When Customers Think Differently: A Customer-side Categorization Approach to Strategic Groups

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This paper draws upon categorization theory and applies it to segmentation and strategic group research. In contrast to existing approaches which have investigated the categorizations of managers and industry experts, we investigate customers’ patterns of brand categorization. Customer groups defined by their pattern of brand categorization can be conceptualized as the demand-side counterpart of strategic groups. Characterizing customer segments or strategic groups by their respective probabilities of brand categorization (brand consideration, brand neutrality, brand rejection) helps to understand the competitive structure of a market and preference barriers that exist for brands (i.e., it is very difficult for a firm to enter a segment/strategic group where its brand is rejected). These preference barriers in effect represent mobility barriers for firms and are crucial for understanding the dynamics of competition in a given market. Conceiving brand categorization as a goal-derived categorization process, we propose and show that product category goals and category-specific benefits differ across brand categorization segments. Applying our approach in the automotive industry helps to explain market phenomena that are difficult to account for with solely a traditional resource-based perspective on strategic groups.

Keywords
Strategic groups, market segmentation, goal-derived categorization, self presentation of social status

1. Introduction

When Volkswagen launched its luxury-model Phaeton in 2003, it expected annual sales of 15,000 cars in Europe alone. Although most experts rated its technical features (e.g., fit and finish, comfort, and power) at least equal to rival brands BMW and Mercedes-Benz, VW failed to sell more than a fifth of what they had expected (Rust/Zeithaml/Lemon 2004). Thus the question arises why VW was not able to successfully enter the market segment of luxury-car customers, despite the company’s resources and the demonstrated technical quality of its product.

There is ample evidence that consumers do not consider all brands in a given market before making a purchase decision (for a review Roberts/Lattin 1997). Previous
empirical work on how consumers may narrow attention to a subset of brands out of a larger set of brands has developed the concept of the consideration set, the set of brands a consumer will consider in a purchase situation (e.g., Erdem/Swatt 2004; Nedungadi 1990). The notion of a consideration set implies a two-stage decision process, with a consideration stage followed by an evaluation stage. Consumer choices have therefore been conceptualized and modeled as the outcome of a two-stage process of consideration set formation and conditional brand choice (e.g., Andrews/Srinivasan 1995; Roberts/Lattin 1991). Since brand consideration is a precondition for brand evaluation and choice, understanding the consideration stage in the choice process can be crucial from both a theoretical and a practical perspective. Consideration set formation has among other things been shown to impact on brand-switching behavior (Sambandam/Lord 1995) as well as on market share changes independent of brand evaluation (Nedungadi 1990). Specifically in today’s highly competitive and crowded markets, it is likely that many brands may not even get access to consumer consideration sets (Desai/Hoyer 2000). In the car market of the introductory example, aided brand awareness of new car buyers for most relevant competitors is on a very high level. Thus getting into the consideration sets of consumers is crucial for marketing success. It is likely that the Volkswagen Phaeton did not even manage to enter the consideration sets of its target customer segments. Therefore, the understanding of what determines consideration set composition is an important research question and can, as we will show in this paper, be employed to understand the structure of a market. Building on recent work (e.g., Chakravarti/Janiszewski 2003; Paulssen/Bagozzi 2005) which demonstrated that customers’ brand consideration can be conceptualized as a goal-derived categorization process, we now turn to the concept of goal-derived categorization.

2. Goal-Derived Categorization

Based on early research on categorization processes (see Mervis/Rosch 1981), Barsalou (1991) could show that in everyday life people often create and use highly specialized sets of objects, such as ‘things to eat on a diet’ which he called ‘goal-derived categories’. Like classic taxonomic categories, goal-derived categories possess a continuum of degrees of membership ranging from typical members to typical non-members, which has been referred to as ‘graded structure’ (Barsalou 1991; Rosch 1975). A category can therefore be conceptualized as a fuzzy set with different degrees of membership and unclear category boundaries (McClosey/Grudgesberg 1978). Early approaches for modeling consideration set composition have used the crisp set model and investigated whether an alternative is considered or not within the choice process (e.g., Andrews/Srinivasan 1995; Roberts/Lattin 1991). Newer approaches have built on the notion that the consideration stage of the choice process can be conceptualized as a categorization process and have investigated varying degrees of membership (e.g., Wu/Rangaswamy 2003; Viswanathan/Childers 1999). Similar to graded structure where typical members of a category; unclear members of a category (e.g. is a duckbill a mammal?); and non-members can be distinguished, frameworks of brand-categorization with a similar tri-partition into consideration; hold; and reject set have been developed (Brisoux/Laroche 1980; Laroche/Toffoli 1991; Peter/Olson 2005). In addition to the grades a consumer considers in a choice situation (consideration set), brands that the consumer clearly rejects (reject set) and brands that for various reasons are neither acceptable nor unacceptable for choice (hold set) are distinguished. Already Roberts/Lattin (1991) had proposed that approaches which allow for different degrees of membership would possess higher process validity and more flexibility. A validation study of the Brisoux-Laroche categorization framework provided support for meaningful differentiation of brands within the different brand sets on the basis of their market share position. Specifically Laroche/Toffoli (1999) concluded that simply classifying a brand as being in the consideration set or not may hide considerable differences that still exist between brands. Thus the Brisoux-Laroche categorization framework provides a more refined measure of the resulting graded structure of the brand categorization stage of the choice process than a mere consideration/ non-consideration measure.

