

# Brand Dilution: When Do New Brands Hurt Existing Brands?

Potential for trademark dilution occurs when a new brand introduces itself with an identical or substantially similar mark to that of an existing brand. Currently, there is neither a clear standard for legal proof of dilution nor widely accepted measures for managerial use. Using a shared-brand-network model, the authors use three different but conceptually related measurement methodologies (response latency, aided recall, and simulated choice) across five experiments to examine “blurring” dilution effects. The results suggest that when junior brands operate in similar categories and position on similar attributes, there is no immediate threat of blurring dilution. However, if the junior brand chooses to position on dissimilar attributes in a similar category, dilution of attribute associations is likely. When the junior brand operates in dissimilar categories, there is a threat of blurring dilution for both category and attribute associations. The final two studies demonstrate that dilution of junior brands (i.e., operating in dissimilar categories positioned on dissimilar attributes) can suppress consideration and choice probabilities for the senior brand and that this effect may extend over a period of time.

Recently, the United States Supreme Court unanimously ruled in favor of a small store against a world-famous lingerie manufacturer and retailer (*Mosely v. V. Secret Catalogue* 2003). The owners of the small store, which sells lingerie and other “adult novelty” items, named their store Victor’s Secret. Shortly after opening, they were sued by Victoria’s Secret, which claimed protection of its brand name under the Federal Trademark Dilution Act of 1995. At issue before the Supreme Court was the legal standard for proof in trademark dilution cases. In its decision, the Court ruled that trademark holders (i.e., the *senior* brand, Victoria’s Secret) must show evidence of “actual dilution” by the *junior* brand (i.e., Victor’s Secret). Showing a mental association between the two marks or a likelihood of dilution is insufficient. At the same time, however, trademark holders do not need to prove actual lost sales to show that dilution has occurred.

These vague guidelines define a broad area within which case law establishes what constitutes the legal standard of proof for trademark dilution. However, how to establish and/or measure dilution is not only a legal and public policy issue but also one of concern to brand managers who work to maintain and leverage brand equity. This article addresses two questions pertinent to this issue: (1) How can and should trademark dilution be measured? and

(2) In what situations is dilution likely to occur in response to the presence of a junior brand?

## Background

### *Trademark Infringement Versus Dilution*

Trademark dilution differs from the more familiar legal doctrine of trademark infringement. “Trademark infringement” occurs when a competing party (i.e., a junior brand) uses an identical or substantially similar mark (e.g., brand name, slogan, symbol) that is already being used by an existing party (i.e., a senior brand) such that consumers are likely to be confused, mistaken, or deceived about the source of the goods being sold. However, infringement can extend beyond competing brands. If a “not insubstantial” proportion of consumers are confused because they think a brand has been extended into an unrelated category, a finding of infringement would also be likely (Jacoby 2001). Thus, as a legal doctrine, the primary focus of trademark infringement is the protection of consumers from misleading information. Conversely, “trademark dilution” is defined as “the lessening of the capacity of a famous mark to identify and distinguish goods or services, *regardless of the presence or absence of* (1) competition between the owner of the famous mark and other parties or (2) likelihood of *confusion, mistake, or deception*” (Federal Trademark Dilution Act 1995, § 4, emphasis added). Thus, the primary focus of dilution is the protection of the brand asset, or the protection of brand equity (Feldwick 1996; Keller 1993).

Dilution may take two broad forms: (1) tarnishment and (2) blurring (Simonson 1993). “Tarnishment” refers to a lowered evaluation of a senior brand due to a junior brand. The damage of tarnishment is fairly obvious in that there is the attachment of a negative association to the senior brand. For example, consider the case in which the American

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Express slogan “Don’t leave home without it” was used to promote condoms by another firm (*American Express Co. v. Vibra Approved Lab. Corp.* 1989). American Express believed that the association of condoms with its slogan could create a negative association for its traveler’s check brand, even though there was likely no confusion that it was the maker of the condoms.

“Blurring” has been described as the “gradual whittling away” of the identity of the mark (brand) in the mind of the public (Schechter [1927] 1970) and/or the lessening of the uniqueness of the brand in the minds of consumers (Simonson 1993) due to the emergence of a junior brand. Both of these perspectives hint at the weakening of important brand associations (e.g., product category, specific attributes). This weakening of associations may affect brand choice by making consumers less likely to consider the brand when making a decision in the category and less likely to associate it confidently with desired attributes (Alba, Hutchinson, and Lynch 1991). For example, the Lexis data service argued that the introduction of the Lexus automobile potentially added a new category association that could blur the meaning of the brand in consumers’ minds (*Mead Data Central Inc. v. Toyota Motor Sales, USA Inc.* 1989). Although both forms of dilution merit examination, blurring is of more interest because it is less obvious, is less frequently studied, and lacks consensus on how it should be assessed. Thus, this article focuses on blurring dilution.

### **Likelihood of Dilution or Actual Dilution**

A thorny issue in trademark dilution is how to prove dilution. Before the Supreme Court’s ruling in the *Victoria’s Secret* case, a split of interpretation had developed between the Second and Fourth Circuits about whether the plaintiff in a trademark dilution case needed to prove actual harm to its famous mark or a mere likelihood of harm (Lee 2004; McCarthy 2004). A superficial reading of the ruling suggests that the Court took the Fourth Circuit’s side in requiring proof of actual dilution. However, the Court indicated that proof of actual dilution does not require evidence of lost sales or profits. Furthermore, it added that dilution could be shown through circumstantial evidence, such as a mental association between the junior and the senior marks, when the two marks are completely identical. This part of the ruling has created substantial confusion by suggesting that proof of likelihood of dilution *can* be adequate.

McCarthy (2004) interprets this ruling as creating two types of cases: one in which the marks are identical and one in which they are not. In the case of identical marks, a mere mental association may be adequate circumstantial evidence of dilution. When the marks are not identical, proof of actual dilution is required. Other legal scholars (e.g., Lee 2004) view this part of the opinion as simply giving evidentiary weight to the degree of similarity between the two marks. They argue that it defies logic to apply two completely different evidentiary standards to a mark that is identical in every aspect compared with a mark that is only slightly different (e.g., varies in font style).

