

The authors explore the implications of considering a brand as representing a category consisting of its products. They report results of a laboratory experiment in which response times and verbal protocols were used to examine processes related to the evaluation of brand extensions. Evaluations of brand extensions were influenced both by the extension's similarity to the brand's current products (brand extension typicality) and by the variation among a brand's current products (brand breadth). An inverted U describes the relationship between brand extension typicality and evaluation process measures. Moderately typical extensions were evaluated in a more piecemeal and less global way than were either extremely typical or extremely atypical extensions. Subjects' attitudes toward brand extensions were correlated highly with their ratings of brand extension typicality.

A Process-Tracing Study of Brand Extension Evaluation

Brand extension has been called "the guiding strategy of product planners in the 1980's" (Tauber 1988, p. 26). With such products as Zenith computers, Atari fax machines, and Ivory shampoo, businesses attempt to use the equity built up in established brand names to help launch new products.¹ Capitalizing on an established brand name is a growth strategy that seems destined to increase in popularity as the cost of launching a new brand name skyrockets. Recent cost estimates for developing a new brand range from \$80 million to \$150 million (Aaker and Keller 1989; Tauber 1988).

Successful brand extension depends importantly on

¹The specificity of the term "product" affects whether a new product offering represents a real extension of the brand. A 19-inch portable color television set also can be described as an "electronic product" or simply as a "television set." Here we generally refer to "products" and "brand extensions" at the latter intermediate level of specificity (e.g., "television set").

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The article is based on the first author's dissertation research and was partially supported by grants from the Curtis L. Carlson School of Management and from University of Minnesota Academic Computer Services and Systems. The authors thank Del Hawkins, Debbie John, Jim Ward, Peter Wright, and three anonymous *JMR* reviewers for their comments on drafts of the manuscript.

many strategic considerations, including the appropriateness of a company's corporate structure, applicability of capital resources, and ability of personnel in the new market. It also requires that a favorable prior attitude toward current branded products transfer to a new product. For example, the makers of Zenith computers must believe that some of the positive attitudes associated with Zenith television sets and the category label "Zenith" will transfer to computers. Understanding whether and how this transfer occurs requires an understanding of the way attitudes are linked to particular category labels. Though consumer attitudes toward brands have long been recognized as crucial in marketing, consumer researchers have not considered a brand and its products as constituting a category.

The purpose of our article is to explore the implications of viewing a brand and its products as a "brand category" and, in particular, the effects of this categorization perspective for evaluating potential brand extensions. Viewing a brand as a category raises, and provides guidance for addressing, several interesting questions. Do all family-branded products share the attitude toward the brand category equally? Do consumers evaluate extensions that are similar to current family-branded products differently from those that are dissimilar to current products? Do consumers evaluate extensions of brand categories that represent a broad range of product types the same way that they evaluate extensions

of brand categories representing a narrow range of product types? To answer these questions, we first examine the structure of brand categories. Specifically, we discuss how a brand category can be described by its breadth (i.e., by the variation among its products) and posit that any current or potential branded product can be described by how typical it is of the brand category. Next we describe the processes by which a brand extension can be evaluated. Hypotheses test the way brand breadth and brand extension typicality influence the evaluation of brand extensions. Our intent is to demonstrate how theories of categorization can help marketers to anticipate the effects of brand extensions, and thus plan more coherent brand extension strategies.

BACKGROUND

Category Structure

Mervis and Rosch (1981, p. 89) state that "a category exists whenever two or more distinguishable objects are treated equivalently." However, it is the nonequivalence of category members, or "graded structure," that sets categories apart from unordered sets (Rosch, Simpson, and Miller 1976; Smith, Shoben, and Rips 1974). Graded structure and a second characteristic of category structure, brand breadth, are relevant for understanding how judgments of new brands are formed.

Graded structure. People perceive members of most naturally occurring categories as varying in their degree of typicality, or representativeness, of those categories. For example, a robin is perceived as more typical of the category "bird" than is an ostrich. Furthermore, even nonmembers differ in how typical a nonmember they are of a category. For example, an unrelated object such as a chair is a better nonmember of the category "bird" than is a butterfly. This range in category representativeness from the most representative members of a category to the nonmembers that are least similar to the category is called "graded structure" (see, e.g., Barsalou 1985; Mervis and Rosch 1981) and has been demonstrated for a variety of consumer categories (Loken and Ward 1987; Ward and Loken 1986). In the context of brand extension, graded structure implies that some products are more representative of a brand category than are others, and preliminary data support this assumption.²

²To verify that groups of products represented by brand names can have category structure, 30 men and 46 women 18 to 75 years of age were interviewed by telephone from a sample of 190 names drawn at random from the telephone directories of two large midwestern metropolitan areas. Respondents were asked to rate various products as examples (0 = very poor example, 10 = very good example) of the brands Sony, Jello, Kraft, and Gucci. For each brand, three products were very good examples (e.g., Sony television set, Gucci shoes), three were moderately good examples (e.g., Sony camera, Gucci cosmetics), and three were very poor examples (e.g., Sony shoes, Gucci television set). Intersubject agreement about the relative goodness of example for these products was highly significant ($p < .000$) across all four brands as measured by Kendall's coefficient of concordance (Barsalou 1983).

Brand breadth. Another aspect of brand knowledge structure that may influence judgments about a brand extension is brand breadth. Brand breadth refers to the variability among product types represented by a brand name. For example, the category "Heinz products" would be extremely narrow if the only product type were ketchup; it would be extremely broad if it also included lawn mowers and dishwashers. The current Heinz product offering that includes baby food, sauces, soups, and other processed foods is somewhere between those two extremes in breadth.

Brand breadth appears to be a result of the typicality of brand extensions. If brand managers consistently extend the brand by offering new products that are very much like (i.e., typical of) current ones, a narrow brand results. If brand extensions are very different from (i.e., atypical of) current products, a broad brand results. It seems clear, furthermore, that as new products become established, people's beliefs about what is "typical" of the category will be revised.