Concerning the determinants of graded structure for goal-derived categories, Barsalou (1991) hypothesized that background goals determine ideals, which in turn determine graded structure. Ideals can be defined as characteristics an exemplar should have in order to satisfy a goal connected with a category (Barsalou 1985). For the goal-derived category ‘things to eat on a diet’, an ideal value of the attribute, calories, would be zero. In a consumption context, these ideals are basically the benefits desired given particular background goals of a consumer or given a specific usage situation (Chakravarti/Janiszewski 2003; Desai/Hoyer 2000). Consequently, desired benefits determine graded structure in goal-derived categorization in a consumption context that is consideration set formation. Benefits are defined as the personal value a consumer attaches to product or service attributes (O’Connor/Sullivan 1995; Rameshwar et al. 1999; Srinivasan/Park 1997). Thus for the goal-derived category ‘things to eat on a diet’ the benefits, low calories, would be particularly important and determine the degree of membership for different food products in that category. A consumer who only attaches a high importance to the benefit ‘low calories’ would construct a different goal-derived category ‘things to eat on a diet’ than a consumer who attaches high importance to both the benefits, low calories and good taste. The relevance of benefits themselves is determined by salient background goals associated with a goal-derived category (e.g., the goal to lose body weight might influence the evaluation
of benefits). We will apply the concept of goal-derived categorization to the consumer context in order to derive and understand competitive market structure and preference-based mobility barriers for companies.

3. Brand Categorization and Market Structure

The brands that comprise an individual’s consideration set are the only ones that are seriously scrutinized in a purchase decision. The market for each consumer is restricted to his/her consideration set. In a given market, consumers categorize brands differently (Cooper/Inoue 1996). For example, a consumer seeking prestige and status in a car might consider a Porsche or a BMW, whereas a Kia would be clearly rejected. In contrast, a consumer considering cars just as a method of transportation might consider brands such as Kia or Logan, but would reject Porsche or BMW. A market can thus be divided into a certain number of segments in which consumers consider a distinctive subset of brands (Cooper/Inoue 1996). Within segments brand categorization is homogeneous, and across segments brand categorization is heterogeneous. Thus a market can be divided into \( K \) segments \( S_k \) (\( k = 0, \ldots, K \)) of size \( \Sigma_k w_k = 1 \) that can be conceptualized as latent types of consumers with homogeneous patterns of brand categorization (De Sarbo/Jedidi 1995). A method to derive these latent consumer types or segments would be a latent class analysis (see Section 6.1). Latent class analysis assumes that customers belong to one or several a posteriori defined segments or latent types (in which, in our case, patterns of brand categorization would be homogeneous). Based on his or her individual pattern of brand categorization, every customer can be assigned with a certain probability to each of the latent types or market segments.

On an aggregate level, each market segment can also be described by the probabilities that brands are in the consideration, hold or reject set of its respective customers. Competition between goods and services exist to the extent that potential customers perceive them as substitutes at a particular purchase occasion (Cooper/Inoue 1996; Siddarth/Bucklin/Morrison 1995). Several researchers have employed consideration sets as measures of perceived substitutability to understand the competitive structure of a market (e.g., DeSarbo/Jedidi 1995; Finn/Louviere 1990). As Ratneshwar et al. (1999, p. 193) emphasized, consideration sets ‘... provide competitor information relevant to a comparative assessment of a firm’s resources and competencies’. This means that brands/firms that are simultaneously categorized into the consideration set by a particular customer segment possess a high degree of competition in that group or segment. Market segments based on brand categorization patterns can therefore yield insight into the competitive relations between companies and their brands in a given market. Two brands that are considered by a high proportion of customers in a segment would be intense competitors in that segment. Brands or companies can be represented in strategic groups – with intense rivalry within groups and lessened rivalry between groups (Porter 1979). Firms that intensely compete in a particular segment usually use similar strategies or strategic paths and can potentially be conceived as a strategic group (Bauer 1991). A strategic group from our perspective is regarded as the supply-side analogue to the demand-side market segment. Early work of Grover/Srinivasan (1987) demonstrated this interrelation by simultaneously inferring strategic groups and market segments through a latent class analysis of a matrix of brand-switching data. A strategic group is (at least temporarily) sheltered from competition because other competitors cannot readily imitate the mix of product attributes preferred by customers of a particular segment. That is, customer preferences restrict strategic movements of companies and can therefore be conceptualized as mobility barriers. Mobility barriers are structural forces impeding firms from freely changing their competitive position (Hodgkinson 1997). Mobility barriers are a corollary to the existence of strategic groups (McGee/Thomas 1986). They can also be conceptualized as a generalization of the concept of entry barriers, consisting of various factors which prevent members of one group from transferring or extending their membership to other groups (Hodgkinson 1997). In order to enter and compete within a new strategic group or segment, as in the Phaeton example, a company or brand has to move from a position of brand neutrality (hold set) or even brand rejection (reject set) into the consideration sets of these new target customers. This represents a mobility barrier that has to be overcome (see also Mascarenhas/Aaker 1989). Mobility barriers that restrict movements of companies between strategic groups are the counterpart to preference barriers that restrict the movement of the individual consumer between segments (Bauer 1991; Hatten/Hatten 1987; Harrigan 1985).

Although the topic of strategic groups has been one of the most active areas of strategic management research (McNamara/Deephouse/Luce 2003; Peteraf/Shanley 1997), there have been surprisingly few customer-side approaches to strategic groups (two exceptions are the studies by Day/DeSarbo/Oliva 1987 and Pegels/Sekar 1989, which are limited in scope). This is even more surprising when one notes that a customer-side approach to strategic groups seems a promising path for explaining market outcomes like the abovementioned example of the VW Phaeton. VW apparently was unable to pass the mobility barrier that separated its company brand from the luxury-car producer group/segment, despite its resources and the product’s acknowledged technical features. We argue that customers’ brand categorizations determine the competitive structure of a market and represent mobility barriers for companies (Mascarenhas/Aaker 1989). In the case of the VW Phaeton, customers’ brand categorization, in this case ‘rejection of the company brand VW’, may have constituted a significant
mobility barrier for entering the luxury car segment. Thus an understanding of customers’ brand categorization processes can provide insights into the determinants of a market’s competitive structure and its underlying mobility barriers. In the next section, we develop hypotheses concerning the determinants of brand categorization for the product category cars.

