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THE RELATION BETWEEN BRAND-NAME LINGUISTIC CHARACTERISTICS AND BRAND-NAME MEMORY

Tina M. Lowrey, L. J. Shrum, and Tony M. Dubitsky

ABSTRACT: Copytesting results from a commercial copytesting firm were used to assess the relation between the presence of linguistic features in brand names and memory for those names. Brand names in the ads being tested ($n = 480$) were coded on 23 linguistic properties, of which 11 occurred with sufficient frequency to be retained for analysis. Regression analyses tested for the association between linguistic properties of the brand names and brand-name memory as a function of brand-name familiarity, controlling for executional variables. Results revealed that three linguistic variables were positively related to brand-name memory (semantic appositeness, paronomasia, initial plosives), but only for less familiar brands. Two linguistic variables showed main effects for brand-name memory: unusual spelling (positive) and blending (negative). However, the effects for unusual spelling and blending were also qualified by the same interaction with familiarity: The effects were stronger for less familiar brands than they were for more familiar brands. These results are interpreted within Craik and Lockhart's (1972) depth of processing framework and implications for the naming of brands are discussed.

One of the functions of advertising is to increase brand awareness, and there are a number of techniques that advertisers may employ to achieve this objective (e.g., frequent brand-name mentions within the ad, frequent placements of ads in various media, linking brand names to celebrity endorsers). In addition, achieving brand awareness is often determined by the memorability of the brand name.

Although various executional and strategic components of ads do indeed contribute to brand-name memory, theory and research in psycholinguistics suggests that features of the brand names themselves might also contribute to their memorability. That is, simple attributes of a brand name, such as the type of sound with which the name begins or whether the name of the product fits the product's function, may influence the ease with which the brand is recalled or recognized. If true, application of these linguistic principles to brand-name development would be a boon to marketers, who would presumably be interested in any edge they could obtain in increasing the memorability of their brand. Thus, our objective for this study was to determine whether linguistic features of brand names are related to consumers' memory for

those names. We also aimed to identify the conditions under which this relation may hold. The study builds on previous research in psycholinguistics that has shown that specific attributes of words can have an impact on memory for words.

LINGUISTIC DEVICES

Linguists distinguish between four components that are thought to typify all languages: phonology, orthography, morphology, and semantics. Phonetic devices pertain to vocal sounds and the letters that represent sounds in a given language. An example of a phonetic device is alliteration, as in the brand name Coca-Cola. Orthography is concerned with the spelling of words. Orthographic devices include unusual or incorrect spellings, such as Kool-Aid. Morphology deals with word formation through the combination of prefixes, roots, and suffixes. An example of a morphological device is affixation, which involves the addition of letters or groups of letters (morphemes) to words, as in Jell-O. Finally, semantics deals with underlying meanings of linguistic units (i.e., words, sentences, texts). One semantic device is metaphor, which occurs when a word pertaining to one kind of idea is used in

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place of another to suggest likeness between them, as in the use of the brand name Arrid to imply dryness.

As the above examples of brand names suggest, when constructing brand names, these four classes of linguistic devices are commonly used, either alone or in conjunction with one another. This strategy involves creating names that have certain linguistic qualities that differentiate them from others in a cluttered media environment (Collins 1977). The question then becomes whether the use of these linguistic qualities has any systematic relation to the memorability of the brand name they were used to construct. There is some research in cognitive psychology in general, and psycholinguistics in particular, that suggests that there may be such a relation.

PSYCHOLINGUISTICS AND RECALL

Psycholinguistics is a specialized area within cognitive psychology that addresses the production, comprehension, use, and development of language. Research in this area has investigated units of language at all levels, ranging from the word to the sentence to the text (Leahey and Harris 1996). In particular, research has addressed the memorability of words and the impact of syntactic structure on recall for sentences. In general, there are two principal ways in which linguistic features may influence memorability: through their ability to convey meaningfulness and through their ability to create distinctiveness.

Meaningfulness

Research has shown that an important factor affecting word memorability is “meaningfulness” (Leahey and Harris 1996; Tarpy and Mayer 1978). Meaningfulness, however, is itself a combination of the various attributes of a word. Some of the qualities that make a word meaningful include frequency in the language, the ability of a word to evoke imagery, and semantic associability (Paivio 1971; Paivio and Begg 1981).