The Effect of Brand Breadth on Perceived Typicality

Now let us suppose that one of two conditions prevails: a brand name is associated (1) exclusively with soups (a narrow brand) or (2) with soups, condiments, and frozen vegetables (a broad brand). Consider a new kind of soup and canned vegetables as two potential extensions of either the narrow brand or of the broad brand. For the narrow soup brand, another soup is an extremely typical member of the family-brand category. The new soup probably shares nearly all the salient features of the current family-branded products (e.g., a healthful food, a stand-alone meal, watery consistency). The potential brand extension canned vegetables, in contrast, is not a very typical member because it shares only a few characteristics with soups (e.g., it is a healthful food but not a stand-alone meal). Further, soup cannot be as typical a brand extension for the broad brand as it is for the narrow brand because it shares fewer of the characteristics of current products (e.g., it shares most characteristics with soups but few with condiments or frozen vegetables). Canned vegetables, however, are more typical of the broad brand than of the narrow soup brand because canned vegetables share many of the features of frozen vegetables, one of the current family-brand members.

As the preceding example illustrates, brand breadth should interact with brand extension typicality; perceptions of typicality should be more extreme for narrow brands than for broad brands. Brand extensions that are essentially the same as the brand's current products should be perceived as more typical if the brand is narrow than if the brand is broad. However, brand extensions that are very different from (any of) the brand's current products should be perceived as less typical if the brand is narrow than if the brand is broad.

It is important to note that the preceding propositions would not hold if categorization of novel objects oc-

curred by matching the new instance with any current category exemplar (e.g., its "nearest neighbor"). Reviews of recent evidence (cf. Barsalou 1990; Malt 1989) support a model in which either exemplar or abstract prototypes can be used. Therefore,

H₁: Typicality ratings for extensions of narrow brands are more extreme than typicality ratings for extensions of broad brands.

Piecemeal and Categorical Evaluation Processes

Relevant to the study of brand extension is the way in which the affect associated with the category generalizes to the brand extension. Following Fishbein and Ajzen (1975), we view an attitude (e.g., toward a brand extension) as the location of an object or concept on an affective dimension. Attitudes toward brand extensions can be formed in at least two ways. In one, an attitude is "computed" from specific attributes of the extension. Such a process has been termed "analytical" (Cohen 1982), "piecemeal" (Fiske 1982), or "computational" (Brooks 1978). A variety of computational models (e.g., Bettman, Capon, and Lutz 1975) have proved useful both for predicting consumer attitudes and for diagnosing the bases of attitudes. However, the models do not purport to describe conscious evaluation processes.

A different group of models (cf. Brewer 1988; Fiske 1982; Srull and Wyer 1989) relies on categorization processes to describe attitude formation. If a new instance (e.g., a brand extension) is identified as belonging to a previously defined category (e.g., a brand), the attitude associated with that category can be transferred to the new instance. Fiske, for example, argues from data on person perception that an object will receive the attitude associated with a category or schema to the extent that it is perceived to fit the category. Similarly, Srull and Wyer propose that people attempt to form general impressions of other people and will use such impressions both to assess new information and to make subsequent judgments. Other researchers who describe attitudes as being associated with a category rather than generated by inferences about individual attributes have examined affect referral (Wright 1976) and category-based processing (Sujan 1985).

Retrieval of prior affect and computation of affect are two processes that should not be assumed to be mutually exclusive in any given affective reaction. For example, retrieved affect could influence beliefs about a product, which in turn could influence the attitude toward the product. Some models, two of which are discussed here, explicitly incorporate both retrieval and computational processes. In one such model, Fiske and Pavelchak (1986) propose a two-step process for evaluation. The first step involves an attempt to match the new object with a current category. If categorization is successful (i.e., if there is a match), the affect associated with the category label is applied to the new object and the evaluation process is complete. If there is a poor match between the object and category knowledge, piecemeal processes are evoked

and affect is computed through a weighted combination of attributes.

Smith, Shoben, and Rips (1974) propose a two-step model for judging whether a concept or object is a member of a category. In the first step, which is rapid, one tries to match the features of the category with the features of the object. When there is a clear match or a clear mismatch, the process is complete. When some features match and some do not match, a second, slower stage of processing is necessary. During the second stage, a more careful comparison of defining features of the category is made to determine whether the object is a member of the category.

Both the Fiske and Pavelchak model and the Smith, Shoben, and Rips model involve a two-stage process. The first stage is rapid and global whereas the second stage is slower and more deliberate. However, the former model describes affective responses to a new object; the latter model addresses category membership but not affect. In the case of brand extensions, we are interested primarily in the way in which people evaluate the new product *affectively*, which in turn depends on the new product's "fit" to the originating brand. Once people are informed that a new extension has been made by a particular company, they may evaluate the new product as desirable or undesirable on the basis of (1) whether they like the originating brand and (2) whether the new product is representative of or similar to the brand's current products.

Though not explicitly addressing this issue of evaluation, the Smith, Shoben, and Rips model raises the interesting possibility that when an extension is very discrepant from the original category, a rapid evaluation may occur. The Fiske and Pavelchak model predicts that mismatches, whether clear or ambiguous, evoke slow, piecemeal processes. Following Smith and his coauthors, we believe there is an alternative to the Fiske and Pavelchak model whereby both clear matches and clear mismatches of the original brand category are evaluated more rapidly than moderate mismatches. This prediction is also consistent with the literature (e.g., Mervis and Rosch 1981), which shows that both (1) the more similar an exemplar is to a prototype of the category, the more quickly it will be judged as a member of that category, and (2) the more dissimilar a nonmember of a category is to a prototype, the more quickly it will be judged to be a nonmember of (or "poor fit" to) the category. Evaluating a new brand extension presents people with a category verification task (e.g., they verify that a new condiment is an acceptable member of the brand category "Heinz products"). Very atypical extensions are quickly judged to be a "poor fit" with the current brand image and elicit fewer piecemeal processes than do moderately typical brand extensions. Very typical brand extensions also should elicit only the first stage of evaluation, without need for slow, piecemeal processes.