Furthermore, subsequent decisions have applied the evidentiary standard differently. Some district courts have

interpreted the opinion to mean that when competing marks are *completely identical*, mere mental association (i.e., likelihood of dilution) is sufficient circumstantial evidence of dilution. However, these decisions find that there is dilution only after a finding of likelihood of confusion, that is, trademark infringement (e.g., *Nike v. Variety Wholesalers Inc.* 2003). Other district courts have interpreted the Court’s ruling to mean that a mental association is only one piece of evidence and that additional evidence of actual dilution is required even when the marks are identical (e.g., *Savin Corp v. The Savin Group* 2003).

In summary, this split in legal opinion has generated considerable debate about how to demonstrate and measure dilution. Thus, a better understanding of how dilution can be measured can contribute to this debate and offer insights for managers who are concerned about maintaining brand equity and defending against trademark dilution.

### **Dilution as a Change in Brand Knowledge**

Implicit in the legal doctrine of trademark dilution is the notion that dilution is a change in brand knowledge (Jacoby 2001). In the case of blurring, it is the weakening of brand associations, such as the brand’s category, attributes, advertising tag lines, and so forth. This view is consistent with the suggestion in brand management and trademark dilution literature that a brand’s value or equity resides in consumers’ brand knowledge or memory network.

For example, Keller (1993, p. 2) defines customer-based brand equity as “the differential effect of brand knowledge on consumer response to the marketing of a brand.” Two prior studies also view trademark dilution as a change in brand knowledge. Peterson, Smith, and Zerrillo (1999) focus on “brand dominance” and “brand typicality,” which refer to the probability that a brand will be recalled given its category as a retrieval cue and the probability that a category will be recalled given the brand name as a retrieval cue, respectively. Morrin and Jacoby’s (2000) conceptualization is broader; it considers the weakening of associations between the brand and any of its aspects or associations, not just its category. Finally, legal scholars and public policy researchers suggest that dilution by blurring involves the formation of a shared brand knowledge network, in which knowledge about the senior and junior brands may compete for activation when a consumer thinks about the senior brand (Jacoby 2001; McCarthy 2004). Jacoby (2001, p. 1048) notes that the harm of dilution could take several forms:

At the very least, the consumer would be required to engage in additional cognitive effort to parse out which network applied to the current circumstances [senior or junior brand]. Generally, the more effortful the activity (including a mental activity), the less likely it is to be performed.... “[L]aboratory studies reveal that ... trademark dilution can reduce the strength of pre-existing brand associations through the creation of additional nodes in consumer’s brand based memory networks. Further, exposure to the second comer’s [junior brand] promotional use of the mark can reduce the accuracy and, to some extent, the speed of retrieval from memory of the first-user [senior brand] information.

Our conceptualization of dilution is consistent with these writings.<sup>1</sup>

### ***The Conceptualization and Measurement of Dilution***

We view blurring as a weakening of the associations between a brand and its distinctive aspects (e.g., category, attributes, benefits) that define the meaning of the brand in consumers' minds. We now consider how brand associations are used in decision making and derive measures of dilution based on this conceptualization.

When consumers retrieve brand knowledge from memory, they may (1) use desired brand aspects as retrieval cues for a brand name or (2) use the brand name as a retrieval cue to access knowledge of the brand's aspects. Thus, we focus on the associative strength underlying each of these two processes. "Brand name accessibility" refers to the likelihood that the brand will come to mind when a brand aspect is used as a retrieval cue (e.g., how likely it is that Big Red will come to mind when a person thinks of chewing gum or cinnamon flavor). When brand name accessibility decreases (i.e., is diluted), it is less likely that the brand will be recalled and enter the consumer's consideration set in decision-making situations (Alba, Hutchinson, and Lynch 1991). "Aspect accessibility" refers to the likelihood that a given brand aspect will come to mind when the brand name is used as a retrieval cue (e.g., how likely it is that chewing gum or cinnamon flavor will come to mind when a person thinks about the Big Red brand). When aspect accessibility decreases (i.e., is diluted), even consumers who seek the benefits offered by the brand are less likely to consider and choose the brand (Alba, Hutchinson, and Lynch 1991).<sup>2</sup>

On the basis of this conceptualization, we use three dilution measurement methods: (1) response latency to recognize brand associations, (2) recall of brand associations, and (3) brand choice. The first two measures directly assess brand name and aspect accessibility. Although both have been advocated as useful in the assessment of dilution

(Morrin and Jacoby 2000; Peterson, Smith, and Zerrillo 1999; Simonson 1993), the response latency measure has been singled out as particularly relevant. Reduction in the speed at which people are able to access, recognize, and verify brand associations is what Jacoby (2001, p. 1049) refers to as "the essence of a weakening of associations" for dilution. In contrast, our third measure addresses the consequences of reduced brand name or aspect accessibility, namely, reduced probability of consideration and brand choice.

### ***The Shared Brand Network and Predicting Dilution***

To understand how a junior-brand strategy may affect the senior brand, we consider how brand information is stored in and retrieved from memory. Associative network theory (Anderson 1983) suggests that brand information is encoded in long-term memory as a pattern of linkages between concept nodes (e.g., associations between the brand and its aspects). Although the senior and junior brands are not related from the perspectives of ownership, production, or marketing, they are related by a similar mark (e.g., name, logo, defining slogan). Thus, although consumers are likely to possess cognitive networks for both the senior and the junior brands, there is some connection between these networks due to the shared/similar trademark. To the extent that there are other similarities between the two brands (i.e., similar aspects), these two networks become even more interconnected (Jacoby 2001). Recent memory research shows that such related information is often encoded in one composite memory trace (Humphreys et al. 2000; Shiffrin 2003). However, regardless of whether the junior brand shares a composite memory trace with the senior brand, it is linked to the senior brand in memory through what we call a "shared brand network."

What are the implications of this shared brand network for the brand name and aspect accessibility of the senior brand? Consider how consumers retrieve knowledge from memory. At retrieval, cues activate corresponding nodes in memory, and this activation spreads to related constructs. The speed at which activation spreads is determined by the strength and proximity of linkages among constructs. The closer constructs are encoded in memory, and the stronger the linkages among them, the greater is the likelihood that related constructs will be activated. Because the senior and junior brands reside in a shared brand network, thinking about the senior brand activates associations for the junior brand (Anderson, Green, and McCulloch 2000). Furthermore, because all associated constructs compete for activation, these junior-brand associations are likely to reduce the probability and speed of activation of senior-brand associations (Burke and Srull 1988). However, this competitive interference is likely moderated by the degree of similarity between the aspects of the senior and junior brands. Indeed, adding similar constructs to the shared brand network (e.g., when the junior brand shares similar aspects with the senior brand) is likely to increase the probability and speed of activation of senior-brand associations through the spreading of activation among these closely related constructs (Humphreys et al. 2000).