One attribute that has been shown to have an impact on the meaningfulness of a word is phonetic symbolism, which addresses the ability of particular phonemes—the fundamental building blocks of sound in a language—to convey information on their own. For example, studies have shown that vowels and consonants symbolize concepts in and of themselves, such as size (Sapir 1929) and degree of darkness (Newman 1933), regardless of the underlying word meaning in which these letters are embedded. In Sapir’s 1929 study, holding consonants constant, a word using the vowel sound /ä/ (i.e., mal) was perceived as larger than a word using the vowel sound /i/ (i.e., mil). A subsequent study replicated Sapir’s findings and attributed the phenomenon to physiological causes (i.e., the shape of the mouth while pronouncing each vowel;

Newman 1933). But there has been some controversy surrounding this issue (cf. Bentley and Varon 1933; Taylor 1963), with detractors maintaining that the association between sound and meaning is arbitrary. Despite the controversy, however, it appears that the concept has been accepted. As Jenkins stated (1959, p. 194), “phonetic symbolism has been thrown out of psychology and linguistics again and again, but persists in returning when its latest antagonist turns his back.”

Distinctiveness

Meaningfulness, by definition, pertains to some aspect of semantics. Note that even in the previous discussion of phonetic symbolism, the impact of the phonetic aspects (i.e., how words sound) is on a semantic dimension (i.e., how sound connotes meaning), which in turn may then influence memory through a semantic association. There are other aspects of words, however, that may contribute to memory apart from semantics.

One aspect of a word that may influence memory is its distinctiveness. Distinctiveness refers to the extent to which the attributes of a construct are unique or stand out in relation to the attributes of other similar constructs (Higgins 1996). In terms of words, this refers to the extent to which the attributes of a word are novel or unique. The distinctiveness of a word can enhance memory in important ways, including encoding and retrieval (Eysenck 1979; Gregg 1976). With respect to encoding, the attention-getting aspect of a distinctive word may make it more readily noticed (McArthur 1981), increasing the probability that it will be processed with greater depth (Berlyne 1971; Craik and Lockhart 1972). With respect to retrieval, the unique attributes of a construct may make it easier to recall. As Lockhart and Craik note, the very qualities that may make a construct stand out at encoding also make it stand out at retrieval: “Just as a distinctive stimulus stands out and is readily identified against a background of different stimuli, so a distinctive memory trace stands out and is therefore readily retrievable” (1990, p. 101).

Specific Linguistic Devices and Memorability

Numerous studies have demonstrated relationships between linguistic devices and memorability. This research has focused mainly on memory for words but has also investigated memory for prose (e.g., sentences and passages). With respect to phonetic devices, research has shown either a recall or recognition advantage for rhyme (Carr and Miles 1997; Fallon, Groves, and Tehan 1999; Treiman and Danis 1988), onomatopoeia (i.e., when phonetics resemble the object; Inoue 1991), and initial plosives (i.e., hard initial consonants; Cortese 1998). Other research has demonstrated relationships between memorability and orthographic devices such as acronyms (Bower

1972) and pseudohomophones (i.e., unusual spellings such as “klip” versus “clip”; Lukatela, Frost, and Turvey 1998) and between memory and morphological devices such as affixation (i.e., addition of a prefix or suffix; Snodgrass and Jarvella 1972). Finally, perhaps the most research has focused on the enhancement of memory via semantic properties. This research has demonstrated enhanced recall and recognition for imagery-evoking words (Morris and Reid 1972), paranomasia (i.e., puns and word plays; McQuarrie and Mick 1992), figurative language such as metaphors and similes (Harris and Mosier 1999; McQuarrie and Mick 1996), and semantic appositeness (i.e., fit between the brand name and product attributes or function; Keller, Heckler, and Houston 1998).

Recognition and Recall

A number of studies have shown effects of words' linguistic characteristics on memory for those words. In some of these, memory was operationalized as recall (e.g., Carr and Miles 1997; Fallon, Groves, and Tehan 1999; Morris and Reid 1972) and in others memory was operationalized as recognition (e.g., Cortese 1998; Lukatela, Frost, and Turvey 1998; Snodgrass and Jarvella 1972); one study tested for both recall and recognition (Inoue 1991). Both measures involve memory, but there has been some controversy over the extent to which these two variables represent the same or different underlying processes. The issue of underlying processes is important for this study given the type of memory measure used in this study.

