

Consumers who have different goals in a particular domain also have different goal structures. In an extreme situation, consumers would have no goals in common. Assume, for example, that two consumers each have four goals and that they have two goals in common (goals A and B). On the other hand, while consumer 1 has goals C and D, consumer 2 has goals E and F. Obviously, these two consumers have different goal structures. However, consumers who have the same goals in a particular domain, but who connect the goals differently, also have different goal structures. Assume, for example, that consumers 3 and 4 have the same goals in their goal structure (goals A to D) and that both have the same number of connections between the goals. However, if consumer 3 connects A to B, A to C, and B to D, while consumer 4 connects A to C, B to C, and C to D, then the two goal structures differ, even though the goals are the same. In an extreme situation, consumers could have the same goals in their respective goal structures, but these goals could all be connected differently. As goal structures can differ with respect to the goals or connections between goals, differences between consumers in their level of involvement may be due to differences in the goals, differences in the connections between goals, or both.

There is reason to expect that a significant portion of the variation in consumer involvement is due to differences in the connections between goals, and that connections between goals account for variation in the level of consumer in-

involvement beyond the variation accounted for by the goals. In their overview of means-end chain theory, Olson and Reynolds (1983, p. 79) argue that the connections between attributes, consequences and values are the "key elements of content in that the associations encode the meaning." In other words, the connections between elements contribute to understanding the meaning that consumers attach to products. More specifically, Gutman (1982) stresses that in means-end structures of low-involvement products, consequences of product use will lack linkages to consumer values. In a similar vein, Mulvey et al. (1994) and Rajaniemi (1992) argue that the level of consumer involvement with a product is not only a matter of the content of attributes, consequences, and values, but also of the connections between them. However, so far little research has examined empirically the impact of goals and connections between goals on other constructs. In an attempt to attest to the value of a structural perspective on goals, we will relate information from the goal structure to the level of consumer involvement in a particular domain.

#### 4. Assessing consumer goal structures

Although conceptual models of goal-oriented behavior generally posit a hierarchical organization of goals, few researchers have attempted to investigate structural characteristics of goals (see Wadsworth and Ford, 1983, for an exception). This state of affairs is probably due to the perceived difficulty of modeling the hierarchical organization of goals, which would require the researcher to elicit and analyze sequences of linked subordinate and superordinate goals.

We believe that the interview technique called "laddering" (Reynolds and Gutman, 1988) is ideally suited to collecting data that permit the modeling of consumer goal structures. Laddering is used in means-end theory to derive aggregate value chains (i.e., prototypical sequences of attributes, consequences, and values for a sample of consumers) and to construct consumer decision maps. In a laddering interview, subjects are first asked to identify salient attributes that dis-

tinguish different choice alternatives in a product class. Next, they are prompted to verbalize sequences of attributes, consequences, and values (which are referred to as ladders) by repeatedly asking: "Why is this attribute (or consequence or value) important to you?" These individual ladders are then aggregated and summarized in a hierarchical value map or consumer decision map.

Laddering also can be used to model goal structures, but some adaptations are necessary. In contrast to the usual procedure, laddering of goals does not start at the most concrete goal level, but at the level at which a behavior is normally identified by consumers. This focal goal will generally be at an intermediate level in the goal hierarchy. Examples include losing weight, having a baby, or donating blood. According to our conceptualization, goals above the basic level provide the motivation for why a person is pursuing the focal goal. These goals can be uncovered using an interview technique similar to regular laddering. First, respondents are asked to list the superordinate goals they have for pursuing the focal goal. Then, for each goal provided, respondents are prompted to verbalize sequences of increasingly more abstract goals by repeatedly asking questions of the form: "Why is this important to you?" In a somewhat different context, Little (1983) refers to this as value laddering.

Goals below the basic level, on the other hand, reflect the operational aspects of pursuing the focal goal and deal with the question of how the chosen goal can be attained. Therefore, laddering involves querying respondents on their plans of action for achieving desired ends. Little (1983) calls this act laddering. Although prior experience concerning this part of the goal laddering interview is unavailable, we propose that questions of the form: "How are you planning to accomplish this?" will be helpful in uncovering sequences of increasingly more concrete goals below the basic level.