In summary, the relationship between brand extension typicality and evaluation response time is hypothesized

to be an inverted U. That is, extremely atypical potential members of a brand (e.g., Heinz floor wax) should be evaluated rapidly because a clear mismatch between brand and brand extension elicits only the first stage of evaluation. Moderately plausible brand extensions (e.g., Heinz instant coffee) should elicit the second, slower stage of evaluation because neither category membership nor category nonmembership is obvious. The consumer is likely to judge, in a piecemeal way, whether the attributes that make up the abstract representation associated with the current brand name can be used to develop the potential extension. Finally, extremely typical brand extensions (e.g., a new Heinz sauce), like extremely atypical brand extensions, should require only the rapid first stage of evaluation. Because piecemeal processes are indicated by slow response times and more attribute-focused or inferential cognitive responses (cf. Sujun 1985), we predict:

- H₂: Extremely *typical* brand extensions are evaluated more rapidly than moderately typical brand extensions.
- H₃: Extremely *atypical* brand extensions are evaluated more rapidly than moderately typical brand extensions.
- H₄: Extremely *typical* brand extensions elicit fewer attribute-related (piecemeal) cognitive responses than do brand extensions that are moderately typical of the brand.
- H₅: Extremely *atypical* brand extensions elicit fewer attribute-related (piecemeal) cognitive responses than do brand extensions that are moderately typical of the brand.

Additionally, because narrow brands are expected to promote extreme perceptions of brand extension typicality (H₁), it follows that extensions of narrow brands should be less likely than extensions of broad brands to require the second stage of evaluation. Therefore:

- H₆: The evaluation of an extension of a narrow brand is more rapid than the evaluation of an extension of a broad brand.
- H₇: The evaluation of an extension of a narrow brand elicits fewer piecemeal cognitive responses than does the evaluation of an extension of a broad brand.

Effects of Brand Extension Typicality on Evaluation

So far we have examined the nature of the evaluation process rather than the outcomes of categorization processes. Suppose people have information about products representing a family brand and then report their attitude toward a potential brand extension. A spreading activation model of memory (Collins and Loftus 1975) depicts this information as nodes connected by links that indicate relative proximity in a semantic network. Such a model suggests that typical category members (i.e., typical brand extensions) are linked more closely to the affect of the category (the brand). The concept of schematic fit (Fiske 1982) also suggests that similar objects elicit similar affect. Therefore, a judgment of poor fit is likely to have affective consequences. Unless the orig-

inal brand has a negative affective label, the more discrepant the brand extension is, the less positively it will be evaluated as an instance of the original brand. Intuitively, from a brand management perspective, this notion seems logical. Atypical brand extensions are less likely to share the advantages that the brand name has accrued, and the resulting evaluation will be less positive than the evaluation of a brand extension that is typical of the family brand category (Boush et al. 1987). Hence,

- H₈: For positively evaluated brands, a brand extension's degree of typicality of the family brand is related positively to subjects' evaluations of the extension. That is, brand extensions are liked better if they are typical of the original family-brand category than if they are not.

Finally, if the breadth of a brand's current products influences the perceived typicality of potential brand extensions, then, by the same arguments proposed previously, brand breadth should likewise influence attitude toward the brand extensions (cf. Judd and Lusk 1984; Linville 1982; Parducci and Wedell 1986). Therefore,

- H₉: Subjects' reported affect toward an extension of a narrow brand is more extreme than that toward an extension of a broad brand.

METHOD

The objective of our study was to determine the effect of brand category structure, in particular the effect of brand breadth and brand extension typicality, on the evaluation of potential brand extensions. Though the situation described here for brand extensions differs from that described in the person perception literature—the objects are products rather than people—the models should nevertheless be relevant to testing hypotheses about the processes and outcomes of categorizations of potential new extensions.

Brand information was manipulated and subjects evaluated a series of potential brand extensions that varied systematically from an established brand concept. The evaluation process was traced by using response times and verbal protocols. Attitudes toward the potential extensions were assessed by means of rating scales. Rather than using actual brands, for which brand breadth could not be varied systematically without introducing brand history confounds into the study design, we developed fictitious brands that systematically varied in brand breadth and the typicality of brand extensions.

Design

The study was a 2 × 5 mixed design with two levels of brand breadth (narrow or broad) and five levels of brand extension typicality. The latter was a repeated measure. Two replicates of this experiment were conducted for each subject, one involving brands associated with grocery products and the other involving brands associated with electronic products. All brand extensions in the grocery products replicate were extensions of a

brand described in a cover story as "brand B" and all extensions in the electronic products replicate were described as extensions of a brand called "brand G."

Independent Variables

Brand extension typicality. Brand extension typicality was manipulated as a within-subjects variable. Subjects evaluated potential brand extensions that ranged from very similar to the brand's current products to very different from current products. Rating scales have been used previously as an appropriate measure of perceived similarity (Sujan and Dekleva 1987; Ward and Loken 1986), and typicality measures that employ similarity scales have been used frequently (e.g. Barsalou 1985; Rosch and Mervis 1975; Tversky 1977).

A pretest was conducted to select potential brand extensions that would provide a range in similarity to soup, condiments, and frozen vegetables (the "current" brand B products) and to television sets, calculators, and digital watches (the "current" brand G products). Pretest subjects were also asked to think of extensions that were extremely unlikely. On the basis of the graded mean similarity to current products, the potential extensions of brand B (the grocery products) were selected to be frozen vegetables, chunky stew, steak sauce, breakfast cereal, canned fruit, toothpaste, floor wax, and pet food. The potential extensions of brand G (the electronics products) were selected to be television sets, calculators, digital watches, cameras, refrigerators, ballpoint pens, bicycles, and garbage cans. Potential brand extensions in each replicate included products that were "the same" as those of the current brand, products that were extremely different from those of the current brand (almost nonsensical), and products that were moderately different from those of the current brand.