4. Hypothesis Development

Individuals use products and brands to cultivate and preserve their identities. Consumer goods are capable of serving consumers in this way because of the symbolic meaning that is embedded in them (Belk 1988; Leigh/Gabel 1992; Solomon 1983). Therefore, consumers do not make consumption choices solely from a product’s utilities, per se, but also based on their symbolic meanings (Belk 1988). The consumption of symbolic meaning, particularly through the use of advertising as a cultural commodity, provides individuals with opportunities to construct, maintain, and communicate identity and social meaning (Elliott 1997). Communication by symbolic consumption has been considered important early on in marketing research (Levy 1959). Consider the example of a Rolex watch: it undoubtedly communicates the time of day, but apart from that, and supposedly more importantly for typical Rolex customers, it communicates symbolic issues, such as status and self-image. A number of researchers have suggested that various aspects of products and possessions contain symbolic meanings and can therefore be used to express a particular self-image (Bearden/Etzel 1982; Belk 1981; Solomon 1983). In other words, individuals consume products and brands for their symbolic properties as much as for their functional benefits (Elliott 1997; Levy 1959). In social psychology, self-presentation has been defined as the process through which people try to control the impressions other people form of them. Self-presentation is a goal-directed conscious or unconscious attempt to influence the perceptions of other people about a person (Leary 1995). That is, if a consumer purchases a brand in a given product category primarily for its symbolic meaning, than he/she wants to consciously influence the perceptions other people have of that person, and self-presentation is a salient goal associated with that particular product category.

In a consumption context, desired benefits given particular background goals of a consumer determine graded structure in brand categorization (Chakravati/Janiszewski 2003; Desai/Hoyer 2000). Background goals can be as abstract as a terminal value or a self-ideal. Building on Barsalou’s (1991) research we chose to investigate a middle level of goal abstractness that we label product category goal. The scope of a product category goal typically does not extend much beyond a product category. In light of the above, we want to investigate how the salience of the goal to use the products of a category for self-presentational purposes determines the relevance of benefits and subsequently brand categorization. In our empirical study, in the product category cars, we specifically want to study the impact of the goal ‘self-presentation of social status’. Thus we propose that the salience of the product category goal ‘self-presentation of social status’ determines the relevance of benefits for the product category, cars. Four important benefits recently found for consumers considering the purchase of cars are ‘economy’, ‘sporty driving’, ‘comfort’, and ‘safety’ (e.g., Paulssen/Bagozzi 2005). If ‘self-presentation of social status’ is a salient goal for a customer when considering the purchase of a car, then it would be prudent for the product and advertising to communicate symbolic issues such as status or personality style. Two examples of classic status symbols in many societies are sporty cars with powerful engines, as well as large, comfortable roomy cars. Hence, we propose that to the extent that ‘self-presentation of social status’ is a prevalent consumption goal, then the benefits ‘sporty driving’ and ‘comfort’ will be highly relevant for consumers. Thus,

H1: The salience of the product category goal ‘self-presentation of social status’ has a positive impact on the importance attached to the benefit ‘sporty driving’.

H2: The salience of the product category goal ‘self-presentation of social status’ has a positive impact on the importance attached to the benefit ‘comfort’.

The salience of the goal ‘self-presentation of social status’ is however also likely to have a negative impact on the relevance of certain benefits. Unlike an especially sporty car with a powerful engine or a large roomy car, a particular car scoring high on economic benefits may not be as well-suited for status differentiation. Specifically, because such attributes as low fuel consumption or low maintenance costs are not readily visible as a symbol for communicating to others, they are not well-suited to expressing a particular self-image. Furthermore an economic car, for technical reasons, is usually small, and has an efficient, but low power consumption, and rather weak engine. Hence, we would expect that for customers with a strong salience of the goal ‘self-presentation of social status’, the benefit ‘economy’ will be perceived to be counter-productive. Therefore,

H3: The salience of the product category goal ‘self-presentation of social status’ has a negative impact on the importance attached to the benefit ‘economy’.

What about the benefit ‘safety’? Until quite recently, more expensive and exclusive cars provided higher levels of safety. But nowadays most cars, even very small ones, provide high levels of safety, as confirmed in published safety test findings. Therefore, having a safe car will not necessarily communicate symbolic meaning, such as status. We would thus assume that the product category goal ‘self-presentation of social status’ will have no impact on the relevance a consumer attaches to safety. Hence,
**H4:** The salience of the product category goal ‘self-presentation of social status’ will have no impact on the importance attached to the benefit ‘safety’.

Several researchers have employed consideration sets to structure a market (e.g., DeSarbo/Jedidi 1995; Finn/Loui- viere 1990). Cooper/Inoue (1996) proposed that consideration sets are homogeneous within segments and heterogeneous across segments and that these segments can be conceptualized as strategic groups. Their study employed latent structure models with the assumption of conditional independence to determine the number and composition of segments (see also DeSarbo/Jedidi 1995). Other researchers have found that probabilistic independence of brand consideration exists for the whole market (Hauser/Wernerfelt 1989). The present paper follows the proposition of Cooper/Inoue (1996) that market segments/strategic groups can be conceptualized as latent types of consumers with homogeneous patterns of brand categorization. Note here that we use brand categorization, where three brand sets are distinguished, rather than two (the considered and not considered sets), for brand consideration. The probabilistic independence hypothesis confirmed by Hauser/Wernerfelt (1989) essentially states that a market is unstructured or unpartitioned. All brands in the market compete with each other proportionally to their market share, and the whole market is one class or segment. That is, the number of segments equals 1 (\(c = 1\)). The probabilistic independence hypothesis will be used as a null market structure hypothesis against which the market structure hypothesis proposed below will be tested. As a consequence,

**H5:** Brand consideration is conditionally independent given \(c\) classes/segments with \(c \geq 2\).

To the extent that \(H5\) is confirmed, a number of segments/strategic groups greater than one will be derived. Based on research on goal-derived categorization, we propose that the salience of the product category goal ‘self-presentation of social status’ determines the relevance of benefits for the product category cars, which in turn determines the categorization of particular car brands into ‘consideration’, ‘hold’, or ‘reject sets’. Given that different brand categorization types exist, these latent types should differ with respect to the salience of the product category goal and the importance of benefits. Different salience of the product category goal and different relevance of benefits results in unique patterns of brand categorization and are consequently the reason for the existence of distinct segments/strategic groups, where these are defined as latent consumer types with homogenous patterns of brand categorization. Thus,

**H6:** The relevance of benefits differs across latent brand categorization types.

**H7:** The salience of the product category goal ‘self-presentation of social status’ differs across latent brand categorization types.