The laddering interview is normally conducted one-on-one in an in-depth format. However, Walker and Olson (1991) have recently developed a paper-and-pencil version of laddering that allows efficient data collection in a group setting. It is this variant of laddering that we suggest as a

suitable method for collecting data on the means-end relations between goals at different levels of abstractness. Although laddering could in principle be used to model the goal structures of individual consumers, we believe that in practice the objective will most often be to derive aggregate goal maps for groups of consumers. Below, we present an illustrative application of the methodology in the context of consumers' weight loss goals. In this example, we describe how one can analyze the data from the laddering interviews to determine the position of individual goals in the goal structure, and how one can construct group-level summaries of people's goal structures in a given domain. Finally, we also relate information from the goal structures to consumers' involvement with weight loss.

## 5. Method

To illustrate the process of deriving group-level goal hierarchies, we conducted a study with 51 undergraduate marketing students (32 females and 19 males) at a large American university. The context of the study was weight loss. Respondents were not screened on the basis of whether or not they wanted to lose weight. This allowed us to relate subjects' goal structures to naturally occurring differences in the level of consumer involvement with respect to weight loss. The research was described to subjects as a study investigating people's thoughts, feelings, and ideas about losing weight, and respondents were asked to complete a questionnaire querying them on various issues related to weight loss.

Consistent with previous work in the area (e.g., Sejwacz et al., 1980; Bagozzi and Warshaw, 1990), we specified 'losing weight' as the focal goal. Our illustration is only concerned with the hierarchical structure of goals above the basic level, and thus our conclusions are restricted to fairly high-level, superordinate goals dealing with the question of why someone wants to attain the focal goal. Future research will have to investigate the potential of our technique for deriving goal structures at the subordinate level, which deals with

the question of how the chosen goal can be achieved.

As discussed in the previous section, we first asked respondents for their aims or reasons for wanting to lose weight. Subjects could specify as many as four reasons. For each reason given, they were asked why it was important to them, and if they provided an answer, they were again asked why that reason was important. On the questionnaire there were four sequences of three boxes connected by arrows, and subjects had to fill in the boxes. Respondents were told that they could leave a box blank if they could not think of any further reasons, but they were encouraged to be as complete as possible.

Subjects were also asked to indicate their level of involvement with losing weight on four seven-point semantic-differential items selected from Zaichkowsky's (1985) involvement instrument. The items had the following end-poles: important-unimportant, relevant-irrelevant, of concern to me-of no concern to me, and significant-insignificant. The coefficient alpha of the scale was .95, so subjects' responses were averaged. Mean involvement was 4.3, with a standard deviation of 2.0.

## 6. Results

We now describe how the data from the laddering interviews can be used to understand group-level goal structures. Our analysis applies many of the concepts used in conventional laddering methodology (Reynolds and Gutman, 1988), but we also suggest several extensions based on network analysis (Scott, 1991) to deal with issues that arise when modeling goal hierarchies.

## 7. Content analysis of subjects' weight loss goals

Because the responses obtained in a laddering interview are typically rather idiosyncratic, it is necessary to perform a content analysis and classify the raw data into a limited number of response categories (Reynolds and Gutman, 1988). In the present case this meant assigning subjects'