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<sup>1</sup>Peterson, Smith, and Zerrillo (1999) and Morrin and Jacoby (2000) are the first to measure and examine moderators of trademark dilution. Their studies have many strengths, such as an empirical investigation of brand-knowledge-based measures of dilution, the examination of multiple brands, the use of recognition and recall measures, and the use of brand names and logos as stimuli. Nonetheless, their studies suggest the need for further empirical work. Limitations include weak and inconsistent effects, effects that occur only in comparison to a condition in which the senior brand's associations are reinforced, pooling of effects so that it is not possible to examine differential effects for many specific brand associations, and a limited examination of a key moderator of dilution (attribute similarity is not examined). We extend their pioneering work with a research design that can address all these issues.

<sup>2</sup>Keller (1993) divides brand knowledge into two similar components: brand awareness and brand image. Our brand name accessibility component parallels his brand awareness component, but our aspect accessibility component is less inclusive than his brand image component, because we include only specific associations and not brand attitudes. Our focus on specific associations follows from understanding blurring as a weakening of association between a brand and its distinctive aspects.

Therefore, we expect that when the junior brand's aspects (e.g., category, attributes) are dissimilar to the senior brand, the senior brand's name accessibility and aspect accessibility decrease; that is, the senior brand experiences blurring dilution. When the junior brand's aspects are similar to those of the senior brand, the senior brand's name accessibility and aspect accessibility increase; that is, the senior brand experiences reinforcement of its distinctive associations. Although somewhat similar effects have been found in the brand extension literature, there are two key differences between this stream of research and our studies: First, most research in extension dilution examines inconsistent or failed extensions, relying on measures of global brand evaluations (cf. John, Loken, and Joiner 1998), not accessibility (cf. Morrin 1999). Second, brand extensions are known to be related to the parent brand. In our research, the senior and junior brands are known to be unrelated. Although dilution applies equally to situations in which consumers are or are not confused about the relationship between the junior and the senior brands (Jacoby 2001), dilution comes to the forefront only when there is no confusion.

### **How Do These Effects Occur in the Absence of Confusion?**

It may seem implausible that the dilution and reinforcement effects we predict occur without confusion about the relationship between the senior and the junior brands. Why would the consumer not simply use his or her knowledge that the brands are unrelated to selectively "ignore" junior-brand associations when thinking about the senior brand? Again, consider how knowledge is retrieved from memory. When a stimulus such as a brand name is encountered, its associations are activated according to their accessibility. Highly accessible associations contribute to an "automatic interpretation" of the construct. This automatic interpretation incorporates any blurring or reinforcement that results from associations with the junior brand and its aspects in the shared brand network. This automatic interpretation may be corrected through the consideration of less accessible associations or externally available information, such as the knowledge that the brands are unrelated. However, such correction requires cognitive effort, and as a result, under-correction is common (Jacoby 2001; Johar and Simmons 2000). Thus, the accessibility of senior-brand associations is influenced by junior-brand associations, even when there is no confusion, and dilution or reinforcement is the consequence.

## **Study 1: Effects of Product Category Similarity on Response Latencies**

The effect of category similarity on dilution is an important issue because the trademark dilution doctrine extends to noncompetitive brands (i.e., brands in different categories) and to brands in direct competition with the senior brand. Understanding where the danger lies can help public policy makers and brand managers monitor and control dilution. We examine the moderating effects of category similarity

on reinforcement and dilution of the senior brand while holding the similarity of other brand aspects constant at a relatively neutral level. Recall that we expect high category similarity to lead to reinforcement of the senior brand and low category similarity to lead to dilution of the senior brand. We focus on the case in which the junior brand's name is identical to that of the senior brand.

- H<sub>1</sub>: Category similarity moderates the effect of a same-named junior brand on the senior brand's distinctive associations.
- When category similarity is high, the senior brand is reinforced (i.e., brand name accessibility and aspect accessibility increase).
  - When category similarity is low, the senior brand is diluted (i.e., brand name accessibility and aspect accessibility decrease).

### **Method**

*Overview.* Figure 1 displays our procedure and analyses. Our senior brand is Big Red, a chewing gum that is strongly associated with cinnamon flavor. In Step 1, we expose participants to a series of advertisements, including one for a new brand (the junior brand or an identical unbranded product). The new product belongs either to a category that is highly similar to that of the senior brand (bubble gum) or to one that is dissimilar to that of the senior brand (snack bars). In Step 2, we measure two dependent variables: (1) senior-brand name accessibility, or the response latency to recognize correctly the brand name as "going with" the distinctive aspect given as a cue, and (2) senior-brand aspect accessibility, or the response latency to recognize correctly a distinctive aspect as "going with" the brand name given as a cue. (The senior brand's distinctive aspects are chewing gum and cinnamon flavor.) In Step 3, we determine whether exposure to the junior brand increases or decreases these accessibilities compared with exposure to an identical unbranded product. If exposure to the junior brand increases brand name or aspect accessibility (i.e., if response latencies decrease), the senior brand has been reinforced by the junior brand. If exposure to the junior brand decreases brand name or aspect accessibilities (i.e., if response latencies increase), the senior brand has been diluted by the junior brand. Thus, our category similarity manipulation enables us to determine whether category similarity moderates reinforcement and dilution.<sup>3</sup>

*Design and sample.* Pretest participants indicated (on seven-point scales) that they were highly familiar with Big Red chewing gum ( $M = 6.73$ ) and strongly associated Big Red with cinnamon flavor ( $M = 6.52$ ). Thus, we focus on these two distinctive aspects of Big Red (i.e., chewing gum and cinnamon flavor). Pretest participants also identified bubble gum and snack bars as high ( $M = 5.26$ ) and low ( $M = 2.05$ ), respectively, in similarity to chewing gum; this difference is significant ( $F_{1, 18} = 42.39, p < .01$ ). On the basis of these results, our design is a 2 (category similarity):

<sup>3</sup>In Studies 1–3, we use an identical unbranded product as a control to isolate the effect of a junior brand. In Studies 4–5, we use a well-known brand as a control to increase ecological validity (consumers rarely encounter unbranded products) and external validity (our pattern of results is unaffected, increasing our confidence in their generality).