### 5. Method

#### 5.1. Setting

The automotive industry was chosen as an appropriate study context in light of the high product involvement with strong non-functional attributes and implications (Johnson et al. 1997) as well as the high decision complexity that characterizes automotive purchases relative to many other goods (Kardes et al. 1993). Due to these characteristics, consideration set formation constitutes a distinct stage of the decision process and is more deliberative than in many other product categories (Sambandam/Lord 1995). Given the initial example of the VW Phaeton and also the fact that the product category, car, is particularly well-suited for symbolic consumption purposes, we consider the automotive market as an appropriate setting for testing our hypotheses. As explained above, focus on a particular setting is also relevant for hypothesis specification. Given that we want to investigate brand categorization, we need to select respondents with purchase experience in that category. Therefore, only respondents were interviewed who possessed a new (i.e., not previously owned) car purchased within the last four years. This selection was necessary to assure that respondents were familiar with the product category and could meaningfully answer the brand categorization questions described below.

#### 5.2. Data and Descriptives

A total of 1247 respondents were personally interviewed. The survey was conducted by a major German market research company. A quota sampling based on car ownership was employed to select respondents who fulfilled the abovementioned recruitment criteria. Quotas to recruit respondents (car owners who purchased a new car within the last four years) were based on the percentage of brand registrations within the last four years prior to the survey. The characteristics of the sample can be described as follows: people interviewed were on average 41.8 years old (SD = 12.6), living on average in a 2.6 person household (SD = 1.1) and having on average 0.7 children (SD = 0.87) and 1.5 cars (SD = 0.62).

#### 5.3. Construct Operationalization

**Brand Categorization:** We applied the framework for brand categorization validated by Laroche/Toffoli (1999). Respondents had to check brands from a list of 25 brands that they knew (awareness set). They were asked: ‘Which of the brands you know would you consider in a future purchase?’ (consideration set), and ‘Which model do you think of in particular?’ Respondents were then asked to indicate which of the known brands they would not consider at all in a future purchase (reject set). To measure uncertainty, the so-called ‘foggy’ set, they were asked: ‘Which brands are you not sure whether you should consider in a purchase, because you do not know these brands well enough?’ In the last ques-
tion of this section, respondents were asked to check those brands that they knew well enough, but would neither consider nor reject in a future purchase (hold set).

**Benefits:** Respondents were asked to rate the importance of 18 different benefits for the purchase of a new car that were taken from a study in the automotive context by Paulssen/Bogozi (2005). The lead-in question was phrased as follows: ‘Suppose you would buy a brand new car in the next couple of days. What importance would the following aspects have for your personal decision for a new automobile? You can distribute between 1 and 5 points per aspect. The more important an aspect is for you personally, the more points you should distribute.’ The response format was a 5-point scale that ranged from totally unimportant (1 point) to absolutely important (5 points). For testing the model with the four benefit dimensions ‘safety’, ‘sporty driving’, ‘comfort’ and ‘economy’ proposed by Paulssen/Bogozi (2005) with a confirmatory factor analysis (CFA) for our sample. The fit of the model was excellent with $\chi^2(15) = 24.54 (p = 0.06)$, RMSEA = 0.024, and CFI = 1.00. Thus the four-dimensional benefit model generalizes to our sample and will be employed in our analyses. Furthermore the four benefit dimensions display discriminant and convergent validity (see Appendix).

**Product category goal:** Respondents were asked two questions to measure the salience of the goal ‘self-presentation of social status’ in the product category, cars. The questions were phrased in a four-point Likert format with a scale ranging from ‘I totally agree’ to ‘I totally disagree’. The two statements to measure the salience of the product category goal ‘self-presentation of social status’ were phrased as follows, ‘For me a car is a means to express my personality and my individuality’ (M = 2.61, SD = 0.97) and ‘The car I drive should express my position in society’ (M = 2.07, SD = 0.97). All lambda (factor loading) values are significant and substantial in our models.

### 6. Results

In analyzing the data we conducted two major steps. First, we tested Hypothesis 5 and conducted a latent class analysis with brand categorization data. Since we had sparse data, additional parametric bootstrap simulations were conducted to decide on the number of classes. In a second step, we performed multi-group analysis. As a precondition for meaningful group comparisons, we assessed tau-equivalence of constructs across strategic groups. Then we tested the relations between product category goal and benefits as proposed in Hypothesis 1 to Hypothesis 4 and whether these relations are invariant across strategic groups. In a last step of multi-group analysis, we tested whether the latent means of product category goal and benefits differ across strategic groups as proposed in Hypothesis 6 and Hypothesis 7.

#### 6.1 Latent Class Analysis with Brand Categorization

First we test the proposition that segments/strategic groups can be conceptualized as groups of customers with homogenous patterns of brand categorization by use of a latent class analysis. Forman (1984) recommends as a minimum requirement for latent class analysis that the number of cases should be greater than the number of cells. If we distinguish the five categories or sets from the Brisoux/Laroche (1980) framework of brand categorization, then the minimum requirement of a ratio of one between cells and cases would allow for only four brands as indicators of the latent market structure variable. From a practical point of view, the differences of brands in the unawareness set, foggy set, and hold set are not large. Brands in these three sets are neither considered nor rejected in a purchase decision. The position against those brands is neutral, although for different reasons, because they are unknown (unawareness set), not known well enough (foggy set), or because they are neither acceptable nor unacceptaable for a purchase (hold set). In principle it would be desirable to use brand categorization indicators with five levels. But in order to include a reasonable number of brands as indicators of the latent market structure variable in the model, the required sample size would be prohibitively large. Therefore in the present study, the number of levels is reduced to three, and the unawareness set, hold set, and foggy set are treated as one single level of brand categorization. A contingency table with 6 indicators each measured at three levels would contain 729 cells. Thus the six brands with the highest share of brand consideration were retained for the analysis. These brands were Audi, BMW, Ford, Mercedes-Benz, Opel, and Volkswagen. The restriction to six brands as observed indicators of the latent class variable will not deliver a complete picture of the market, per se. However, the purpose of this analysis is to demonstrate the applicability of our approach to the analysis of strategic groups. Cases with missing values were deleted. The remaining 836 cases satisfy the above mentioned minimum requirement. Since 411, or 56% percent, of the cells in the table were empty, we have sparse data. Table 1 shows the non-bootstrapped fit measures for an exploratory latent class analysis with different class sizes.