Table 1  
 Implication matrix for 12 goals associated with losing weight

	Getting slimmer	Health	Physical appearance	Physical condition	Social appearance	Self-esteem	Avoiding costs	Confidence	Social acceptance	Achievement	Long life	Happiness	Out-degrees of row goals
Getting slimmer	0(1)	4(4)	2(4)	6(8)	2(4)	4(4)	0(1)	1(3)	1(1)	3(4)	15(15)	4(5)	12(17)
Health	1(2)	1(2)	2(4)	2(2)	18(19)	5(3)	5(7)	4(10)	2(5)	3(4)	1(2)	3(6)	31(39)
Physical appearance	5(5)	3(3)	2(3)	1(2)	1(2)	2(3)	0(1)	2(5)	3(4)	0(8)	0(1)	1(1)	37(58)
Physical condition			10(13)				18(18)						17(24)
Social appearance	1(1)	4(4)	0(1)	0(1)	0(1)	1(1)	18(18)	1(1)	1(1)	1(1)	1(1)	1(1)	30(36)
Self-esteem			1(1)										27(37)
Avoiding costs													3(3)
Confidence													1(1)
Social acceptance	1(1)	1(1)	3(3)	2(2)	2(2)	3(3)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	16(16)
Achievement			4(4)	2(2)	4(4)	4(4)	0(1)	0(1)	0(1)	0(1)	0(1)	0(1)	7(8)
Long life			1(1)										2(2)
Happiness										2(2)			1(1)
In-degrees of column goals	1(1)	6(7)	13(14)	10(12)	24(29)	30(44)	4(4)	26(34)	24(32)	23(36)	15(15)	16(22)	192(250)



responses in the laddering interview to a small yet comprehensive set of goal categories. Three independent judges coded the 51 laddering protocols (each judge classified about two-thirds of the questionnaires). Based on the literature (Sejwacz, Ajzen and Fishbein, 1980) and an inspection of the first few protocols, the responses were grouped into 12 categories of goals: getting slimmer (attaining a more appropriate body weight); health (being in good health); physical appearance (having a more appropriate body weight); health (being in good health); physical appearance (looking good for oneself); physical condition (leading an active and energetic life); social appearance (being attractive to others); self-esteem (feeling good about oneself); avoiding costs (avoiding the costs associated with being overweight); confidence (feeling confident); social acceptance (being liked by others); achievement (getting things done); long life (living a long life); and happiness (leading a happy life). Interjudge agreement was 86 percent, and disagreements were resolved by discussion so that all responses were classified. For purposes of analysis, two adjustments were made to subjects' responses. First, when a person gave two responses in immediate succession that were judged to belong to the same goal category, the goal was counted only once. Second, when a person returned to the initial goal after one intermediary goal, the last goal was eliminated.

In total, the 51 subjects mentioned 342 goals, for an average of about 7 goals per subject. The number of goals mentioned by subjects ranged from 2 to 12. Self-esteem was mentioned most often ( $n = 51$ ), with physical appearance ( $n = 46$ ), social appearance ( $n = 45$ ), and health ( $n = 38$ ) placing second, third, and fourth. Avoiding costs ( $n = 6$ ), getting slimmer ( $n = 16$ ), and long life ( $n = 16$ ) were mentioned least often.

## 8. Position of goals in the goal structure

Next, a  $12 \times 12$  implication matrix (Reynolds and Gutman, 1988) was constructed, in which the twelve weight loss goals acted as the row and column elements. Each cell in the implication matrix contains the frequency that a particular

row goal is followed by a particular column goal, aggregated across subjects and ladders. The diagonal of the implication matrix is empty as a particular goal cannot be followed by itself. The implication matrix is presented in Table 1.

Two types of connections between goals are possible. A direct connection between two particular goals exists when one goal is mentioned directly after another goal in the same ladder, without any intermediary goals. An indirect connection between two goals exists when the two goals are mentioned in the same ladder, but separated by one or more intermediary goals. The cells of the implication matrix contain the number of direct connections between goals outside parentheses, and the number of direct plus indirect connections between goals inside parentheses. As in regular laddering, the analyst has to decide (1) whether to consider only direct connections between goals or both direct and indirect connections, and (2) how often to count a given direct or indirect relation between two goals if the association is made more than once by the same person (cf. Reynolds and Gutman, 1988). In the present case, subjects listed a total of 150 goal ladders, for an average of 2.9 ladders per subject (range of 1 to 4). The average length of a ladder was 2.3 goals (range of 1 to 3). Since the data in Table 1 show that direct relations accounted for the majority of all (direct plus indirect) relations among goals (78 percent), all subsequent analyses were conducted for direct relations only (see Valette-Florence and Rapacchi, 1991, and Roehrich and Valette-Florence, 1991, for ideas on how to deal with indirect connections). Furthermore, since only three subjects mentioned the same direct relation twice (in different ladders), no correction for multiple mentions was made.