Although advertising researchers tend to view recognition and recall as quite different processes (perhaps because the processes differ in terms of difficulty, which has implications for advertising effectiveness), recent research suggests that the two variables can involve the same underlying process of information retrieval. Earlier research in cognitive psychology fell into two camps (for a review, see Gillund and Shiffrin 1984). One camp held that recognition and recall were different processes (e.g., Anderson and Bower 1972, 1974; Kintsch, 1970) and this notion was often based on differing results for recognition and recall. This perspective posited that recall involves a search process but recognition does not—that the recognition process is “automatic.” In fact, recall was considered a two-stage process: (1) a generate stage in which words are brought into memory, and (2) a recognize stage, in which recognition is a function of familiarity. Recognition was thought to involve only the second stage, the familiarity stage, thus bypassing the retrieval stage. This line of reasoning (recognition only involving familiarity) ran into trouble, however, because it could not explain data in which recognition exhibited the same properties as recall; that is, processes that involve retrieval. Nor could it account for data that showed that recognition is enhanced by deeper encoding (Tversky 1973). The second camp held that recall and recognition, if

not representing the exact same underlying processes, at the least were more similar than they were different (Tulving 1976; Tulving and Thompson 1971; Tulving and Watkins 1973). This research showed that deeper processing seemed to bolster recognition (e.g., unique words were recognized more easily than common words, at least in the presence of distractors; Muter 1984). However, the notion that recognition and recall reflected similar underlying processes also ran into problems because of its inability to account for data showing accurate negative recognition (i.e., accurately classifying distractors).

This controversy was partially resolved by Gillund and Shiffrin (1984), who proposed that recognition can be accomplished by *either* retrieval or simple familiarity, processes that can work sequentially or in parallel. According to this model, the familiarity process tends to hold only when the recognition judgments must be made very rapidly (i.e., average response time of half a second); when more time is allowed or taken, recognition also employs a retrieval process.

PSYCHOLINGUISTICS AND BRAND-NAME DEVELOPMENT

Phonetics

One issue of importance to this study is whether phonetics might have implications for memory for brand names. Past research lends support to this notion. In a study that looked at the top 200 brands over a five-year period, brand names beginning with the letter *k* (an initial plosive) were more prevalent than brand names beginning with other letters and were also more prevalent than their frequency of use in the English language would predict (Schloss 1981; see also Vanden Bergh 1990 for a replication with more up-to-date brands). Vanden Bergh (1990) suggests that this phenomenon may be due to the versatility of the letter *k* in combining with other letters. In addition, the uniqueness and initial plosivity of the letter may make it more memorable. This latter conjecture was supported in a study that found that brand names beginning with a plosive tended to be better recalled and recognized than brand names beginning with soft consonant sounds or vowel sounds (Vanden Bergh et al. 1984).

Evidence also suggests that phonetic symbolism may affect beliefs about brand attributes and evaluations. Yorkston and Menon (2001) conceptually replicated Sapir (1929) by showing that the attributes (e.g., leg room, trunk space) of a fictitious automobile brand were rated as larger when the brand name used the phonetic /*ā*/ sound (e.g., Bromley) than when it used the phonetic /*i*/ sound (e.g., Brimley). Heath, Chatterjee, and France (1990) reported that harder sounds led to increased beliefs that specific attributes of a given product would also be harder and/or harsher. Such beliefs could be

positive or negative, depending on whether hard or harsh attributes are desired (e.g., Comet cleanser) or undesired (e.g., Dove soap).

Semantic Features

Linguistic factors other than phonetic devices may also have an impact on brand-name memory, particularly semantic devices (Nilsen 1979). Two studies explored the relation between perceptions of words and their appropriateness as brand names for specific types of products (Chisnall 1974; Peterson and Ross 1972). Although the two studies differed in their use of real versus fictitious brand names (Chisnall used real names; Peterson and Ross used fictitious names), both studies found that consumers do seem to have preconceived notions of appropriate brand names for certain product categories. However, in neither study was appropriateness necessarily linked to a single linguistic category.

Some researchers have suggested that brand-name recall might be improved by the proper implementation of semantic features (Saegert and Young 1983; Zinkhan and Martin 1987), and some support for this proposition has been reported. For example, brand names that are perceived to be congruent with the product category have been shown to produce more positive attitudes than names that are perceived to be very incongruent with the product category (Meyers-Levy, Louie, and Curren 1994). In addition, names that suggest a specific product attribute lead to better advertising recall, but only when the advertising claim is consistent with the brand name (Keller, Heckler, and Houston 1998), which is consistent with the findings of Heath, Chatterjee, and France (1990) discussed earlier.

Different linguistic concepts can also be combined to affect meaning and memorability. One example is the combining of phonetic symbolism and semantics through the construction of alphanumeric brand names (Boyd 1985), that is, names that combine alphabetic and numeric components (e.g., WD-40). Alphanumeric brand names tend to work best for technical products and for those that are chemically formulated (Pavia and Costa 1993). Again, this points to the notion of "fit" alluded to in several studies reported earlier.