Brand breadth. Brand breadth was manipulated for fictitious brands as a between-subjects factor with two levels. Brands were constructed artificially to be composed either of very similar products or of a more diverse groups of products. A narrow brand in the grocery products replicate was composed of soups only, condiments only, or frozen vegetables only; a broad brand was composed of soups, condiments, and frozen vegetables. A narrow brand in the electronic products replicate was composed of television sets only, calculators only, or digital watches only; a broad one was composed of television sets, calculators, and digital watches. By including three narrow-brand conditions for each broad-brand condition, we attempted to hold the type of product constant between the two breadth levels and so eliminate confounds due to type of product. Also note that, for the broad brands, three different potential extensions in each replicate could be "the same" as current products.

Procedure

The subject sat at a desk that was facing a video camera approximately seven feet away. The subject then went

through the following procedure for each of two replicates. The subject was asked to read a booklet containing three kinds of information about a fictitious brand (e.g., brand B) and its competitors (e.g., brands A, C, and D). The first kind of brand information conveyed similarities in size and age of the parent companies. This information was provided as an overview of the companies and was included to minimize unwanted inferences by subjects when they were told later about differences in the products sold under each brand. The second kind of information was intended to manipulate brand breadth. It included a description of each brand's product mix. The third kind of information provided more specific information about each brand's products. It was designed to induce a positive attitude toward the target brand. Each brand was described by listing products along with evaluations of those products in a *Consumer Reports* format. At the end of the booklet were instructions for the subject to look over all the information on the brands until "you feel you have formed an impression of the four brands." The rationale for including information about the competitive brands was to provide a context for the target information. When the subject had formed an impression of each brand, he or she was instructed to turn the page and rate each brand's products on three semantic differential attitude scales (described subsequently).

After evaluating the four brands, the subject returned the first booklet and received a second booklet. He or she was asked to read along as the experimenter read the instructions aloud. Subjects were told that the next part of the study pertained to the way they would rate some new products that might be made by brand B (or brand G) and that they would be asked to rate several potential brand B (or brand G) products one at a time. They were asked to think out loud while evaluating each product. The subject then turned the page and read aloud a question such as, "How would you rate brand B breakfast cereal?", and completed two semantic differential attitude rating scales (described subsequently). The subject evaluated all of the potential brand extensions in this way. (The first was for practice only.) The time required for the subject to evaluate each brand extension and the verbalizations made during each evaluation were recorded by means of a video camera (Pentax PV-C55A) equipped with a stopwatch function (RCA CGA020). The order in which subjects evaluated the brand extensions was determined randomly and then reversed for half of the subjects. The order of the replicates was reversed for half of the subjects and the design was balanced for combinations of order effects between replicates.

After subjects had evaluated brand extensions for both replicates, they completed background questions and gave personal demographic information. Finally, similarity and recall measures were taken to ensure that brand breadth and brand extension typicality were manipulated as intended. The entire procedure took from 20 to 30 minutes per subject.

Dependent Variables

Typicality was measured by asking subjects to rate the similarity of each potential brand extension to "products the brand currently makes" on a 7-point bipolar scale (1 = dissimilar, 7 = similar). (Remember that typicality of the brand extension is included in the study as not only an independent variable but also a dependent variable because *perceived* typicality is predicted to depend on whether the brand is narrow or broad.)

Attitudes toward the brand extension (evaluative *outcomes*) were measured on two 7-point semantic differential scales anchored by favorable/unfavorable and desirable/undesirable (cf. Burke and Edell 1989). Evaluative *processes* were measured by the length of time taken by a subject to make an evaluation and by concurrent verbal protocols. The response time used in these analyses was measured from when subjects finished reading the question on the brand extension until they marked the first rating scale. This interval omits both the reading time and the time for subjects to read and consider multiple scales, which can vary across subjects.

Subjects

Subjects were 144 university students, 72 in each of the two breadth conditions. The narrow brand conditions were balanced further by product. That is, in the electronics replicate, 24 subjects reacted to brands represented by television sets only, 24 to brands represented by calculators only, and 24 to brands represented by digital watches only. In the narrow brand conditions of the grocery products replicate, 24 subjects reacted to brands represented only by frozen vegetables, condiments, and soups, respectively. Subjects each were paid \$5.00 and, in some cases, given extra credit for participation. Subjects were assigned randomly to experimental conditions within each of the two replicates. Those who were assigned to the narrow brand experimental conditions in the first replicate were assigned to the broad brand condition in the second, and vice versa.

RESULTS

The responses were analyzed, for the most part, in a 2 (narrow brand/broad brand) \times 5 (potential brand extensions ranging from the same as current products to very different from current products) repeated measures analysis of variance design.

Hypothesized effects were tested by performing both univariate and multivariate analyses of variance. The homogeneity of variance assumption was not met in any of the analyses. That is, the observations were significantly correlated within subjects (Greenhouse-Geisser epsilon ranged from approximately .80 to .90). Conventional univariate analyses therefore would produce inflated type I errors, implying an overly liberal test of the hypotheses (Geisser and Greenhouse 1958). The preferred solution to this problem is to perform multivariate analyses of variance on the within-subjects effects, which produce

accurate estimates of type I errors without an assumption of any particular form of the variances and covariances among the repeated measures (LaTour and Miniard 1983).

Manipulation Checks

Affect toward the brands. The assumption was that in order to transfer attitude from a brand's current products to new products, subjects had to construct an attitude toward the brand's current products. Providing product ratings in a *Consumer Reports* format (as described previously) was the means by which we tried to create these positive attitudes. Evaluations on three 7-point bipolar adjective scales anchored by desirable/undesirable, favorable/unfavorable, and high quality/low quality, respectively, yielded means ranging from 5.3 to 6.0, all acceptably positive. There were no significant differences between brands on these measures.