To provide insight into the position that individual goals have in the goal structure, we can derive several indices using information about the out-degrees and in-degrees of goals as indicated in Table 1 (cf. Scott, 1991)<sup>1</sup>. The out-degree of a

<sup>1</sup> In network analysis, the term position has a particular meaning in the context of analyses of structural equivalence. We use the term position in a nontechnical sense to refer to the location of a goal in the overall goal structure.

particular goal is the number of times that the goal is the source or origin of a connection with other goals, aggregated across subjects and ladders. Out-degree is the row sum of a goal in the implication matrix. The in-degree of a goal is the number of times that the goal is the destination or receiver of a connection with other goals, aggregated across subjects and ladders. In-degree of a goal is the column sum of the goal in the implication matrix. Table 1 shows, for example, that 'social acceptance' has an in-degree of 24 (for direct connections), and an out-degree of 8. We will examine three key indices of the position of individual goals in the goal structure for weight loss, and the relevant statistics are displayed in Table 2.

*Abstractness* of a goal is defined as the ratio of in-degrees over in-degrees plus out-degrees of the goal. Abstractness ranges from 0 to 1; the higher the index, the larger the proportion of a goal's connections with other goals in which the goal is the destination rather than the source. Goals with a high abstractness score are predominantly ends, while goals with low abstractness scores are predominantly means. Goals in Table 2 are presented in ascending order of their abstractness score. Clearly, the most concrete goals in the present study are becoming slimmer, health,

and physical appearance, while the most abstract goals are long life and happiness.

*Centrality* of a goal is defined as the ratio of in-degrees plus out-degrees of a particular goal over the sum of all cell-entries in the implication matrix (cf. Knoke and Burt, 1982). Centrality ranges from 0 to 1; the higher the index, the larger the proportion of connections in the goal structure than run through the particular goal. The centrality of a goal would be 1 if all connections in the goal structure involved the goal in question. Inspection of Table 2 shows that self-esteem is the most central goal in the goal structure, followed by physical appearance and social acceptance.

*Prestige* of a goal is defined as the ratio of in-degrees of a particular goal over the sum of all cell-entries in the implication matrix (cf. Knoke and Burt, 1982). Prestige ranges from 0 to 1; the higher the ratio, the more the particular goal is the destination of connections with other goals. The prestige of a goal would be 1 if the goal were involved in all connections, but only as a destination, not as a source. In the present goal structure, self-esteem has the highest prestige score followed by confidence, achievement, and social acceptance.

Centrality and prestige are indices of the im-

Table 2  
Information about the position of goals in the goal structure and correlations among positional indices

	(1) Abstractness	(2) Centrality	(3) Prestige
Getting slimmer	0.08	0.07	0.01
Health	0.16	0.19	0.03
Physical appearance	0.26	0.26	0.07
Physical condition	0.37	0.14	0.05
Social appearance	0.44	0.28	0.13
Self-esteem	0.53	0.30	0.16
Avoiding costs	0.57	0.04	0.02
Confidence	0.62	0.22	0.14
Social acceptance	0.75	0.17	0.13
Achievement	0.77	0.16	0.12
Long life	0.88	0.09	0.08
Happiness	0.89	0.09	0.08
(1)	1.00		
(2)	-0.20	1.00	
(3)	0.51 <sup>b</sup>	0.68 <sup>a</sup>	1.00

Note: <sup>a</sup>  $p < 0.05$ , <sup>b</sup>  $p < 0.10$ .

portance, prominence, or salience (Knoke and Burt, 1982) of individual goals in the goal structure; the higher the score on these indices, the more often the goal is involved in connections with other goals in the goal structure, either as a source or destination (centrality) or as a destination only (prestige). On the other hand, abstractness is an index of the 'level' of individual goals in the goal structure (low to high), not of their importance. The abstractness of a goal may be high although the goal is involved in only a few connections with other goals, and the abstractness may be low despite many connections with other goals. Correlations between the three indices are presented in the bottom half of Table 2. They indicate that the indices provide somewhat different information about goal position. Correlations of the abstractness index with the centrality index are non-significant, and only marginally significant with the prestige index ( $p < 0.10$ ), while the centrality and prestige indices are significantly correlated ( $p < 0.05$ ). Interestingly, the most central goals (self-esteem, social appearance, physical appearance) are intermediate in abstractness, while the most abstract goals are low in centrality (long life, happiness).