**FIGURE 1**  
**Procedure for Detecting Dilution of the Big Red → Chewing Gum Association**

Dilution is shown if exposure to a junior brand increases the RT to recognize chewing gum as an association of the Big Red brand.

**2. Measure RT for the Association:  
 Does chewing gum “go with” Big Red?**

**1. Show Advertisements.**

Condition	Ad 2 (Focal Advertisement)			Ad 3 (Filler)	RT if not exposed to junior brand – RT if exposed to junior brand RT difference
	Ad 1 (Filler)	Ad 2 (Focal Advertisement)	Ad 3 (Filler)		
<b>High Similarity</b> Unbranded Junior brand	Skittles candy Skittles candy	Brand A bubble gum Big Red bubble gum	Nutri-Grain snack bars Nutri-Grain snack bars		RT if not exposed to junior brand – RT if exposed to junior brand RT difference
<b>Low Similarity</b> Unbranded Junior brand	Skittles candy Skittles candy	Brand A snack bars Big Red snack bars	Bazooka bubble gum Bazooka bubble gum		RT if not exposed to junior brand – RT if exposed to junior brand RT difference

**3. Examine how the RT for those exposed to the junior brand differs from the RT for those not exposed to the junior brand.**

Dilution is shown by a negative difference. Reinforcement is shown by a positive difference.

Notes: RT = response time.

high [bubble gum] and low [snack bars])  $\times$  2 (new product: junior brand [Big Red] and unbranded [Brand A])  $\times$  2 (order of ad presentation) between-subjects design. We hold attribute similarity constant at a neutral level, as we describe subsequently. Participants were 89 randomly assigned undergraduate students.

*Procedure and materials.* In a computer-administered procedure, participants saw three advertisements: one for bubble gum, one for bite-size candy, and one for snack bars. Two of these were filler advertisements, which were intended to reduce hypothesis guessing. The third advertisement was for the new product, either a bubble gum (high category similarity) or a snack bar (low category similarity). Advertisements in each similarity condition were identical except for brand name (Big Red or Brand A), and they contained a disclaimer that stated that the product is not manufactured by the makers of Big Red (Brand A) chewing gum. We warned participants that some of the advertisements might be for products that were not yet branded and that these products would be identified with a letter. In all conditions, the two filler advertisements were for well-known products in the remaining two categories for that condition (Skittles bite-size candy and either Bazooka bubble gum or Nutri-Grain snack bars).

Each advertisement contained a brand name, a product category, and two claims. We told participants that the advertisements were depicted in this simple fashion because we were interested in their reactions to the informational content of the advertisements. In the new product advertisements, we held attribute similarity with Big Red chewing gum constant at a neutral level with one similar and one dissimilar attribute. For the bubble gum, claims were “great cinnamon flavor” (similar to Big Red chewing gum) and “blow awesome bubbles” (dissimilar). For the snack bar, the claims were “great cinnamon flavor” (similar) and “enriched with vitamins and minerals” (dissimilar). In a pretest, these two dissimilar attributes were not rated as differing in dissimilarity to Big Red chewing gum ( $M = 1.89$  and  $1.31$ ;  $F_{1, 18} = 3.31$ ,  $p > .09$ ). Each advertisement was displayed for 30 seconds.<sup>4</sup> The new-product advertisement was always second in the sequence, and presentation of the filler advertisements was counterbalanced.

After presentation of the advertisements, we collected accessibility measures using procedures that Fazio (1990) described. First, we presented a brand name or an aspect. Participants focused on this cue and pressed the space bar when they were ready to see the second cue (an aspect or brand name, depending on which was not presented first). The second cue was then displayed on the next screen. Participants pressed a key to indicate whether the second cue went with the first cue (yes or no). They were instructed to work as quickly as possible without sacrificing accuracy. The computer captured the response latency (in milliseconds) from the time the second cue was displayed until a response key was pressed. Accessibility trials were pre-

<sup>4</sup>The 30-second display was intended to encourage participants to take the time to read the disclaimer. The viewing situation was more naturalistic (display time was not controlled) in Studies 3, 4, and 5. The results were similar.

ceded by a set of practice trials that were unrelated to the brands presented in the advertisements. Participants practiced until they were familiar with the procedure and could work quickly. The practice trials also provided a buffer between presentation of the advertisements and collection of dependent variables of interest. Following the accessibility trials, we administered manipulation checks for category similarity and lack of confusion between the senior and the junior brands. We also measured familiarity with Big Red.<sup>5</sup>

## Results

*Manipulation and data checks.* Participants indicated (on seven-point scales) that they were highly familiar with Big Red chewing gum ( $M = 6.03$ ) and strongly associated Big Red with cinnamon flavor ( $M = 6.38$ ); thus, the chewing gum category and cinnamon flavor are good exemplars of the brand’s distinctive aspects. As for the dissimilar attributes used in the advertisements for new products, participants indicated a weak association of Big Red with awesome bubbles ( $M = 1.92$ ) and with vitamins and minerals ( $M = 1.19$ ). They also identified bubble gum as high ( $M = 6.63$ ) and snack bars as low ( $M = 2.95$ ) in similarity to chewing gum; this difference is significant ( $F_{1, 72} = 27.42$ ,  $p < .001$ ). We also collected a seven-point scale measurement of liking for the Big Red brand. Liking the brand did not differ across conditions, indicating that our manipulations did not create tarnishment effects ( $F_{3, 69} = 1.07$ ,  $p > .10$ ). Finally, a free-recall measure of ad content showed that participants were not confused about the relationship between the senior brand and the junior brand; only 3.6% of participants did not report the disclaimer, and this number did not vary by condition ( $\chi^2_3 = .19$ ,  $p > .10$ ). We eliminated respondents who did not report the disclaimer.

Although we instructed participants to work as quickly as possible without sacrificing accuracy, it is possible that some traded off accuracy for speed. That is, effects on accessibilities could be reflected in the accuracy of responses rather than in response latencies. For example, participants could make errors such that dilution shows up as a lower probability of accurately identifying cinnamon as an aspect of Big Red rather than as a longer response latency to recognize this association. Thus, we checked our data for such errors. The average error rate was low (4.2%) and did not vary by condition (all  $\chi^2 < 1.0$ ,  $ps > .10$ ). This indicates that participant error in responding is not problematic. Still, we eliminated these errors from our analysis.