Brand extension typicality. Subjects were asked to rate the similarity of each potential brand extension to "products the brand currently makes" on a 7-point bipolar scale (1 = dissimilar, 7 = similar). The results indicated that the potential brand extensions represented a range in similarity to the brand's current products in both replicates (see Table 1). However, among electronic products, the ballpoint pen and bicycle were equally dissimilar to current products. Because the bicycle did not constitute an additional level of the typicality manipulation, it was dropped from the analyses.³

Brand breadth. Subjects were asked to name the products they recalled that brand B and brand G "currently make." For the manipulation to have worked (and be recalled) perfectly, all subjects in the narrow brand conditions should have remembered only one kind of product (e.g., frozen vegetables only, condiments only, or soup only) and all subjects in the broad brand conditions should have named three kinds of products (e.g., frozen vegetables, condiments, and soup). The manipulation worked well, if not perfectly. Nearly all subjects (98%) in the narrow brand conditions for both brand B and brand G recalled one product type. Most subjects (78%) in the broad brand conditions accurately recalled three product types.

Brand Extension Typicality as a Dependent Measure

H₁ predicts that typicality would interact with brand breadth; specifically, that typicality ratings for extensions of narrow brands would be more extreme than typicality ratings for broad brands. As predicted, there is a significant interaction between brand breadth and the product within-subjects factor in multivariate analyses of variance for both the grocery products replicate ($F_{4,139} = 4.27$; $p < .003$) and the electronic products replicate ($F_{3,138}$

³Analyses conducted without the bicycle and without the ballpoint pen were substantively the same. The bicycle was chosen to be dropped because of indications that it produced the only significant order effect in the analyses.

Table 1
CELL MEANS FOR DEPENDENT MEASURES

	Typicality rating			Attitude rating			Response time			Percent piecemeal responses		
	Narrow brand	Broad brand	Overall	Narrow brand	Broad brand	Overall	Narrow brand	Broad brand	Overall	Narrow brand	Broad brand	Overall
<i>Grocery products</i>												
"Same" product	6.72	6.32	6.52	12.22	11.44	11.83	8.41	9.66	9.02	6.9	15.3	11.1
Canned fruit	4.67	5.07	4.87	9.76	10.53	10.14	8.93	11.14	10.03	18.1	18.1	18.1
Breakfast cereal	3.34	3.76	3.56	8.66	8.94	8.80	9.45	12.52	10.98	11.1	11.1	11.1
Toothpaste	1.99	1.92	1.95	6.45	6.87	6.66	8.58	10.58	9.57	6.9	9.7	8.2
Floor wax	1.38	1.32	1.35	5.59	5.79	5.69	9.50	8.41	8.97	6.9	5.6	6.3
<i>Electronic products</i>												
"Same" product	6.83	6.56	6.69	11.66	12.22	11.94	8.04	8.26	8.15	4.2	21.4	12.7
Camera	4.69	5.53	5.11	10.00	10.83	10.44	10.65	10.23	10.44	22.2	20.0	21.1
Refrigerator	3.08	3.76	3.43	8.14	8.94	8.53	10.25	12.55	11.40	12.5	17.1	14.5
Ballpoint pen	2.26	2.11	2.18	7.87	7.66	7.79	11.56	10.27	10.91	9.7	7.1	8.4

≈ 9.74 ; $p < .000$). In both replicates, results indicate that brand breadth influenced the perceived typicality of products. For potential extensions that were essentially the same as current products, the perceived typicality ratings were higher when the brand originally represented a narrow range of product types than when it represented a broad range of product types (mean = 6.72 vs. 6.32 in the grocery replicate; 6.83 vs. 6.56 in the electronics replicate).

The opposite pattern of results occurred for potential extensions that were moderately different from the brand's current products. Canned fruit, for example, was rated as more typical of the current grocery products brand when the brand represented a broad range of products than when it represented a narrow range (mean = 5.07 vs. 4.67). Similarly, the camera was rated as more typical of current electronic products when the brand was broad than when it was narrow (mean = 5.53 vs. 4.69).

Hence, narrow brands increased the perceived typicality of brand extensions that were about the same as current products and decreased the perceived typicality of products that were moderately different from current products, supporting H_1 . However, as shown in Table 1, when the potential extensions were very different from the brand's current products, differences between narrow and broad brand conditions were small.

Effects on Response Time

Several hypotheses were made about the speed with which subjects make judgments. Faster judgments are assumed to be associated with categorical processing and slower judgments with piecemeal processes. Preliminary analyses of response times revealed substantial positive skewness, indicating that a transformation to normalize the data was appropriate (Kirk 1982). Therefore the

analyses of variance reported here employed natural logarithmic transformations of the response times.⁴