## 9. Mapping the goal structure

In conventional applications of means-end chain theory, the a priori classification of ele-

ments into attributes, consequences, and values (Gutman, 1982; Olson and Reynolds, 1983) is used to order the rows and columns of the implication matrix, with attributes coming first, consequences second, and values last. When the objective is to model goal structures, an a priori hierarchical ordering of goals may not be as obvious. The scores of the goals on the abstractness index can be used to determine the order of rows and columns in the implication matrix, with the most concrete goals coming first in the implication matrix and the most abstract goals coming last. After re-arranging rows and columns in the implication matrix on the basis of abstractness, as has been done in Table 1, the strongly hierarchical nature of the goal structure becomes immediately apparent. There are significantly more cell entries above the diagonal than below the diagonal ( $\chi^2$  for symmetry is 80.08 with one degree of freedom,  $p < 0.001$ ). Thus, an implication matrix in which the goals are arranged in terms of their level of abstractness can be used to assess whether a goal structure is hierarchical, as has often been hypothesized (e.g., Bandura, 1989; Beach, 1990; Carver and Scheier, 1981; Emmons, 1989; Valacher and Wegner, 1985).

To represent the connections between goals in a graphical form, we consider the non-zero cells of the implication matrix. When the objective is to provide a complete and comprehensive description of the goal structure, all non-zero cells could be included in the graphical display, which

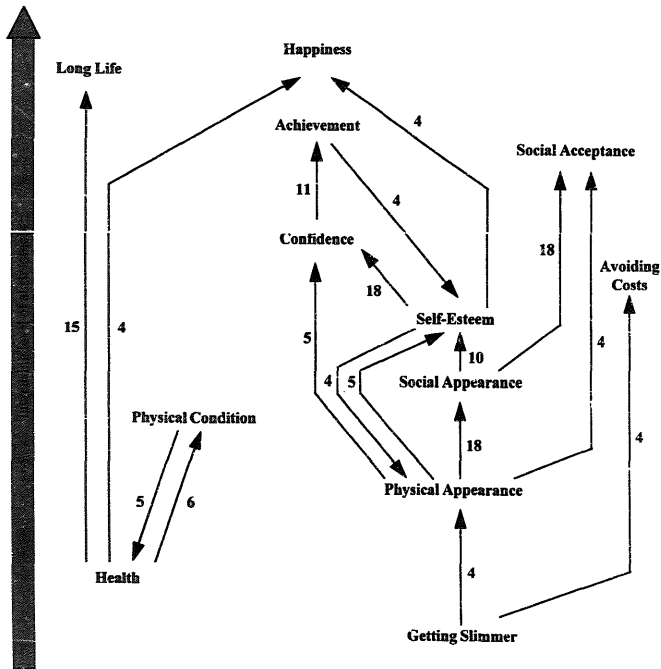
Table 3  
Statistics for determining a cutoff level

Cut-off	(1) Number of active cells	(2) Number of active cells as a proportion of all cells	(3) Number of active cells as a proportion of all cells mentioned at least once	(4) Number of active linkages	(5) Number of active linkages as a proportion of all linkages
1	49	0.37	1.00	192	1.00
2	32	0.24	0.65	175	0.91
3	23	0.17	0.47	157	0.82
4	17	0.13	0.35	139	0.72
5	10	0.08	0.20	111	0.58
6	7	0.05	0.14	96	0.05

may be called a goal map. In the implication matrix of the present study, 49 cells are non-zero, and the resulting goal map would contain 49 connections between the 12 goals. While comprehensive, this approach may lead to a cluttered goal map which is difficult to interpret, particularly if many cells in the implication matrix are non-zero. When the objective is to represent the key or dominant orientations in the goal structure, only connections between goals above some cutoff level are considered. Connections in the goal structure below the cutoff level are considered idiosyncratic and ignored in further analyses.