*Hypothesis tests.* We log-transformed response latencies to achieve distribution normality (Fazio 1990). We used each respondent’s mean latency on filler trials as a covariate

<sup>5</sup>There were 92 trials in three blocks, with a 30-second rest between blocks. Experimental trials measured the accessibilities that we report in Table 1. Filler trials served to (1) decrease hypothesis guessing, (2) create a set of trials in which correct yes and no responses are equally represented and thus avoid creating a response bias, and (3) provide an average response time for each participant for use as a covariate. (The covariate isolates variance due to individual differences; this analysis should increase the sensitivity of our tests compared with Morrin and Jacoby’s [2000] use of similar measures.) Within each block, we randomized the order of trials for each participant.

to isolate variance due to individual differences, thus reducing error variance and increasing the power of our statistical tests. Order of presentation of the filler advertisements had no impact on response latencies ( $ps > .10$ ), and so we do not discuss its effects further.

$H_1$  predicts that category similarity moderates the effect of the junior brand on the senior brand, such that the senior brand's association with its distinctive aspects is reinforced when category similarity is high ( $H_{1a}$ ) and diluted when category similarity is low ( $H_{1b}$ ). This prediction implies an interaction between category similarity and new product of a particular form. When similarity is high, senior-brand name and aspect accessibility should increase (and response latencies should decrease) when the new product is branded Big Red rather than when it is unbranded. When similarity is low, senior-brand name and aspect accessibility should decrease (and response latencies should increase) when the new product is branded Big Red rather than when it is unbranded. As we predicted, there is a significant category interaction between similarity and new product for all senior-brand accessibility measures ( $ps < .05$ ).

Response latency means for the new-product planned contrasts (Big Red versus unbranded) appear in Table 1. Reinforcement is shown by a significant, positive contrast value, indicating that senior-brand associations are more accessible when the new product is a junior brand than when it is unbranded. Dilution is shown by a significant, negative contrast value, indicating that senior-brand associations are less accessible when the new product is a junior brand than when it is unbranded. As we predicted in  $H_{1a}$ , when category similarity is high, senior-brand name and aspect accessibility are reinforced; all four entries in Table 1, Column 1, are positive and significant ( $F_s > 5.00$ ,  $ps < .05$ ). When category similarity is low, these accessibilities are diluted; all entries in Table 1, Column 2, are negative and significant ( $F_s > 4.00$ ,  $ps < .05$ ), in support of  $H_{1b}$ .

**TABLE 1**  
**Study 1: Mean Change in Accessibility (Means)**

	Category Similarity	
	Column 1: High (Bubble Gum)	Column 2: Low (Snack Bars)
<b>Brand Name Accessibility (Aspect → Brand Name)</b>		
Chewing gum → Big Red	212	-247
Cinnamon → Big Red	302	-276
<b>Aspect Accessibility (Brand Name → Aspect)</b>		
Big Red → chewing gum	327	-119
Big Red → cinnamon	174	-334

Notes: Mean changes in accessibility reflect our planned contrasts: response latency after exposure to unbranded product versus response latency after exposure to identical junior brand. Significant, positive and negative contrasts indicate reinforcement and dilution, respectively, for the senior brand. All contrasts are consistent with prediction and are significant at  $p < .05$ . a → b indicates that a is a retrieval cue for retrieving b.

## Study 2: Effects of Category and Attribute Similarity on Response Latencies

The results of Study 1 confirm our predictions about the effects of category similarity. However, category similarity is only one of many ways that junior and senior brands may be similar or dissimilar. Consider again the example of Victor's Secret. Lingerie is a major part of its business; thus, many consumers might perceive category similarity between Victor's Secret and Victoria's Secret. At the same time, Victor's Secret may be viewed as different from Victoria's Secret on many attributes (e.g., "classiness," store appearance). What is the impact of this feature or attribute dissimilarity, and what happens when a junior brand operates in a dissimilar category but attempts to leverage distinctive attributes of the senior brand? For example, Sleep Inn was originally slated to be called McSleep Inn to communicate the "basic, convenient, inexpensive, and/or standardized qualities" associated with McDonald's (a dissimilar category with similar attributes; "McReading" 1988, p. 32). What is the impact of this feature or *attribute similarity*? Study 2 addresses these questions to capture the complexity of real-world situations.

### Predictions

A variety of evidence suggests that category similarity is likely to take precedence over similarity in other aspects (e.g., attributes) in the determination of whether a junior brand dilutes a senior brand. Category (or relational) similarity, versus feature overlap (Tversky 1977), is likely to be accessed first and to have a greater influence on perceived similarity (Medin, Goldstone, and Gentner 1993). Thus, the encoding of new information (e.g., junior-brand knowledge) is likely to be guided by category similarity, such that closer associations are formed between senior and junior brands when category similarity is high. When category similarity is low, these associations should be more distinct and less tightly linked (Anderson, Green, and McCulloch 2000; Shiffrin 2003). Consistent with this view, it has been shown that category similarity influences the accessibility of constructs in memory more than does structural commonalities (attribute matching; Forbus, Gentner, and Law 1994). Therefore, our predictions are based on the assumption that category similarity takes precedence over attribute or feature similarity in the determination of how tightly linked junior-brand knowledge is with senior-brand knowledge in the shared brand network.

When category similarity is high and the senior and junior brands form a closely connected shared brand network, aspect similarity should have strong effects due to spreading activation. Similar aspects should reinforce senior-brand name and aspect accessibility, whereas dissimilar aspects should dilute brand name and aspect accessibility. Thus, senior-brand category associations (e.g., Big Red → chewing gum, chewing gum → Big Red) should be reinforced (because the categories are similar). However, senior-brand attribute associations (e.g., Big Red → cinnamon, and cinnamon → Big Red) should be reinforced when attribute similarity is high and diluted when attribute similarity is low.

When category similarity is low, senior-brand category associations should be diluted because the categories are dissimilar. Furthermore, because the senior and junior brands are encoded more distantly and distinctly in the shared brand network, similar attributes should have less ability to reinforce senior-brand attribute associations. Similar attributes are linked by their similarity, but because they are encoded in distinctive locations, the speed of activation of this link is lessened. Therefore, we expect that when attribute similarity is low, dilution of attribute associations is likely. When attribute similarity is high, reinforcement of attribute association is unlikely, though spreading activation along the relatively weak associations among similar attributes is likely to lessen dilution effects. (For all hypothesis tests, we measure both brand name and aspect accessibility; however, we expect no difference across these measures.)