OVERVIEW OF THE STUDY

Numerous researchers have speculated on the possible link between linguistic features of brand names and memory for the brands (Collins 1977). Researchers have categorized brand names in terms of linguistic categories (Nilsen 1979; Vanden Bergh, Adler, and Oliver 1987) and have shown that certain linguistic features are used more often than others (Schloss 1981; Vanden Bergh 1990). In addition, some laboratory experiments have shown that certain linguistic features of brand names may be related to the recall of or attitudes toward these

brands (Keller, Heckler, and Houston 1998; Meyers-Levy, Louie, and Curren 1994). The resulting pattern is one in which the studies involving real brand names are primarily descriptive and provide no empirical links between linguistic features and memory measures, whereas the ones providing empirical tests of linguistic effects are laboratory studies that investigate only one or two linguistic features under artificial conditions.

Our purpose for this study was to combine aspects of these two approaches to empirically evaluate possible links between particular linguistic features of real brand names and memory for those names under as naturally occurring measurement conditions as possible. To accomplish this, we obtained a large copytesting data set from a leading communication research firm. This data set consisted of evaluations of television advertisements for nearly 500 brands. The data set allowed us to first code the brands in terms of their linguistic features, and then link these features to measures of memorability. In addition, the data set included other measures such as executional variables (e.g., number of brand-name mentions, time the brand name was on screen) that might logically impact memory for brand names and thus would serve as control variables.

HYPOTHESES AND RESEARCH QUESTIONS

Our hypotheses were derived from theoretical formulations (discussed earlier) that revolve around the concepts of meaningfulness and distinctiveness and the advantages that these concepts afford for memorability. These theoretical formulations primarily utilize Craik and Lockhart's levels of processing framework (1972), which suggests that memory will be enhanced when a deeper processing of stimuli can be induced. Meaningfulness and distinctiveness contribute to the inducement of deeper processing. In fact, in subsequent studies (e.g., Craik and Tulving 1975) deep processing was linked with semantic tasks (judgments requiring an understanding of the meaning of a stimulus word rather than nonsemantic tasks such as counting the number of vowels in the word). This framework is similar to the Elaboration Likelihood Model (ELM) proposed by Petty and Cacioppo (1986) in terms of its focus on varying levels of processing. In the ELM, however, elaboration may be caused by factors other than semantic processing tasks, including various types of message complexity. Indeed, Lowrey (1998) shows that the psycholinguistic complexity of advertising messages can lead to more elaborate processing and higher levels of recall.

Main Effects

It seems likely, then, that certain linguistic attributes of brand names might also lead to improved memory for the names. This notion is consistent with research discussed earlier that has demonstrated links between linguistic attributes and

memory measures. In our review of that literature, we were able to pinpoint nine linguistic characteristics that have been shown to be linked to recall or recognition. These are rhyme, onomatopoeia, initial plosives, acronyms, unusual spellings, affixation, paronomasia, metaphor, and semantic appositeness. Thus, we expected that the presence of these linguistic factors in brand names would enhance memory for those brand names. Note that some of the factors would likely induce deeper processing as a function of their distinctiveness (e.g., acronyms, unusual spellings, rhyme, onomatopoeia, affixation), others through meaningfulness (e.g., metaphor, semantic appositeness), and still others through both (e.g., paronomasia).

Our expectations for the effects of particular linguistic factors were a function of findings from previous research. However, it is possible that other linguistic factors, ones that may not have been addressed in previous research, may also influence depth of processing, and hence, brand-name memory. Some obvious examples include personification, compounding, and blending (morphemic combinations such as *Aspergum*). In the interest of comprehensiveness, we tested for effects of linguistic factors for which no prior research has shown memory effects but that were a part of the list of categories compiled by Vanden Bergh, Adler, and Oliver (1987).

Moderators

Although linguistic variables may enhance memory for brand names, other variables undoubtedly exert much larger influences on memory. One example is the familiarity of the brand names. Thus, regardless of the linguistic characteristics of the brand names, familiarity is likely a much larger driver of brand-name memory. In fact, it is reasonable to suppose that the effectiveness of the linguistic features *may be a function of* familiarity; that is, linguistic features should enhance recall or recognition to a greater degree for less familiar brands than for more familiar brands. Familiar brands names should already enjoy a recall advantage, which may attenuate the linguistic effects. This pattern of results would be evidenced by an interaction between a linguistic feature and brand familiarity (we thank the editor and an anonymous reviewer for this suggestion). Thus, in our analysis we assessed both main effects of the linguistic variables and interactions between them and brand-name familiarity, expecting that effects of the linguistic variables would be stronger for less familiar brands than for more familiar brands.