**Test of Hypothesis 5:** One hundred samples of random starting values were evaluated prior to each model estimation to avoid local optima. Again the one-class model is essentially a test of the hypothesis that brand categorization of the 6 regarded brands is probabilistically independent. Considering the degree of sparseness in our data, a test of this hypothesis with chi-square based statistics is problematic (Langheine/Pannekoek/van de Pol 1996). However, the values of the chi-square based goodness of fit measures show that the independence model does not fit the data at all. The five-class model is the first model where the log-likelihood ratio (G^2) is non-significant, and the Read-Cressie (RC) statistic is only
marginally significant. For the six-class-model, both statistics are highly non-significant. The Pearson’s chi-square test is, for both the five- and the six-class models, also non-significant. The BIC favors a five-class model, whereas the AIC favors a six-class model.

Parametric bootstrap simulations were conducted to get a bootstrapped $\alpha$ (see Table 2). Following the recommendation of Langeheine/van de Pol/Pannekoek (1997), 1000 bootstrap samples were evaluated. Bootstrap $\alpha$’s for the three statistics already show an adequate fit for the five-class model. Thus, considering parsimony and fit, the five-class model is favored, and $H_5$ can be accepted and the null market structure hypothesis can be rejected. The percentage of subjects correctly allocated in the five-class model (85 %), and the lambda measure of association (0.79) confirms the five class solution, compared to the two, three and four class solution where those values are lower. Predictability is more certain for the five class solution.

Thus five consumer types with homogeneous patterns of brand categorization of the six brands included in the latent class analysis were identified. Table 3 shows the class-specific probabilities for the observed variable brand categorization of the six brands. We have looked at
three levels of categorization. The minus sign stands for the reject set, zero indicates neutrality towards the brand (i.e., the foggy set, hold set, and unawareness set), while the plus sign signifies that the brand is considered in a purchase decision (e.g., in segment/group 1, the probability of rejecting an Audi is 0.64 and the probability of considering Audi is 0.19).

**Interpretation of Segments/Groups:** In segment/group 1 the brands BMW, Mercedes-Benz and to a lesser extent Audi are clearly rejected with probabilities ranging from .64 to .91, whereas the brands Ford, Opel and VW are considered with probabilities of .32, .41 and .55, respectively. This segment is labeled ‘volume brands only segment’ since only volume brands are considered and premium brands are clearly rejected in this segment. Segment 1 has a size of 24 % of the sample. Segment 2 shows an approximately reversed pattern of brand categorization as segment 1 and is consequently labeled as the ‘luxury brand segment’. Interestingly, the probability of rejecting Audi is more than twice as high as the probability of considering Audi in the luxury brand segment. Analogously, segment 4 is labeled the ‘upscale segment’ since also brands like Audi and VW are considered next to the luxury brands BMW and Mercedes-Benz. Segment 4 is labeled ‘volume brand segment’ since predominantly but not only volume brands are considered. Consumers in segment 3 consider all brands except Ford with probabilities approaching .9. Customers in this segment possess large consideration sets and thus not as pronounced preferences as the other segments. Thus this segment is labeled ‘indifferent segment’. Overall the two premium brands BMW and Mercedes-Benz as well as the three volume brands VW, Opel and Ford display a very similar pattern of competition in the five segments. Audi’s pattern of competition mirrors its position between the premium and the volume brands but possesses stronger similarities with the two premium brands.

Our hypothesis, $H_5$, and the underlying proposition that market segments/strategic groups can be defined as groups of consumers with homogeneous brand categorization patterns was confirmed, against the alternative hypothesis of probabilistic independence of brand categorization. On the one hand, our results provide a picture of the competitive structure of a market. On the other hand, we can assign each respondent to a segment and therefore could in principle characterize our segments with supplemental demographic variables. Analogous to Grover/Srinivasan (1987), we simultaneously infer the competitive structure of a market with market segments and strategic groups through a latent class analysis of brand categorization data. However, we go beyond mere description and test hypotheses to explain the origins and emergence of competitive market structure in the following section.

### 6.2. Product Category Goals and Market Structure

Five market segments were identified through latent class analysis. Segment 3, which was labeled the ‘indifferent segment’, has a size of only 6 % of the sample, or after accounting for missing values of only 45 respondents. Results from simulation studies indicate that with samples smaller than 50, the probability of an improper...
solution steeply increases in structural equation models (Boomsma 1982). Thus segment 3 is not included in the multiple group analysis that follows when testing the remaining hypotheses.

Before further comparisons can be meaningfully tested we have to verify that our measures are tau-equivalent across groups. First, a model with a similar factor pattern is tested. The model shows a very good fit with $\chi^2(104) = 140.99$ ($p = 0.01$), RMSEA = 0.044, and CFI = 0.98 and the hypothesis of congeneric equivalence cannot be rejected. The next step in multiple group analysis is the test of tau-equivalency. The chi-square difference test, $\chi^2(3) = 3.64; p > .05$, shows that this hypothesis can be accepted both for the product category goal self-presentation of social status and for the benefit dimensions ($\chi^2(12) = 14.15; p > .05$).