Here, we focus on the dominant orientations

in the goal structure. In choosing a cutoff level, we tried to account for a large percentage of the total number of connections that subjects made between goals with a relatively small number of cells in the implication matrix. The information necessary to make this decision is presented in Table 3. In the table, cells with entries at or above the chosen cutoff level are referred to as active cells. Table 3 lists the number of active cells in the implication matrix for cutoff levels of 1 through 6 (column 1). For example, with a cutoff level of 4, a total of 17 cells are active. Table 3 also expresses the number of active cells at each cutoff level as a proportion of the number of all possible (non-diagonal) cells in the implica-



Why do you want to lose weight?  
 Fig. 2. Upper-level goal structure for losing weight.

tion matrix (column 2) and as a proportion of the number of active cells for a cutoff level of one (column 3). Cells that are active at a cutoff level of one represent a connection between two goals that is mentioned at least once, across all subjects and ladders. It is apparent that if connections between goals which are mentioned very infrequently (say, one, two or three times) are ignored, only 13 percent of all possible cells and 35 percent of the cells that are mentioned at least once are active. Column 4 of Table 3 shows how many connections between goals are retained when non-active cells are ignored. Column 5 indicates which proportion of the total number of connections actually made by respondents is accounted for at cutoff levels of 1 through 6.

Reynolds and Gutman (1988) propose two heuristics for choosing a cutoff level. First, they suggest trying multiple cutoff levels and choosing the one that leads to the most informative and interpretable solution. This rule is similar to the one often used in multidimensional scaling. Second, they argue that the proportion of total connections that one can account for when relations below the cutoff are ignored (column 5 in Table 3) serves as a useful index of the completeness of the map. This last criterion is essentially a measure of the goodness of fit of the structural representation of goals. Reynolds and Gutman (1988, p. 20) state that "a cutoff of 4 relations with 50 respondents and 125 ladders will [typically] account for as many as two-thirds of all relations among elements."

Two additional heuristics for choosing a cutoff level might be mentioned. First, one can graph the number (or percentage) of connections accounted for at a given cutoff against different cutoff levels and look for an elbow (similar to a screen test in factor analysis). Second, one may compare the proportion of active cells in the implication matrix (columns 2 and 3 in Table 3) to the proportion of all connections between goals accounted for at a given cutoff (column 5). The latter rule of thumb most directly reflects the goal of accounting for a large percentage of the total number of goal connections made by respondents with a small number of distinct relations between goals.

Using primarily the last choice heuristic, a cutoff level of 4 was deemed most appropriate in the present case. At this cutoff level, we can account for 72 percent of all connections between goals made by subjects (column 5) using only 13 percent of all possible cells in the implication matrix (column 2) and only 35 percent of the cells that contain a non-zero entry (column 3; see Table 3). These results are in close agreement with the rule of thumb given by Reynolds and Gutman (1988).

Once an appropriate cutoff level has been chosen, the goal hierarchy can be represented graphically (see Fig. 2). The goal map was constructed from the implication matrix in Table 2 by graphing all relations that met or exceeded the chosen cutoff level of 4. The vertical ordering of the 12 goals in Fig. 2 is a function of their level of abstractness as discussed previously; the higher the vertical position of a goal, the greater the proportion of relations in which a goal was involved as the destination (end), rather than the source (means), of a relation. The arrow heads show the direction of the connection between goals, and the numbers indicate how often a given connection between goals was made.

Fig. 2 reveals four major goal orientations that motivate people's attempts to lose weight. One orientation involves the desire to be healthy, to be in good physical condition, and to lead a long and happy life. A second orientation reflects the recognition that being overweight entails certain costs that could be avoided. A third orientation concerns the importance of looking good and being attractive to others so that one will be liked by others. And finally, a fourth orientation expresses the effects of physical and social appearance on self-esteem, confidence, achievement, and happiness. These four orientations are immediately apparent from the graphical representation in Fig. 2. They are much harder to discern in the implication matrix in Table 1.