METHOD

Data Set and Coding Procedure

The first phase of the study involved the coding of linguistic properties of brand names by three independent, trained cod-

ers. The brand-name data set was obtained from ASI Market Research, Inc. (ASI), a leading communication research company. This data set included 480 brand names. The brands included were primarily established national brands in various product categories (e.g., cleaning products, packaged foods, financial services) targeted toward females. (Note that all brand names mentioned in this paper were selected for illustrative purposes only; their presence does not in any way imply that they belong to the ASI data set used in this study).

Each brand name was coded for 23 linguistic properties adapted from Vanden Bergh, Adler, and Oliver (1987), yielding a total of 11,040 coding decisions. Coding decisions were simple Yes/No decisions (coded as Yes = 1, No = 0) as to whether the brand name possessed each linguistic characteristic. Each coder went through extensive training that involved practice sessions using unrelated brand names. In terms of sequence of coding decisions, each coder determined independently whether a brand name exhibited each of the linguistic properties before moving on to the next brand name. That is, coding was conducted by brand name rather than by linguistic property (i.e., “does Ajax exhibit alliteration?”/“does Ajax exhibit assonance?” rather than “does Ajax exhibit alliteration?”/“does Amoco exhibit alliteration?”). We believed this would improve coding decisions because many linguistic categories are mutually exclusive (e.g., a brand name can exhibit only one type of rhyme). At the conclusion of all coding, interrater reliability was assessed for overall agreement and for each linguistic variable separately. Corrections to the percentage agreements were made to account for chance and all percentage agreements noted herein reflect this correction. These corrections were calculated using a variation of Scott’s π (1955) recommended by Potter and Levine-Donnerstein (1999) to allow for multiple coders. Overall interrater reliability was 89%. Agreement on individual variables ranged from 61% to 99.6%.

The top five problem variables (less than 75% corrected agreement) were independently recoded by each of the coders. This was necessary because lack of agreement may have indicated a misunderstanding or lack of recall of the linguistic definition rather than a disagreement in interpretation (e.g., weak rhyme is not intuitive, occurring when vowels or consonants are similar but not identical, as in Black and Decker). Thus, agreements on the absence of the linguistic factor could just as easily be suspect. The coders reviewed the concept and relevant examples prior to an independent recoding of brand names on this construct. For the recoding, no coders were aware of which brands were inconsistent across coders. After the recoding, agreement rose to 85–95%. The first author then served as final judge on all remaining disputes. During the coding phase of the study, all coders (including the first author) were blind to the results of the commercial copytesting (which were later linked to the linguistic data set for further analysis).

The 23 linguistic properties were adapted from Vanden Bergh, Adler, and Oliver (1987). Our list of properties differs slightly from their list: They combined personification (humanizing the nonhuman) and pathetic fallacy (ascribing human emotions to the inanimate), whereas we separated these two concepts in our coding manual.

The second phase of the study linked the linguistic analysis data set to the commercial copytesting data set, which was provided by ASI. The copytesting data set consists of consumer responses to tests of actual television commercials copytested by ASI. Each test consists of 180 to 200 consumer responses. Commercials for a variety of brands were tested in representative cities in the United States among female consumers between the ages of 18 and 65. The age distribution was quota-controlled to approximate the U.S. population. ASI's copytesting procedure consists of recruiting respondents by telephone and inviting them to preview new program material on an unused cable television channel in the respondents' own homes. They are then contacted the following day to determine whether they viewed the program, and if so, they are interviewed for the study using a questionnaire that collects data on both the program and the commercials.

Dependent Variables

The primary dependent variable is a combination of a recall and recognition measure. If respondents indicated they had viewed the program, or the segments in which the commercials were embedded, they were included in the remainder of the study. Those retained were then given a product category cue. That is, respondents were asked whether they had seen a commercial for the specific product category of the brand being tested (e.g., charcoal). If they responded positively to the product category cue, they were asked to recall the brand name of the product featured in the commercial (brand name recall measure). If they responded negatively to the product category cue, they were then given a brand cue (e.g., Kingston) and were asked whether they recognized that brand name as one for which they had seen an advertisement (brand-name recognition measure). All respondents who either accurately recalled or recognized the brand name were then asked what they remembered about the commercial. The memory measure was calculated as the percent of all respondents who could either recall or recognize the brand name, *provided they could recall specific elements of the commercial*. This last requirement is important because it serves to remove those who guess correctly at the brand name or indicate that they saw the commercial when they in fact had not (i.e., eliminating "false positives"). Note that this is not a trivial issue, as most of the brands were relatively well known. Thus, it may have been possible to accurately guess the brand on the first question (product category cue). In addition, simply responding in the

affirmative for the second question (brand cue) would also have put respondents in the positive recall group, even if they had not seen the advertisement on the test program. It is therefore important to be able to distinguish (to the extent possible) between actual memory and guessing, and that was the purpose of asking respondents to recall portions of the commercial to demonstrate the validity of the responses.