**Test of Hypotheses H1-H4:** In order to test the influence of category goals on benefits, the equivalence of the gamma-matrix across groups is tested. The hypothesis underlying this test is that the causal influence of the product category goal on the importance of benefits is invariant across segments. The hypothesis can be accepted with $\chi^2(12) = 17.85; p > .05$. Moreover, three hypotheses concerning relations between the product category goal and the benefit dimensions (H1, H2, H3) can be confirmed (see Table 5). The gamma-coefficients are all significant at $p < .05$. The explained variance of the benefit constructs is 3% for ‘comfort’, 35% for ‘economy’, and 28% for ‘sporty driving’. As hypothesized, the salience of the product category goal, self-presentation of social status, increases the importance of the benefits, sporty driving and comfort, but decreases the importance of the benefit economy. Contrary to H4, a significant negative relationship between the product category goal and the benefit ‘safety’ exists. The more a consumer pursues the goal ‘self-presentation of social status’ for the product category cars, the lower will be the importance of the benefits, comfort driving and comfort, but the higher the degree to which respondents pursue the goal ‘safety’ in a purchase decision. It is possible that consumers with a high salience of the goal ‘self-presentation of social status’ take ‘safety’ for granted or perceive it as a hygiene factor (Herzberg 1966) and consequently put relatively less emphasis on this benefit in a purchase decision. The explained variance for ‘safety’ is 27%.

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<th>$\eta_i$</th>
<th>$\zeta$</th>
<th>Self-Presentation of Social Status</th>
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<tbody>
<tr>
<td>Safety</td>
<td>$\gamma_{11} = -0.52^*$</td>
<td>t = -10.30</td>
</tr>
<tr>
<td>Economy</td>
<td>$\gamma_{21} = -0.48^*$</td>
<td>t = -9.02</td>
</tr>
<tr>
<td>Comfort</td>
<td>$\gamma_{31} = 0.09^{**}$</td>
<td>t = 2.16</td>
</tr>
<tr>
<td>Sporty Driving</td>
<td>$\gamma_{41} = 0.44^*$</td>
<td>t = 8.53</td>
</tr>
</tbody>
</table>

* $p < .05$

<table>
<thead>
<tr>
<th>$\eta_i$</th>
<th>$\zeta$</th>
<th>Self-Presentation of Social Status</th>
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<tr>
<td>Safety</td>
<td>$\gamma_{11} = -0.52^*$</td>
<td>t = -10.30</td>
</tr>
<tr>
<td>Economy</td>
<td>$\gamma_{21} = -0.48^*$</td>
<td>t = -9.02</td>
</tr>
<tr>
<td>Comfort</td>
<td>$\gamma_{31} = 0.09^{**}$</td>
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<tr>
<td>Sporty Driving</td>
<td>$\gamma_{41} = 0.44^*$</td>
<td>t = 8.53</td>
</tr>
</tbody>
</table>

* $p < .05$

**Test of Hypotheses H6-H7:** In order to test Hypotheses 6 and 7, a confirmatory factor analysis with mean structures was run. Since we have already established true score equivalence of the five constructs across groups, the next step is to test for intercept invariance. The hypothesis can be accepted with $\chi^2(15) = 17.81; p > .05$. Thus we can conclude that the intercepts are invariant across groups (see Table 6). Next we formally test whether the latent means of the benefit constructs and the product category goal differ significantly across strategic groups by constraining the latent means to be equal across segments. Hypothesis 6 can be accepted for the three benefit dimensions economy ($\kappa_1$), comfort ($\kappa_2$), and sporty driving ($\kappa_3$). Only the latent mean for the benefit safety ($\kappa_4$) does not significantly differ across segments. Thus 3 of 4 predictions are confirmed for Hypothesis 6. Safety is of equal relevance across customer segments defined by their patterns of brand categorization. The product category goal ($\kappa_4$) is also not invariant across segments ($\chi^2(3) = 49.40; p < .05$). As proposed in Hypothesis 7, the salience of the product category goal ‘self-presentation of social status’ differs significantly across segments with homogeneous patterns of brand categorization. Our results support the notion that the salience of the product category goal ‘self-presentation of social status’ determines the relevance of benefits. Moreover market segments, defined as consumer types with homogeneous brand categorization patterns, differ with respect to the salience of the product category goal as well as the relevance of category-specific benefits. The causal interrelations between product category goal and benefits are invariant (i.e., generalizes) across segments. The different salience of product category goals determine the salience of benefits, and thereby brand categorization, in a consumption context. Different patterns of brand categorization, in turn, determine the structure of the market.

**Interpretation of the resulting market structure:** The global fit measures of the multiple group analysis with structured means are $\chi^2(137) = 176.59$ ($p = 0.01$), RMSEA = 0.038, and CFI = 0.99 and indicate a very good model fit. The means of the latent variables in the first segment, the ‘volume brands only segment’, were constrained to zero as a baseline comparison (see Table 7). The salience of the goal, self-presentation of social status, is highest in the ‘luxury brand segment’, but almost as high in the ‘upscale segment’. The difference between the ‘volume brands only segment’ and the ‘volume brands segment’ is not significant. Thus the higher the probability of considering luxury brands, and the lower the probability of considering volume brands, the higher the degree to which respondents pursue the goal of using a car for self-presentation of social status. Consumers in both the ‘luxury brand segment’ and the ‘upscale segment’ put a higher relevance on ‘comfort’ and ‘sporty driving’, but less relevance on ‘economy’, than the ‘volume brands only segment’ and the ‘volume brands segment’.
### Model Goodness of Fit Test of Hypothesis