## 10. Goals, connections between goals and consumer involvement

So far our focus has been on determining the position of individual goals in the goal structure,

and on graphically representing the goal structure. As explained in the theory section, subjects may differ in the kinds of goals that they strive for in a particular domain, in the connections between the goals, or both. Both differences in goals and differences in connections may affect the level of consumer involvement with respect to the goal to lose weight. Based on the available literature, we expect not only that connections between goals account for a significant portion of the variation in involvement, but also that differences in connections account for a significant portion of the variation in involvement when the variation due to differences in goals is already taken into account. If this hypothesis were confirmed, it would underline the importance of knowing not only which goals consumers have, but also (or in particular) how consumers perceive the connections between their goals. Note that we are not interested in the effects of specific goals or specific connections between goals on the level of consumer involvement, but in the effects of the set of goals and the set of connections between goals as a whole.

Analyses were performed using multiple regression analyses. Since information about the goals is correlated with information about the connections between goals (a connection comprises two goals), the procedure originally suggested by Appelbaum and Cramer (1974) for the evaluation of non-orthogonal designs was used. The procedure involves comparing a regression model which contains only goals (Model 1), or only connections between goals (Model 2), with the full model which contains both the goals and the connections between the goals (Model 3). As Models 1 and 2 are nested in Model 3, it is simple to determine if adding connections to a model already containing the goals improves the fit significantly (Model 3 - Model 1), and if adding goals to a model already containing the connections between goals improves the fit significantly (Model 3 - Model 2). The difference in *F*-values of nested models is itself an *F*-value, which can be tested for significance. If differences in connections between goals add to the prediction of consumer involvement even after differences in goals have been taken into account, the *F*-value

for the difference between Model 3 and Model 1 is statistically significant.

In performing the regression analyses for Model 1 (goals) and Model 2 (connections between goals), variables expressing the frequency with which a given goal or connection was mentioned by a person were entered in a stepwise fashion, until the addition of the last variable did not significantly improve the fit. In Model 3, the variables that were significant in Model 1 or Model 2 were entered in a direct fashion. Because of the modest sample size, a one-sided significance level of 0.10 was used in the regression analyses. The results showed that five goals accounted for 27 percent of the variation in consumer involvement (Model 1;  $F_{5,43} = 3.11$ ,  $p < 0.05$ ), and 4 connections between goals accounted for 38 percent of the variation in involvement (Model 2;  $F_{4,44} = 6.82$ ,  $p < 0.001$ ). Clearly, connections between goals account for more variation in consumer involvement than goals. Model 3, which includes the five significant goals and the four significant connections between goals, accounted for 43 percent of the variation in consumer involvement ( $F_{9,39} = 3.31$ ,  $p < 0.01$ ). The model comparison tests indicated that, as expected, connections between goals added significantly to a model already containing goals ( $F_{4,39} = 2.87$ ,  $p < 0.05$ ), while goals did not add significantly to a model already containing connections between goals ( $F_{5,39} = 0.69$ , n.s.).

## 11. Discussion

The purpose of this article was to offer both a conceptual and methodological framework for investigating consumer goal structures and to present evidence on the usefulness of such a perspective. Based on psychological theories concerning the self-regulation of behavior and action identification and the work in marketing on means-end chain structures of consumer product knowledge, we developed a hierarchical model of consumer goal structures, in which lower-level goals serve as means to attain higher-level goals as ends. We argued that a complete goal structure incorporates both the relatively concrete level

of specific action plans, which is concerned with the how of behavior, and the more abstract level of values and motives, which provide the ultimate reasons for pursuing a course of action and thus reflect the why of behavior. We discussed how goal structures of consumers can be assessed empirically, using ideas from laddering and network analysis, and we presented the results of a study which illustrated the modeling of higher-level goals underlying consumers' attempts to lose weight. Finally, we provided evidence for the value of taking a structural perspective on goals by showing that knowledge of the means-end connections between goals yields important information about consumers' involvement with weight loss, and that this information cannot be gained from a knowledge of the goals alone.