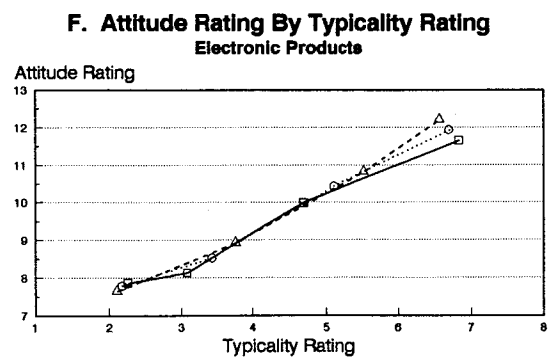
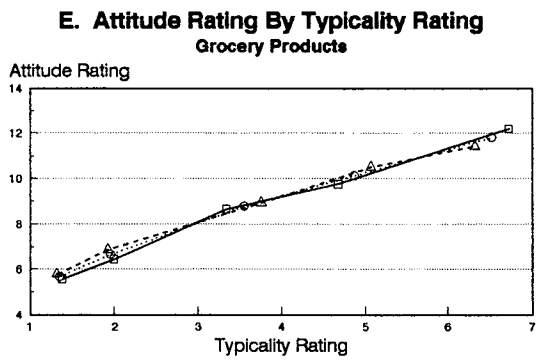
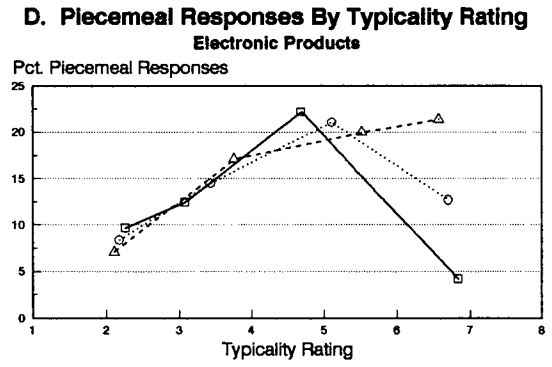
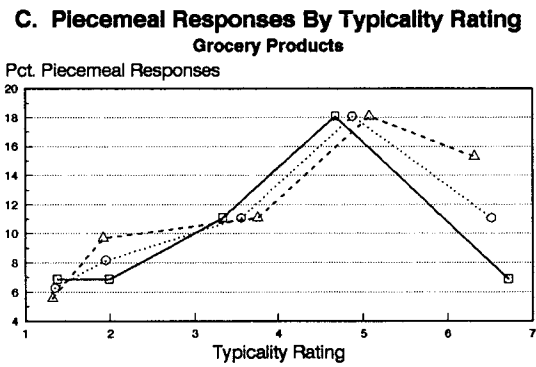
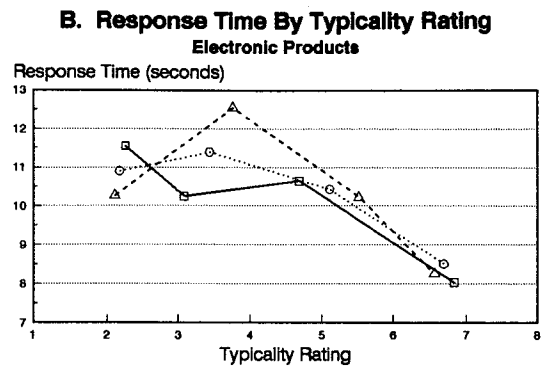
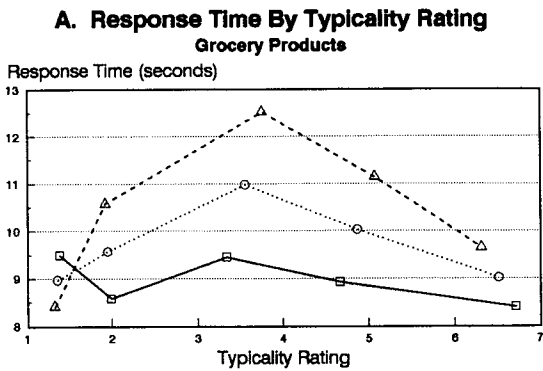
Effects of typicality on response time. H_2 predicts that extremely typical brand extensions would be evaluated more rapidly than moderately typical brand extensions; H_3 predicts that extremely atypical brand extensions would be evaluated more rapidly than moderately typical ones. A main effect for the product within-subjects factor is significant in the electronic products replicate ($F_{3,133} = 14.20$; $p < .000$). Results vary in the predicted direction but are not significant in the grocery products replicate ($F_{4,127} = 1.92$; $p < .111$). Brand extensions that were "the same" as current products were rated more rapidly than any of the other brand extensions in the electronics replicate, supporting H_2 (see Table 1). Further, the brand extensions that were most atypical were evaluated faster than more moderately atypical extensions, supporting H_3 .

Because typicality also was included in the study as a dependent variable, and hypotheses pertain to perceived typicality of extensions, we believe it is also useful to examine the changes in response times as a function of this continuous-level variable. Therefore, for each replicate, response times are also shown plotted against degree of reported typicality in Figure 1, A and B. Again, overall, the predicted curvilinear relationship between perceived typicality and speed of judgment (response time) is indicated.

Effect of brand breadth on response time. H_6 predicts that extensions of narrow brands would be evaluated more

⁴Response times could be recorded fairly precisely by using slow-motion and freeze-frame controls. A subset of 30 randomly chosen responses were timed twice. The mean difference between the times was just under .15 second and the maximum difference was .30 second. Errors of this magnitude should not significantly affect the analyses.

Figure 1
EFFECT OF BRAND EXTENSION TYPICALITY AND BRAND BREADTH ON RESPONSE TIMES, PIECEMEAL COGNITIVE RESPONSES, AND ATTITUDE RATINGS



Narrow —□— Broad —△— Overall —○—

rapidly than extensions of broad brands. Though on average potential extensions of narrow brands were evaluated more rapidly than those of broad brands (mean = 8.97 vs. 10.46 for the grocery replicate; mean = 10.12 vs. 10.32 for the electronics replicate), the main effect of brand breadth is not significant in either replicate ($F_{1,130} = 1.98$; $p < .161$ in the grocery replicate; $F_{1,135} < 1$ in the electronic products replicate). However, an interaction between brand breadth and product typicality is significant in multivariate tests involving the grocery products replicate ($F_{4,127} = 2.41$; $p < .05$) and is close to conventional significance in the electronic products replicate ($F_{3,133} = 2.14$; $p < .098$).

Because of its marginal significance, this interaction must be interpreted cautiously; however, it can be interpreted in two ways. First, as shown in Table 1, extensions of narrow brands were evaluated more rapidly than those of broad brands, but only when the potential extension was not very different from the brand's current product (the one exception was the camera in the case of electronic products). For example, as predicted, the product that was "the same" as one that the brand already made was evaluated more rapidly for narrow brands than for broad brands (mean = 8.41 vs. 9.66 seconds in the grocery replicate; mean = 8.04 vs. 8.26 seconds in the electronics replicate). However, the potential brand extension that was most atypical of the brand's current products was evaluated faster for broad brands than for narrow ones (for floor wax, mean = 8.41 vs. 9.50 seconds; for ballpoint pen, mean = 10.27 vs. 11.56 seconds). A second interpretation of these data sheds some light on H_2 and H_3 . As can be seen in Figure 1, A and B, the predicted inverted-U-shaped relationship between typicality and response time is more evident for broad than for narrow brands. For narrow brands, not only is the shape of the curve flatter, but also the response times for the most atypical extension increase.

Effects on Cognitive Responses

Protocols were coded into categories for thoughts relating to specific product attributes and thoughts drawing inferences about the products. Thoughts about product attributes or inferences drawn about the suitability of the potential brand extensions expressed "piecemeal" processes. Subjects' thoughts were coded by three judges. One judge coded all the responses and two judges each coded responses from a different group of 20 subjects. Disagreements were resolved by the first author and all responses were coded. Interjudge agreement averaged 83%. Because the majority of subjects made no piecemeal responses, cognitive responses were treated as a categorical variable and the proportion of subjects rendering piecemeal responses when evaluating a particular product was compared across factors.