<table>
<thead>
<tr>
<th>Model</th>
<th>Goodness of Fit</th>
<th>Test of Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1: ( \Lambda_i ) invariant</td>
<td>( \chi^2(119, N_1=197, N_2=119, N_4=230, N_5=207) = 158.78 ) ( p = 0.0087 )</td>
<td>---</td>
</tr>
<tr>
<td>M2: ( \Lambda_i ) invariant ( \nu_i ) invariant</td>
<td>( \chi^2(134, N_1=197, N_2=119, N_4=230, N_5=207) = 176.59 ) ( p = 0.0080 )</td>
<td>( \chi^2_d(15) = 17.81 ) ( p &gt; .05 )</td>
</tr>
<tr>
<td>M3: ( \Lambda_i ) invariant ( \nu_i ) invariant ..... ( \kappa_1 ) invariant</td>
<td>( \chi^2(137, N_1=197, N_2=119, N_4=230, N_5=207) = 180.82 ) ( p = 0.0087 )</td>
<td>( \chi^2_d(3) = 4.23 ) ( p &gt; .05 )</td>
</tr>
<tr>
<td>M4: ( \Lambda_i ) invariant ( \nu_i ) invariant ..... ( \kappa_2 ) invariant</td>
<td>( \chi^2(137, N_1=197, N_2=119, N_4=230, N_5=207) = 197.06 ) ( p = 0.0006 )</td>
<td>( \chi^2_d(3) = 20.47 ) ( p &lt; .05 )</td>
</tr>
<tr>
<td>M5: ( \Lambda_i ) invariant ( \nu_i ) invariant ..... ( \kappa_3 ) invariant</td>
<td>( \chi^2(137, N_1=197, N_2=119, N_4=230, N_5=207) = 305.67 ) ( p = 0.00 )</td>
<td>( \chi^2_d(3) = 129.08 ) ( p &lt; .05 )</td>
</tr>
<tr>
<td>M6: ( \Lambda_i ) invariant ( \nu_i ) invariant ..... ( \kappa_4 ) invariant</td>
<td>( \chi^2(137, N_1=197, N_2=119, N_4=230, N_5=207) = 270.27 ) ( p = 0.00 )</td>
<td>( \chi^2_d(3) = 93.68 ) ( p &lt; .05 )</td>
</tr>
<tr>
<td>M7: ( \Lambda_i ) invariant ( \nu_i ) invariant ..... ( \kappa_5 ) invariant</td>
<td>( \chi^2(137, N_1=197, N_2=119, N_4=230, N_5=207) = 225.99 ) ( p = 0.00 )</td>
<td>( \chi^2_d(3) = 49.40 ) ( p &lt; .05 )</td>
</tr>
</tbody>
</table>

Table 6: Confirmatory factor analysis with mean structures

<table>
<thead>
<tr>
<th>Segment/strategic group</th>
<th>( \xi_1 ): Safety</th>
<th>( \xi_2 ): Economy</th>
<th>( \xi_3 ): Comfort</th>
<th>( \xi_4 ): Sporty driving</th>
<th>( \xi_5 ): Self presentation of social status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Volume brands only segment</td>
<td>0 constrained</td>
<td>0 constrained</td>
<td>0 constrained</td>
<td>0 constrained</td>
<td>0 constrained</td>
</tr>
<tr>
<td>2: Luxury brand segment</td>
<td>-0.09</td>
<td>-0.79</td>
<td>0.20</td>
<td>0.77</td>
<td>0.42</td>
</tr>
<tr>
<td>4: Upscale segment</td>
<td>-0.06</td>
<td>-0.70</td>
<td>0.22</td>
<td>0.64</td>
<td>0.36</td>
</tr>
<tr>
<td>5: Volume brands segment</td>
<td>-0.11</td>
<td>-0.07</td>
<td>-0.03</td>
<td>0.27*</td>
<td>0.09</td>
</tr>
</tbody>
</table>

* \( p < .05 \)
Apart from a picture about market segments, the proposed approach can also provide information about the possible strength of mobility barriers. Both Audi and VW have attempted to enter the luxury brand segment in the last few years. Table 3 shows that whereas only 25% of customers in this segment clearly consider Audi, 18% are at least undecided (segment 2 in Table 3). By contrast, VW is only considered by 10% of the customers in this segment, plus only 7% of customers in this segment are undecided. There is a marked difference between whether brands that are not considered are rejected or are in a neutral position. It is much more difficult for a brand to move from the ‘reject set’ into the ‘consideration set’ than it is to move from a neutral position into the ‘consideration set’. In the former case the brand has to overcome strong preferences against considering its products. Whereas 83% of the customers in the ‘luxury brand segment’ definitely reject VW, only 57% reject Audi. It is apparent that VW has much harder prospects in competing in the strategic group of luxury-car producers than Audi, because winning the ‘clear-reject’ customers of the associated luxury target segment will be connected with much higher marketing efforts, and thus sunk costs, than winning the ‘undecided’ customers to buy one’s product. The main difference between the luxury brand segment and the upmarket brand segment 4 is the barrier to entry for competitors such as VW, Opel, and Ford in the form of customers’ preference barriers. Structuring markets with customers’ brand categorization thus makes it possible to structure a market into segments as well as to map the degree of entry barriers for brands into these segments in the form of preference barriers. Furthermore, analyzing benefit importance and product category goal salience helps to understand the determinants of those preference barriers. Customers in the ‘volume brands only segment’ and the ‘volume brands segment’ differ in the emphasis they put on the benefit ‘sporty driving’ in purchase decisions. Thus the ‘volume brands segment’ is more vulnerable to competition from premium brands than the ‘volume brands only segment’ (where the benefit sporty driving is less important), as indicated by their respective pattern of brand categorization. This result is plausible because up-market brands are better able to provide the benefit of sporty driving (e.g., through making available a powerful engine and special suspension system). In the ‘volume brand segment’, the probability of considering luxury brands, such as BMW or Mercedes-Benz, is higher, and the probability of rejecting these brands is clearly lower than in the ‘volume brand only segment’.

7. Discussion

An important stream of research on strategic groups has focused on managers’ mental models of strategic groups within their industries (Osborne/Stubbart/Ramaprasad 2001; Peteraf/Shanley 1997). The underlying idea of this stream of research is to form groupings of firms based on managers’ cognitions (Reger/Huff 1993). From a psychological point of view this stream of research investigates how managers categorize companies into different groups. In this paper, we took a look at the other side of the coin and have investigated how customers categorize brands. By drawing on research on categorization processes, we have offered a theoretical grounding for investigating a customer-side approach to strategic groups and mobility barriers. Building on Cooper/Inoone (1996), we proposed that market segments/strategic groups can be defined as types of consumers with homogeneous patterns of brand categorization. Using latent class analysis we could show that brands are not uniformly distributed throughout the competitive space. Instead we have groups or brand categorization types with intense rivalry between certain brands but lessened rivalry with other brands that are mainly considered and thus competing in other groups. Our approach provides both a picture of the competitive structure of a market and market segmentation by allowing one to assign each respondent to a brand categorization type. A look at the derived segments/strategic groups (see Table 3) can help managers understand who they are competing against and how this competition varies within segments/strategic groups.