As argued in the beginning of this paper, there has been a scarcity of research on consumer goals, and this paper represents only an early attempt to redirect the focus of consumer researchers. However, we believe that the concept of a goal structure is of crucial importance to work on motivational issues, and several promising directions for future research are suggested by the framework proposed in this paper. Perhaps the most obvious and straightforward extension of this preliminary investigation into the hierarchical organization of goals would be to extend this analysis into the lower portions of consumer goal structures. In the present study, we used an intermediate level, at which a behavior is most commonly identified, as the starting point for our analysis (in our case it was "losing weight"). From this starting point, we developed the upper portion of the goal structure by asking *why* consumers would want to "lose weight". As mentioned above, probing the lower portion of goal structures would entail a slightly different process. Instead of focusing on *why* a consumer wants to pursue the goal of interest, we would focus on *how* a consumer expects to achieve the goal. Presumably, this line of investigation would elicit the more behavioral subgoals which consumers deem necessary to reaching the focal goal. Thus, instead of using "why" questions to probe the more abstract goals and values linked to the basic-level goal, we would use "how" questions to

ascertain the more concrete goals and behaviors which serve as the means to achieving the focal goal. One would expect that, just as traditional means-ends chain analysis reaches a level at which the subject cannot suggest any more abstract values, the probing of the lower tiers of the goal structure would culminate in the most concrete level of goals, below which the consumer cannot identify more minute goals.

The resulting consumer goal structure should yield important insights into consumer behavior. For example, by interpreting the entire goal structure, a consumer behavior researcher would be able to understand how consumers plan to achieve the focal goal, and why this focal goal is personally relevant to consumers. In essence, goal structures should be able to elucidate the abstract motivations behind very concrete goals. In addition, they should convey the important bridging role that basic-level goals play in linking abstract goals to concrete goals and eventually behavioral scripts. For example, the very concrete goal of "using the Nordic Track 3 times per week for 30 minutes" could be seen as linked to a rather abstract goal such as self-esteem "via the focal goal of "losing weight".

Closely related to this last point, research on consumer goal structures can serve as a framework for focusing more attention on the *behavior* of consumers. While traditional means-ends chain analysis focuses on exploring the links between concrete product attributes and terminal values, consumer goal structures can link specific behaviors and action plans to abstract values and motives. Pieters (1993) elucidates the integral connection between goals and behavior. He points out that many models of consumer behavior take behavior for granted, portraying it as the obvious and mundane emission which results from complex cognitive processes. In contrast to the predominant conceptualization of consumer behavior which dichotomizes cognition and behavior, Pieters argues for a conceptualization of consumer behavior which integrates the "what", "how", and "why" of behavior into a single structure. Central to this argument against parsing up cognition and behavior is the observation that the identification of human behaviors is often under-

determined by the overt, observable actions of actors. Determining *what* a consumer is doing is inextricably intertwined with the consumer's phenomenological identification of an action, and a complete understanding of goal-directed behavior also involves an account of *why* a person pursues a course of action and *how* s/he goes about attaining the focal goal.

Knowledge of the complete goal structure associated with a focal goal such as losing weight should also facilitate attempts to change consumer behavior. There is evidence that the activation of behavioral scripts influences people's intention to engage in behavior and ultimately actual behavior (cf. Anderson, 1983). Since the lower portion of a goal structure represents script-like action plans for attaining the goal in question, this information can be used to formulate influence strategies aimed at inviting consumers to enter into the script (Abelson, 1981) and enact the sequence of behaviors necessary to reach the desired goal. Furthermore, the goals in the upper portion of the goal hierarchy can be used to imbue the lower-level goals with incentive value, thus further increasing the probability that consumers will enact the behaviors of interest (Markus and Ruvoilo, 1989). Such a perspective on behavioral change is quite different from traditional views such as expectancy-value attitude theory, where changes in behavior depend upon changes in attitudes and beliefs about consequences of behavior. However, by focusing more directly on sequences of behaviors instrumental to reaching the focal goal and on the values and abstract goals that make the focal goal self-relevant, it is likely that influence strategies based on knowing consumers' goal structures will be more successful in bringing about desired behavioral changes than traditional approaches.

The foregoing suggestions are only some of the ways in which the concept of consumer goal structures could be put to profitable use in future research. The potential for further work on goal-directed consumer behavior seems great, and we hope that other researchers will join us in working on some of the issues raised in this paper.

## Acknowledgements

The authors appreciate the helpful comments provided by the editor and two anonymous reviewers.

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