Effects of typicality on cognitive responses. H_4 and H_5 propose respectively that extremely typical and extremely atypical brand extensions would evoke fewer piecemeal processes than would moderately typical brand

extensions. Goodness-of-fit tests confirm this result both for grocery products ($\chi^2 = 9.58$; $p < .05$) and for electronic products ($\chi^2 = 14.01$; $p < .003$). The overall percentage of subjects rendering piecemeal responses is greater for the two moderately typical brand extensions in each replicate (18.1% for canned fruit; 21.1% for the camera) than for either the "same" (11.1% in the grocery replicate; 12.7% in the electronics replicate) or the extremely atypical brand extensions (6.3% for floor wax; 8.4% for ballpoint pen). H_4 and H_5 are supported. Furthermore, in contrast to response time results, when cognitive responses are plotted by perceived typicality (see Figure 1, C and D), the predicted inverted-U-shaped relationship appears to be more evident for narrow than for broad brands.

Effect of brand breadth on cognitive responses. H_7 predicts that extensions of a narrow brand would evoke fewer piecemeal thoughts than extensions of a broad brand. This hypothesis is supported only for "the same" product in the electronic products replicate ($\chi^2 = 8.1$; $p < .004$). Brand extensions that were the same as the brand's current products elicited piecemeal processes more often for broad (21.4%) than for narrow (4.2%) brands. Results for "the same" product in the grocery products replicate (15.3% vs. 6.9% for broad and narrow brands, respectively) vary in the expected direction but are not significant. A new product that is just like those the brand already makes seems more likely to evoke thoughtfulness if the brand consists of a variety of products than if it consists of only one kind of product. Though this is an interesting result, H_7 is not supported overall.

Effects on Attitude

The correlations between the "desirability" and "favorability" scales range from .81 to .92. Consequently, attitude was measured by summing the two scales to produce a single 14-point scale (with a rating of 8 as the neutral point).

Effect of product typicality on attitude. H_8 predicts that the more typical a potential extension is of the brand, the more positively it would be evaluated. The results support that hypothesis. Main effects for product typicality are significant in both the grocery products replicate ($F_{4,139} = 117.71$; $p < .000$) and the electronic products replicate ($F_{3,140} = 64.98$; $p < .000$). Atypical extensions were perceived very negatively in the grocery products replicate and slightly below the neutral point in the electronic products replicate (see Table 1). The correlation between attitude and perceived typicality ratings averages .50 in the grocery replicate and .48 in the electronics replicate. This relationship between typicality and attitude ratings is demonstrated graphically in Figure 1, E and F.

Effect of brand breadth on attitude. H_9 predicts that extensions of narrow brands would elicit more extreme attitudes than extensions of broad brands. The results generally support that hypothesis. The main effect of breadth is significant in the electronic products replicate

($F_{1,142} = 5.07$; $p < .026$); the interaction between brand breadth and product typicality is significant in the grocery products replicate ($F_{4,139} = 2.92$; $p < .023$) and is close to conventional significance for the electronic products replicate ($F_{3,140} = 2.40$; $p < .070$).

In the grocery products replicate, as predicted, the range of attitude is greater for narrow than for broad brands. For example, brand extensions that were the same as the brand's current products were perceived as more desirable when the brand was narrow (mean = 12.22) than when the brand was broad (mean = 11.44). In contrast, brand extensions that were most dissimilar to the brand's current products were perceived as less desirable when the brand was narrow (mean = 5.59) than when it was broad (mean = 5.79). In both replicates the attitude ratings were higher for moderately typical brand extensions when the brand was broad than when it was narrow. (For the moderately typical extension canned fruit, the mean is 10.53 for the broad brand and 9.76 for the narrow brand. For the camera, the mean is 10.83 for the broad brand and 10.00 for the narrow brand.) Apparently, extensions that are somewhat different from the current offerings are considered more acceptable if the company has already extended to different products.

Finally, attitudes were plotted against perceived typicality ratings. However, note that because brand breadth had the same effect on typicality ratings as on attitude ratings, the plots in Figure 1, E and F, disguise the effect of brand breadth.

DISCUSSION

Consistent with conceptual frameworks developed in cognitive and social psychology, brand extension typicality and brand breadth had significant effects on the evaluation processes and evaluation outcomes associated with a potential brand extension. These findings and implications for categorization models that examine evaluation processes are addressed in the sections that follow.

Brand Extension Typicality

Both replicates of our study show a direct linear relationship between typicality and attitude ratings for potential brand extensions. As predicted, attitude transfer from the current brand to potential extensions did not occur in an all-or-nothing way. The negative attitude toward extremely unlikely or atypical products that a brand might make went beyond the failure of a positive attitude to "rub off" on the new product. Particularly in the grocery products replicate, subjects seemed to find atypical brand extensions fundamentally wrong for the brand. This result is different from what has been predicted in the person perception literature for schematic fit. Specifically, Fiske (1982) posited that when a person does not fit a particular schema, the affective response is neutral or slightly positive pending identification of the person as a good fit with another schema.

One possible reason for this difference in predictions

is that different classifications have different consequences. You should be less bothered when a librarian does not fit your "librarian" stereotype than when a doctor who is about to operate on you does not fit your "surgeon" stereotype. Similarly, though to a lesser degree, negative consequences are implied by atypical brand extensions. For example, an atypical brand extension may be regarded negatively if it is perceived to require expertise outside the originating company.