Although some researchers have concluded that ‘the literature is replete with sources of mobility barriers’ (Lee/Lee/Rho 2002, p. 731), this is the first study to investigate the strength of mobility barriers derived from customers’ brand perceptions. Structuring markets based on customers’ brand categorization patterns allows the characterization of market segments by the probability of brand consideration, brand rejection, and brand neutrality. We have demonstrated that such a characterization allows for the estimation of demand-side preference barriers that act as mobility barriers for firms. The outcome was a clear picture of preference barriers and hence – important for strategic group research – mobility barriers. Apart from estimating the possible strength of a demand-side mobility barrier, our approach can also serve to get a better picture of what kind of efforts have to be undertaken to overcome the identified mobility barriers. We conceptualized brand categorization as a goal-derived categorization process and showed that the salience of a product category goal ‘self-presentation of social status’ determined different category-specific benefits. We further showed that, according to the salience of the goal ‘self-presentation of social status’ different patterns of brand categorization evolved. These different patterns of brand categorization determine the competitive structure of a market. Based on this reasoning we could show that brand categorization types differ with respect to the salience of the product category goal as well as the relevance of category-specific benefits. Since goals and benefits determine categorizations and hence mobility barriers, firms willing to overcome those mobility barriers will need to address those prevalent customer goals and corresponding benefits. To enter the segment/
strategic group where ‘self-presentation of social status’ is a highly salient consumer goal, a firm will need to put efforts into satisfying this goal with its products. Higher spending in marketing and advertising may be needed. For the case of the VW Phaeton, such an analysis might have yielded the insight that only with a different brand name could this goal be achieved. Toyota has shown the success of such a strategy with its Lexus: the image of Lexus’ independent brand is not hurt by the identity with the corporate group of Toyota, because brand name and dealerships are kept separate. Based on our results, we would have predicted that VW would have to overcome a strong mobility barrier before entering the luxury brand segment or strategic group of luxury car producer. Strategic group research has been criticized for its inability to explain how and why competitive structures in industries come to develop (Hodgkinson 1997). In our approach, the strategic groups could be differentiated by the salience of the goal, self-presentation of social status and corresponding benefits for their respective customers.

Our research endeavour is not without limitations. Future research should investigate the simultaneous impact of multiple goals on brand categorization (e.g., Ratneswar/Pechmann/Shocker 1996). Other possible determinants such as income or dealer proximity were not investigated (see e.g. Pun/Brookes, 2001 for work on pre-decision constraints in consideration set formation). The restriction to six brands as observed indicators of the latent class variable will, as has been argued above, not deliver a complete picture of the market, per se. A larger data set would have allowed the inclusion of more brands in the model. However, the purpose of this analysis is to demonstrate the applicability of our approach to the analysis of strategic groups. Another future extension would be to investigate brand categorization on a model level. Furthermore brand categorization can vary with time and context. Thus different competitive structures might exist for different consumption contexts or situations. This could be a promising extension of our approach for fast-moving consumer goods markets. The equation of market segments and strategic groups may be criticized as an oversimplification. However, we argue that our approach is consistent with widely shared claims for simplification for categorizing brands, in: Sumney, J.D./Taylor, R.D. (eds): Evolving marketing thought for 1980, Pro-

From a managerial perspective, the identification of mobility barriers is of utmost importance for a company’s strategy definition for a number of reasons. Structuring a market based on customers’ brand categorization can give insight into which segments/strategic groups can be entered without too much effort in terms of advertising, developing a brand image, and establishing distribution channels. It can also highlight the danger of sunk costs when preference barriers are high and successful market entry may be at risk. Further, the approach supports the assessment of the danger of potential competition through new competitors and can be part of a strategic scanning system. In the short run, BMW and Mercedes-Benz should not be too concerned if, for example, Opel attempted to enter the luxury segment with a new model, because the preference barrier is very high. More than 90 % of the customers in this segment reject Opel. This obvious mobility barrier is difficult to explain from a resource-based perspective focusing on firm skills and key strategic variables. However, the behavioral perspective presented herein can provide an explanation for these preference-based mobility barriers. Looking again at the example of VW’s Phaeton, the reason for customers’ rejection will not be found in technical features but rather in customers’ brand perceptions. ‘And by all accounts the objective attributes of the Phaeton...are competitive with those of other luxury marques. Unfortunately, the company’s brand is defined not so much by its exacting producers as by its customers. It has virtually no brand equity among luxury buyers.’ (Rust/Zeithaml/ Lemon 2004). Or in the words of Axel Mess, head of Audi of America: ‘It could be the best car, but I still would not buy it because it has the VW logo and because I have to go to a VW dealership where the salesmen are used to selling Jetta and Golfs’ (Kisiel 2004). If VW’s managers thought they could overcome the mobility barrier separating VW from the luxury-brand segment, then our results suggest that customers apparently thought differently.

References
ceedings of the annual meeting of the Southern Marketing Association, Southern Marketing Association: Carbondale IL, pp. 112–114.


Herzberg, F. (1966): The work and the nature of man, Cleveland OH.


Appendix: Scale validation for benefits

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>SD</th>
<th>t-value</th>
<th>Factor loading</th>
<th>Construct reliability</th>
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<th>p₂</th>
<th>p₃</th>
<th>p₄</th>
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<tr>
<td>Highest possible safety in accidents</td>
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<tr>
<td>100 % reliability</td>
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Correlations (below diagonal), chi-square difference tests (above diagonal)

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<th>Constructs</th>
<th>χ₁</th>
<th>χ₂</th>
<th>χ₃</th>
<th>χ₄</th>
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<td>ξ₂</td>
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