Independent Variables

The independent variables are each of the linguistic devices and brand-name familiarity. Brand-name familiarity includes "well established" and "moderately established" brands within their product category, coded by an ASI research analyst who routinely performs such codings across numerous studies. The familiarity variable is a proprietary function of sales volume and advertising expenditures (intended to be a surrogate for "presence in the market").

Control Variables

Because the design of this study is not experimental, it is possible that particular linguistic characteristics may be associated with the dependent measures for reasons that have nothing to do with characteristics of the brand name. Consequently, it is important to attempt to account for such variables. ASI has identified nine nonlinguistic factors of commercials that have been observed to consistently contribute to recall and recognition of ads and brand names (Walker 1990) and are thus routinely measured by ASI in its copytesting research (Walker 1990; Walker and von Gonten 1989). All nine can be characterized as executional variables (i.e., elements of the commercial execution, rather than of the brand name). The variables are number of audio mentions, number of legible brand visuals, total time the brand name is on the screen, time to first brand identification, ongoing characters, on-screen dialogue, happy or upbeat tone, humor, and the presence of "kids, dogs, or other cuties." Although there are, of course, several other control variables that could contribute to recall or recognition, these nine factors are the ones that ASI has observed over time to contribute to their memory measures.

RESULTS

Data Reduction

We ran frequency analyses to determine the prevalence of the linguistic factors in our data set. Frequencies ranged from very infrequent (e.g., only 1% for acronyms) to frequent (66% for semantic appositeness). To assure adequate power to detect effects in subsequent analyses, we excluded any linguis-

tic category that was present in fewer than 40 cases. This eliminated 12 categories, leaving 11 linguistic variables for subsequent analysis.

Main Effects of Linguistic and Executional Variables

We were interested in determining whether the remaining linguistic variables contributed to brand-name memory. We hypothesized that the linguistic variables would have such an effect, but this effect should be greater for less familiar brands than for more familiar brands.

To test these hypotheses, we first performed multiple regression analyses to test for main effects of particular linguistic characteristics while simultaneously controlling for the executional variables. The nine executional control variables, plus brand-name familiarity, were entered as a block, followed by a block consisting of the 11 linguistic variables that were retained.

The results of this analysis yielded few main effects. As expected, the controls, when considered as a block, were a significant contributor to brand-name memory, $F(10, 447) = 5.83$, $p < .001$, but the effect size was small (Adjusted $R^2 = .10$). Only three individual executional control variables were *independently* related to brand-name memory: time to first brand identification ($\beta = -.21$, $p = .001$), happy/upbeat tone ($\beta = .11$, $p = .028$), and brand-name familiarity ($\beta = .14$, $p = .001$). We stress “independent,” because when simple correlations between the 10 control variables and brand-name memory were computed, virtually all were significant, consistent with ASI’s past experience. In addition, once the block of linguistic variables were entered in the second step of the regression, only time to first brand identification ($\beta = -.17$, $p = .001$) and familiarity ($\beta = .14$, $p = .001$) remained significant predictors of brand-name memory, with happy/upbeat tone becoming nonsignificant ($p = .27$).

The block of linguistic variables that was entered in the second step of the regression was also a significant predictor of brand-name memory, $F(11, 436) = 3.18$, $p = .001$, but the effect size was again small (Adjusted $\Delta R^2 = .07$). Only two linguistic variables were related to brand-name memory: unusual spellings ($\beta = .16$, $p = .001$) and blending ($\beta = -.14$, $p = .003$). The negative relation between blending and brand-name memory was unexpected.

Effects as a Function of Familiarity

Although initial tests for main effects yielded few significant results, we expected that brand-name familiarity would attenuate the effects of the linguistic variables. That is, the linguistic variables should be more likely to have an effect on brand-name memory for those brand names that are less familiar than for those that are more familiar. To test this hy-

pothesis, we ran the same regression analyses as before (i.e., controls entered as a block, followed by the linguistic variables), but with the addition of the interaction term between familiarity and each of the linguistic variables in the second block (computed as the product of the familiarity and the linguistic variable). If the effect of a particular linguistic variable on brand-name memory is a function of familiarity, then the interaction term should be significant in the regression analysis.