H<sub>2</sub>: Category and attribute similarity jointly determine the effect of a same-named junior brand on the senior brand's distinctive associations.

- a. When category and attribute similarity are both high, the senior brand's category and attribute associations are reinforced (i.e., accessibilities increase).
- b. When category similarity is high and attribute similarity is low, (i) the senior brand's category associations are reinforced (i.e., accessibilities increase), and (ii) the senior brand's attribute associations are diluted (i.e., accessibilities decrease).
- c. When category similarity is low and attribute similarity is high, (i) the senior brand's category associations are diluted (i.e., accessibilities decrease), and (ii) the senior brand's attribute associations are not reinforced and may be diluted (i.e., accessibilities do not increase and may decrease).
- d. When category and attribute similarity are both low, the senior brand's category and attribute associations are diluted (i.e., accessibilities decrease).

## Method

Big Red chewing gum is again our senior brand. Our design is a 2 (category similarity: high [bubble gum] and low [snack bars]) × 2 (attribute similarity: high [cinnamon flavor and breath freshening] and low [strawberry flavor and containing immunity-boosting Echinacea]) × 2 (new product: junior brand [Big Red] and unbranded [Brand A]) × 2 (order of ad presentation) between-subjects design. Pretest participants indicated (on seven-point scales) that they are highly familiar with Big Red chewing gum ( $M = 6.73$ ), strongly associate Big Red with fresh breath ( $M = 4.63$ ) and cinnamon flavor ( $M = 6.52$ ), and believe that it is unlikely that Big Red chewing gum is strawberry flavored ( $M = 1.41$ ) or contains echinacea ( $M = 1.27$ ). These likelihood ratings do not differ significantly from one another ( $F_{1, 24} = 2.34, p > .10$ ) and are both significantly lower than the likelihood that Big Red chewing gum freshens breath ( $M = 4.66$ ) or is cinnamon flavored ( $M = 6.11; ps < .01$ ). Participants were 235 undergraduate business students randomly assigned to conditions. Procedures and materials were otherwise identical to those of Study 1.

## Results

*Manipulation and data checks.* As we expected, participants indicated (on seven-point scales) that they were highly familiar with Big Red chewing gum ( $M = 6.17$ ) and strongly associated Big Red with fresh breath ( $M = 5.32$ ) and cinnamon flavor ( $M = 6.21$ ). Participants identified bubble gum and snack bars as high ( $M = 6.34$ ) and low ( $M = 2.34$ ), respectively, in similarity to chewing gum; this difference is significant ( $F_{1, 212} = 11.66, p < .05$ ). Participants also indicated that strawberry flavor ( $M = 1.73$ ) and echinacea ( $M = 1.18$ ) were equally weak in their association with the Big Red brand ( $F_{1, 211} = .57, p > .10$ ). A free-recall measure of ad content showed that participants were not confused about the relationship between the senior brand and the junior brand; only 1.3% of participants did not report the disclaimer, and this number did not vary by condition ( $\chi^2_7 = 6.19, p > .10$ ). Again, we collected a seven-point-scale measure of brand liking for the Big Red brand. Liking did not differ across conditions, indicating that our manipulations did not create tarnishment effects ( $F_{7, 188} = 1.56, p > .10$ ). The average error rate in the accessibility trials was low (2.3%) and did not vary by condition ( $\chi^2_7 = 9.02, p > .10$ ). As in Study 1, we eliminated participants who failed to recall the disclaimer and those who made errors.

*Hypothesis tests.* Again, we log-transformed response latencies to achieve distribution normality (Fazio 1990), and we used participants' mean response latency on filler trials as a covariate to isolate variance due to individual differences. Order of presentation of the filler advertisements had no impact on response latencies ( $ps > .10$ ); thus, we do not discuss its effects further. Planned contrast values for the nontransformed response latencies appear in Table 2. Reinforcement (dilution) effects are indicated as significant and positive (negative) contrast values. All contrasts that are consistent with prediction appear in bold.

The results are as we predicted for 22 of the 24 contrasts. As H<sub>2a</sub> predicts, when category and attribute similarity are both high, the senior brand is uniformly reinforced; all six entries in Table 2, Column 1, are positive and significant ( $F_s > 6.00, ps < .05$ ). H<sub>2b</sub> predicts that when category similarity is high and attribute similarity is low, category associations are reinforced and attribute associations are diluted. The results for category associations are mixed. As the first entry in Table 2, Column 2, shows, brand name accessibility for the category is reinforced, as predicted ( $F_{1, 44} = 12.91, p < .01$ ), but aspect accessibility for the category is not (Column 2, fourth entry;  $F_{1, 42} = 2.07, p > .10$ ). The results for attribute associations are all diluted; as we predicted, the second, third, fifth, and sixth entries in Table 2, Column 2, are negative and significant ( $F_s > 9.00, ps < .01$ ).

H<sub>2c(i)</sub> predicts that when category similarity is low and attribute similarity is high, category associations are diluted. The results are mixed here as well. Brand name accessibility for the category is diluted (Table 2, Column 3, first entry;  $F_{1, 44} = 12.91, p < .01$ ), but aspect accessibility for the category is unaffected (Table 2, Column 3, fourth entry;  $F_{1, 42} = 2.07, p > .10$ ). H<sub>2c(ii)</sub> predicts that when cate-

**TABLE 2**  
**Study 2: Mean Change in Accessibility (Means)**

	High Category Similarity (Bubble Gum)		Low Category Similarity (Snack Bars)	
	Column 1: High Attribute Similarity (Cinnamon, Fresh Breath)	Column 2: Low Attribute Similarity (Strawberry, Echinacea)	Column 3: High Attribute Similarity (Cinnamon, Fresh Breath)	Column 4: Low Attribute Similarity (Strawberry, Echinacea)
<b>Brand Name Accessibility (Aspect → Brand Name)</b>				
Chewing gum → Big Red	195*	243*	-86*	-234*
Cinnamon → Big Red	152*	-346*	-144*	-342*
Fresh breath → Big Red	145*	-66*	95	-255*
<b>Aspect Accessibility (Brand Name → Aspect)</b>				
Big Red → chewing gum	182*	-41	-132	-402*
Big Red → cinnamon	51*	-327*	-116*	-316*
Big Red → fresh breath	349*	-250*	63	-340*

\*Contrast is significant at  $p < .05$ .