Brand Breadth

Results indicate that brand breadth interacted with brand extension typicality. Specifically, when the brand made a variety of products, an extension that was essentially the same as a current product was perceived as not as typical as when the brand made only one type of product. However, greater breadth increased the perceived typicality of moderately discrepant extensions. The preceding discussion may imply that a narrow brand such as Campbell's has an advantage over a broader brand such as Heinz in offering a new soup, but Heinz has an advantage over Campbell's in offering a moderately different extension such as a new line of frozen vegetables. Finally, brand breadth had little effect on the perceived typicality of extremely discrepant extensions, suggesting that breadth and typicality are relative, rather than absolute, magnitudes. For any particular level of brand breadth, some products are so discrepant as to make the brand category seem relatively narrow. Therefore, neither a narrow brand such as Campbell's nor a broader brand such as Heinz would have an advantage in offering an extremely discrepant extension such as toothpaste.

A narrow brand may not always have an advantage when offering new products that are essentially the same as current ones. Results in the electronic products replicate indicate that the extensions of the broad brand generally were perceived more favorably than the extensions of the narrow brand. In the replicate in which brand narrowness seemed disadvantageous, the brand's current products were calculators, television sets, and digital watches. Perhaps a brand that made only digital watches or calculators was viewed as overspecialized. Recent findings (Aaker and Keller 1989) substantiate the importance of perceived expertise in positive evaluations of brand extensions. Possibly groups of related products fortify a brand image, particularly one in which technical expertise has an important role.

Evaluation Processes

The evidence reported here is consistent with an evaluation model that includes both categorical and piecemeal processes. As hypothesized, categorical processes predominated when consumers evaluated products that were "the same" as the brand's current products and piecemeal processes predominated when consumers evaluated products that were moderately different from the brand's current products. However, there are also several deviations from the predicted U-shaped relation-

ship between brand extension typicality and the process measures.

Response times for extensions of narrow brands deviate from the predicted curvilinear pattern in that extremely atypical extensions of narrow brands took longer to evaluate than did moderately typical extensions, a result consistent with the Fiske and Pavelchak model. Perhaps subjects were somewhat confused by the prospect of a company extending its brand from, say, condiments to toothpaste. Atypical extensions of broad brands may have evoked less confusion because the brand at least had already demonstrated expertise in multiple product lines.

The relationship between typicality and response time is much flatter for narrow brands in the grocery products replicate than in the electronic products replicate. One explanation for this difference is the types of products tested. Subjects may have evaluated grocery products and electronic products very differently. Because electronic products are more technically complex, the evaluative criteria for a brand extension may be based on the perceived expertise of the manufacturer. However, the evaluation of a grocery product brand extension may be based more on subjective criteria for the appropriateness of using the same brand on products with extremely different attributes. Perhaps brands that make technically complex products (calculators, television sets) encourage consumers to scan their memories more thoroughly for a way to match the brand extension with a feature of the brand's current products. Future research might explore this issue further.

A notable aspect of the response times and cognitive responses in the electronic products replicate is that the extremely atypical product (ballpoint pen) took as long to evaluate as the moderately typical products (camera and refrigerator) but did not elicit piecemeal cognitive responses in nearly as many subjects. This finding suggests that the two process indicators may have measured different aspects of piecemeal processing. The response times seem to have measured the difficulty of finding points of similarity or difference between the brand extension and current products, whereas the cognitive responses measured the frequency with which relevant points of similarity or difference were found. Apparently, subjects scanned their memories for points of similarity or difference between current products and the potential brand extension, and verbalized any that seemed relevant. Response time is arguably the best measure of the extent of the evaluative processing because it includes the silent search of memory. In this context, verbal protocols may be more useful to characterize the nature of processing than to measure its extent.

Limitations

The strategy in our study was to manipulate structural variables that seemed likely to influence evaluation. As with all laboratory experiments, interpretation of the results must be tempered by an understanding of how well

the experimental task represented the real issues investigated. The primary differences between the experimental task and an evaluation of a true brand extension are that experimental evaluations (1) did not occur in a store as they often would in consumer decision situations, (2) were based on vicarious experience rather than personal experience with products in use, and (3) were based on information presented in exclusively verbal form rather than as a reaction to other tactile and visual cues such as would occur in most product evaluation settings. In addition, there is a strong possibility that the experimental task primed the typicality gradient represented by potential brand extensions (it was probably evident to subjects that potential brand extensions varied in similarity to current branded products).

A second limitation of the study is that when response times and verbal protocols are collected concurrently they may become confounded. That is, the act of verbalizing probably lengthens response time. Thought verbalization may either accentuate or attenuate the extent of piecemeal processing as measured by response time because all verbal responses take time and only some of them indicate piecemeal processing.

Concluding Remarks

Despite the limitations, the results of our experiment reveal some interesting aspects of the relationship between category structure and the process of evaluating potential new members of the category. The strengths of the research method include the experimental manipulation of brand breadth and the comparison of response times and verbal protocol measures across two replicates of the experiment. The results suggest that category structure helps to shape evaluation processes and that attitude and typicality are closely linked.

To the extent that the experimental task mirrored aspects of an actual product evaluation, the results also provide insight into the way brand extension evaluation is influenced by brand extension typicality and brand category breadth. Specifically, brand extensions appear to be evaluated more highly to the extent that they are perceived as similar to (or typical of) the brand's current product offering. The perceived typicality of a potential extension is influenced, in turn, by the breadth of the brand's current product offering. Narrow brand categories appear to have advantages for extensions that are highly similar, and broad brand categories appear to have advantages for extensions that are moderately similar, to the brand's current products. In our study, broad brand categories included a greater variety of products than did narrow brand categories. This variety may be specified better as having both range (operationally defined as the difference between the two most different products) and variability (operationally defined as a summary measure of interproduct differences, such as pairwise differences squared and summed). Future research might investigate range and variability as separate factors of brand category breadth.

It is significant that some potential brand extensions were perceived as moderately typical rather than either extremely typical or extremely atypical of the brand category. These moderately typical extensions appeared to generate greater thought and processing time than either extremely typical or extremely atypical extensions. Perhaps they would be aided by promotions, and other marketing devices, that take into account this greater processing.

Our findings suggest that categorization theory provides a promising framework for further research on brand extension. By better understanding the structure of brand categories and the way differences (or changes) in that structure affect brand attitudes, marketers can better anticipate the effects of brand extension.

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