The results of the regression analyses that included the interaction terms indicate that the effects of five of the linguistic variables on brand-name memory were indeed a function of brand-name familiarity: unusual spellings ($\beta = -.35$, $p = .035$), semantic appositeness ($\beta = -.46$, $p = .001$), initial plosives ($\beta = -.29$, $p = .039$), paronomasia ($\beta = -.46$, $p = .003$), and blending ($\beta = -.29$, $p = .034$). To determine the pattern of this contingency, we regressed the linguistic variable on brand-name memory for each level of familiarity. The results of this analysis can be found in Table 1. As the Table indicates, the pattern for four of the five linguistic variables (all except blending, which showed a negative main effect) was as expected: The correlations between the linguistic variables and brand-name memory were stronger (more positive) for less familiar brands than they were for more familiar brands (note that the significant interaction term implies that the β coefficients are significantly different). Moreover, for three of these four (expected) cases, the relation between the linguistic variable and memory was significant *only* for the less familiar brands. The exception was for unusual spellings: There was a significant linguistic variable–memory relation for both levels of familiarity, although the relation was stronger for less familiar brands than for more familiar brands.

The only exception to the expected pattern of greater (and more positive) linguistic effects for less familiar brands was for the linguistic variable of blending (e.g., Aspergum). The pattern of this interaction was opposite of the other four: The relation between the presence of blending and brand-name memory was actually more positive for more familiar brands than it was for less familiar brands. But most important, for both of these conditions, the relation between the linguistic variable and memory was *negative*. That is, the presence of blending appears to have inhibited rather than facilitated memory for the brand name, and more so for less familiar brands.

We ran one additional analysis to rule out the possibility that the lack of effects for more familiar brands was due to a ceiling effect. That is, memory for familiar brands may have been obscured because memory for those brands was already very high. This was not the case, however. The memory score for familiar brands ranged from 8% to 62% with a mean of 25.1%, indicating substantial room remaining at the top of the scale.

TABLE I
Relations Between Linguistic Variables and Brand-Name Memory as a Function of Brand-Name Familiarity

Linguistic variable	Level of familiarity	
	Less familiar	More familiar
Unusual spellings	.24**	.16**
Semantic appositeness	.15*	.01
Initial plosives	.15*	.09
Paranomasia	.16*	-.01
Blending	-.23**	-.17**

Note: Numbers are β coefficients. Betas for less familiar brands differ significantly ($p < .05$) from those of more familiar brands.
 * $p < .05$.
 ** $p < .01$.

DISCUSSION

Our objective for this study was to investigate the relation between particular linguistic features of brand names and memory for those names. Previous research has speculated on this relation, and some laboratory experiments have been suggestive of such a link. We have attempted to provide two particular contributions that relate to both internal and external validity. With respect to internal validity, we have tried to provide a theoretical framework for how linguistic characteristics of words might influence memory for those words. This theoretical framework is based on Craik and Lockhart's notion of depth of processing and its relationship with the concepts of distinctiveness and meaningfulness (1972). With respect to external validity, we have conducted our investigation using data that are as close to real-world conditions as possible. These conditions involve the actual copytesting of advertisements for existing brands by a commercial copytesting firm.

We expected some linguistic features of the brand names to enhance memory for the brands, but more so when the brands were less familiar. We found this to be true for four linguistic categories: initial plosives, semantic appositeness, unusual spellings, and paranomasia. For one linguistic category (blending), the presence of the linguistic feature was negatively related to brand name-memory, but as with the other four, the results were stronger (in this case, more negative) for less familiar brands. We found that, for the most part, the memory advantage for the linguistic categories occurred *only* when the brands were less familiar (unusual spellings and blending being two exceptions). This confirms our expectations that relatively subtle effects of linguistic characteristics of brand names would not likely overcome a memory advantage for very familiar brand names.

Our results are consistent with both theory and past research. Of all the linguistic categories that were coded and analyzed, the ones that produced superior performance on the

memory measure were the ones that either had been demonstrated in previous laboratory research on brand names (e.g., initial plosives, paranomasia, semantic appositeness) or English words in general (e.g., unusual spellings, metaphors).

One linguistic category did not contribute as expected. The presence of blending in brand names was negatively related to brand-name memory. This was true regardless of the familiarity of the brand name. However, the negative relation was stronger when the brand was less familiar. These results suggest that in some cases the blending of two disparate words or word parts may inhibit recall. If so, then the weaker negative relation between blending and brand-name memory for the more familiar brands would also be expected: The inhibition of recall would likely be less when the brand name is very familiar and thus should cause less confusion.