Notes: Mean changes in accessibility reflect our planned contrasts: response latency after exposure to unbranded product versus response latency after exposure to junior brand. Significant, positive and negative contrasts indicate reinforcement and dilution, respectively, for the senior brand. Bolded contrasts are consistent with prediction. a → b indicates that a is a retrieval cue for retrieving b.

category similarity is low and attribute similarity is high, attribute associations are not reinforced and may be diluted. Consistent with this prediction, two of the four planned contrasts demonstrate dilution (Table 2, Column 3, second and fifth entries;  $F_s > 4.00$ ,  $ps < .05$ ), and two exhibit null effects (Table 2, Column 3, third and sixth entries;  $F_s < 2.20$ ,  $ps > .05$ ). Finally, as  $H_{2d}$  predicts, when category and attribute similarity are both low, the senior brand is uniformly diluted, as evidenced by the six negative and significant values in Table 2, Column 4 ( $F_s > 6.00$ ,  $ps < .05$ ).

### Summary and Discussion of Studies 1 and 2

*Dilution effects.* Study 1 manipulated product category similarity and held attribute similarity constant at a moderate level. As we predicted, the accessibility of distinctive senior-brand associations was reinforced with high category similarity and was diluted with low category similarity. Study 2 manipulated both product category and attribute similarity. As predicted, in general, accessibility of the senior brand's category associations was reinforced when category similarity was high and was diluted when category similarity was low (though this effect did not hold for two aspect accessibility measures). As predicted, the accessibility of the senior brand's attribute associations depended on both category and attribute similarity. When category similarity was high, the senior brand's attribute associations were reinforced by attribute similarity and were diluted by attribute dissimilarity. When category similarity was low, the senior brand's attribute associations were not reinforced by attribute similarity; indeed, they were often diluted.

From a theoretical standpoint, our results suggest that category similarity determines the extent to which senior and junior brands are connected in the shared brand network. Further work examining the structure of the shared brand network can help better understand when junior

brands pose the greatest threats and why. From managerial and public policy standpoints, our results offer insights into the understanding of present dilution and the future risk of dilution. Present dilution is likely when there are important dissimilarities between the senior and the junior brands, particularly at the category level. This insight is important because brands in different categories intuitively seem less of a risk, perhaps because they seem less likely to confuse consumers with respect to their (lack of) relationship with the senior brand. If confusion is indeed less likely, the dilution doctrine is an important source of trademark protection in this case because unlike infringement, it extends to situations in which there is no consumer confusion.

In contrast, the future risk of dilution is high when there are important similarities between the senior and the junior brands, particularly at the category level. Present dilution is unlikely—rather, the senior brand is likely to be reinforced—but the close association between the junior and the senior brands in the shared brand network means that future actions by the junior brand could create harmful associations that readily affect the senior brand (Swann and Davis 1994). In this situation, brand managers may find that proving infringement through evidence of confusion is more feasible. If a case for infringement cannot be made, careful monitoring for emerging evidence of dilution will be particularly important. It is noteworthy that similar junior brands (and risk of future dilution) may be common. As the shared brand network conceptualization predicts, in terms of the creation of desired associations, junior brands benefit the most when they are similar to the senior brand (Pullig, Simmons, and Netemeyer 2005).

Finally, it appears that the greatest challenges in detecting and proving present dilution occur when the junior brand is in a dissimilar category or possesses dissimilar attributes, but not both. In these cases, dilution is not uni-

form across associations, and some associations (e.g., the category association when category similarity is high) may be reinforced. Thus, dilution is more difficult to demonstrate. For the brand manager, careful measurement and an appreciation of which associations are likely rather than unlikely to be diluted are particularly important.

*Response latency measure.* The response latency measure is a good candidate for meeting the broad guidelines for evidence of dilution outlined by the Court. It goes beyond the idea of “mere association” between brands (rejected by the Court as inadequate) and shows an impact on how consumers process the senior brand, though it falls short of showing actual effects on sales (which the Court has deemed to be unnecessary). However, although response latencies provide a theoretically viable way to measure dilution, the procedures are cumbersome. Study 3 examines how well a simpler paper-and-pencil aided-recall task can replicate the effects of Study 2. Such a measure might provide a more tractable measurement methodology for the field.

### Study 3: Effects of Attribute and Category Similarity on Aided Recall

We expect aided-recall measures to be less sensitive to differences in the accessibility of brand knowledge than response latency recognition measures. Aided recall requires the respondent to retrieve or recollect an association, whereas successful performance of a recognition task may be based solely on familiarity (Long and Prat 2002). Familiarity involves an assessment of the similarity between a target and the related knowledge in memory, not the explicit retrieval of the target from memory. Furthermore, familiarity may vary from weak to strong, whereas the retrieval required by recall is largely a threshold-based process. Therefore, although we expect that, in general, the aided-recall measure of dilution will replicate the effects we observed in Study 2, we also expect that it will show fewer of these effects.

#### Method

We use a paper-and-pencil aided-recall method to assess reinforcement and dilution across levels of category and attribute similarity. Our design is identical to that of Study 2, with one exception. In a within-subjects manipulation, we vary the order of recall: brand name recall first versus aspect recall first. We included this order manipulation for two reasons: First, because successful recall in a paper-and-pencil task is more cognitively and physically demanding, we were concerned about fatigue effects in reported recall. Second, because a recall task does not measure strength of association, just whether that strength exceeds the threshold necessary for recall, we were particularly concerned about differential transfer effects (e.g., giving participants Big Red as a retrieval cue for brand aspects increases the probability that they will subsequently recall Big Red when they are given an aspect as a retrieval cue).

Participants were 448 undergraduate business students randomly assigned to conditions. We asked them to evaluate

at their own pace the same advertisements as those used in Study 2. Then, to provide closure to these processing instructions and to measure recall of the disclaimer, we asked participants to list all the aspects they remembered from the advertisements. Then, they participated in an unrelated study, which took approximately 15 minutes and included a series of arithmetic calculations on product search time and price expectations; simple arithmetic tasks are an effective way to clear short-term memory (Spears 1978). Finally, we administered the recall task.