Although the relations between linguistic features of brand names and brand-name memory that were observed are consistent with theory, these relations are small ones. Two issues are worth noting in this respect, however. First, as a block, the linguistic variables explained only slightly less variance in brand-name memory (Adjusted $R^2 = .07$) than the executional variables (Adjusted $R^2 = .10$). Similarly, when looking at the individual executional and linguistic variables, the effect sizes of the linguistic variables that were significant predictors of brand-name memory were as large, if not larger than, the effect sizes of the executional variables that were significant, and this was particularly true when looking at effects for less familiar brands. Second, we did observe differences in presumed linguistic effects as a function of brand-name familiarity. This pattern of results is important for two reasons. One, it is more difficult to refute in terms of a third-variable effect: Why would a third variable show effects for less familiar brands than for more familiar brands? Second, and related, the difference in the moderator variable (familiarity) for the two conditions was itself very small. Rather than looking at, say, familiar and novel brands, we were constrained by the available data to look at very familiar and

moderately familiar brands. Thus, the significant effects that were obtained for moderately familiar brands would likely be even larger for new or otherwise unfamiliar brands.

This reasoning is important for applying these findings to the actual naming of brands. Even though our data pertain only to reasonably familiar brands, we are not suggesting that these brands should be renamed to include linguistic characteristics that have been shown to enhance brand-name memory. Clearly, the application of our findings would apply to the naming of new brands. Moreover, common sense implores that such application must “make sense” and should not be applied blindly. Instead, it seems reasonable to suggest that marketers simply take into consideration these findings as well as those of other research, and weigh the pros and cons of the inclusion of each linguistic category. For example, paronomasia (puns and wordplays) showed a significant relation with brand-name memory for less familiar brands, but the use of such linguistic devices might not be suitable for more “serious” products such as medical drugs or life insurance. In any case, consideration of linguistic characteristics involves little cost and may provide important benefits. Managers confronted with the naming of new brands would likely find any factors contributing to brand-name memorability to be potentially useful.

There are limitations of the study, which have implications for the interpretation and application of the results. For the most part these limitations revolve around the trade-offs between the use of primary versus secondary data and their implications for internal and external validity. The use of secondary data, particularly data from actual commercial copytesting studies, lends a good measure of external validity that is often lacking in academic research. However, the drawbacks to such data also make it clear why the use of secondary data is not more prevalent than it is.

Perhaps the biggest limitation in our study was the loss of control over measurement, which compromises internal validity. For example, the measure of brand-name memory was a combination of a recall test and a recognition test. It would have been useful to be able to obtain distinct measures of each construct and assess their relations with the linguistic features. Likewise, the measure of familiarity was constrained by the available data. Thus, not only was the entire data set comprised of reasonably established brands (limiting generalizability), but this resulted in two levels of familiarity that were not greatly different. We would argue, however, that this is actually a conservative error, and finding effects as a function of subtle differences in familiarity actually bolsters rather than detracts from the impact of the findings. We also had no input into the coding of the variables measured by ASI (as opposed to the linguistic variables that we coded). Ideally, we would have had the familiarity variable coded by multiple coders, but any coding error introduced at that juncture is likely to contribute to error variance and thus reduce rather than inflate significance.

We were also limited in terms of the available variables to use as statistical controls. This is an important issue in any correlational research, and particularly research on brand-name memory. There are many factors that influence brand-name memory; we were only able to control for the ones that were measured by ASI. Although most of these individual variables were not significant predictors of brand-name memory, the sum (block) of them was. In addition, each was significantly correlated with brand-name memory when zero-order correlations were computed, thus confirming ASI's experience that these factors tend to show reliable but small relations with their advertising effectiveness measures. It is worth noting, however, that unless these other factors are systematically related to particular linguistic variables (rather than being randomly distributed), they contribute to error variance rather than rendering the observed relations spurious.

Finally, the sample was constrained to women. This should not be a problem, as it seems unlikely that men and women would differ in terms of the effects of linguistic features of brand names on brand-name memory. However, this limitation fosters another one, namely, that the brands that comprise the data set are ones that are primarily targeted toward women. Again, although it seems unlikely that the effects observed in this study would differ as a function of product category, it is nonetheless a limitation worth mentioning.

CONCLUSION

The results of this study provide important findings that should be of interest to marketers. The results suggest that throughout the brand-name development process, marketers may benefit from being sensitive to the linguistic characteristics of candidate names. Indeed, both screening and testing phases should capture consumer response to a wide range of candidate names differing in the types of linguistic devices used. More important, the study of language in advertising needs to be researched more thoroughly and more precisely. Researchers interested in the study of advertising language should attempt to specify why certain devices increase recall and recognition of advertising, and under what circumstances. We hope that this study will encourage additional research in this important area.

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