We measured aspect accessibility by asking participants to recall all that came to mind when they thought of each brand from a list of brands, including the brand of interest (i.e., Big Red chewing gum). We measured brand name accessibility by asking them to recall what came to mind when they thought of a list of aspects, including the aspects of interest (i.e., chewing gum and cinnamon flavor). The order of aspect accessibility and of brand name accessibility measures was counterbalanced. Successful retrieval of the Big Red brand name in response to a distinctive aspect (e.g., chewing gum) or successful retrieval of a distinctive aspect (e.g., chewing gum) in response to the Big Red brand name is coded as a 1, and unsuccessful retrieval is coded as a 0. Two independent coders, who were unaware of the purpose of the research, coded the recall responses. Inter-coder agreement was 94%. All differences were resolved through discussion. Following the recall task, participants completed manipulation and confounding check measures.

#### Results

*Manipulation and data checks.* Participants indicated (on seven-point scales) that they were highly familiar with Big Red chewing gum ( $M = 5.87$ ) and strongly associated Big Red with cinnamon flavor ( $M = 6.35$ ) and fresh breath ( $M = 4.91$ ). They also identified bubble gum and snack bars as high ( $M = 6.07$ ) and low ( $M = 2.84$ ), respectively, in similarity to chewing gum; this difference is significant ( $F_{1,480} = 43.67, p < .01$ ). Participants also rated strawberry flavor ( $M = 2.17$ ) and echinacea ( $M = 2.22$ ) as equally weak in their association with the Big Red brand ( $F_{1,480} = 1.14, p > .10$ ). A free-recall measure of ad content showed that participants were not confused about the relationship between the senior brand and the junior brand; only 2.1% of participants did not report the disclaimer, and this number did not vary by condition ( $\chi^2_{15} = 4.20, p > .10$ ). We eliminated participants who failed to recall the disclaimer. Order of presentation of the filler advertisements had no impact on proportions of successful recall ( $ps > .10$ ); thus, we do not discuss its effects further. Recall task order resulted in significant differential transfer for all recall measures ( $ps < .05$ ); therefore, the following analyses are based on the first recall task (brand name or aspect) for each respondent.

*Hypothesis tests.* As in Study 2, we test  $H_2$  regarding the effects of category and attribute similarity on dilution and reinforcement of the senior brand. Our dependent measure is the successful recall of brand aspects, a nominal variable; thus, we use a logistic regression model. As in Study 2, our planned contrasts compare participants who were exposed to the junior brand with those who were exposed to an iden-

tical unbranded product. Contrast values and significance tests appear in Table 3. Contrasts that are consistent with the predictions in  $H_2$  appear in bold. In Study 2, using response latency measures, we found that 22 of the 24 contrasts were consistent with prediction. In Study 3, using an aided-recall measure, we found that though all contrasts were in the predicted direction, only 16 of the 24 contrasts were consistent with prediction when statistical significance is considered.

$H_{2a}$  predicts that when category and attribute similarity are both high, the senior brand is reinforced. As we show in Table 3, Column 1, four of the six accessibility measures are consistent with this prediction (Wald statistics  $> 3.41$ ,  $p < .05$ ).  $H_{2b}$  predicts that when category similarity is high and attribute similarity is low, the senior brand's category associations are reinforced. This prediction holds for only one of the two measures; when category is used as a retrieval cue, brand name accessibility is reinforced (chewing gum  $\rightarrow$  Big Red; Wald statistic = 3.98,  $p < .05$ ).  $H_{2b}$  also predicts that when category similarity is high and attribute similarity is low, attribute associations are diluted. This prediction holds for only one of the four measures. When the brand name is used as a retrieval cue, aspect accessibility for cinnamon flavor is diluted (Big Red  $\rightarrow$  cinnamon flavor; Wald statistic = 4.07,  $p < .05$ ).

$H_{2c(i)}$  predicts that when category similarity is low and attribute similarity is high, category associations are diluted. This prediction is supported (Column 3, first and fourth entries; Wald statistics  $> 3.71$ ,  $p < .05$ ).  $H_{2c(ii)}$  predicts that attribute associations are not reinforced and may be diluted in this situation. Consistent with prediction, aspect accessibility for cinnamon flavor is diluted (Big Red  $\rightarrow$  cinnamon flavor; Wald statistic = 6.74,  $p < .01$ ), and all other attribute associations in this condition are unaffected. Finally,  $H_{2d}$  predicts that when both category and attribute similarity are low, the senior brand is diluted. Table

3, Column 4, supports this prediction for each of the aspect accessibility measures (fourth, fifth, and sixth entries; Wald statistics  $> 4.00$ ,  $p < .05$ ) and for brand name accessibility when the category is used as a retrieval cue (chewing gum  $\rightarrow$  Big Red; Wald statistic = 4.07,  $p < .05$ ).

### Discussion

As we expected, recall measures of dilution were less sensitive to differences in accessibility than the response latency recognition measure. However, all contrasts in Table 3 are in the predicted direction, and 67% meet our statistical criteria (recall that some null effects are predicted); this recall measure is highly correlated with our response latency measure from Study 2 ( $r = .75$ ,  $p < .001$ ). Thus, the data are encouraging about the viability of a recall measure. However, these results emphasize the need to consider multiple measures in the assessment of dilution. For example, it may make sense to trade off sensitivity for convenience and use a recall measure for general monitoring purposes but response latencies for a more in-depth understanding or when proof of dilution is crucial.

## Study 4: Effects of a Junior Brand on Consideration and Choice Probabilities

From a practical perspective, dilution is of interest because it can affect sales in the marketplace. Thus, a valid measure of dilution captures changes in brand knowledge that lead to reduced consideration and choice of the senior brand. Theoretically, the reduced brand name and aspect accessibility we observed using response latency and recall measures have such effects. We now examine whether situations that lead to dilution, as indicated by response latency and recall measures, reduce the probability of consideration and

**TABLE 3**  
**Study 3: Change in Proportion Recalling Brand Name/Aspects**

	High Category Similarity (Bubble Gum)		Low Category Similarity (Snack Bars)	
	Column 1: High Attribute Similarity (Cinnamon, Fresh Breath)	Column 2: Low Attribute Similarity (Strawberry, Echinacea)	Column 3: High Attribute Similarity (Cinnamon, Fresh Breath)	Column 4: Low Attribute Similarity (Strawberry, Echinacea)
<b>Brand Name Accessibility (Aspect <math>\rightarrow</math> Brand Name)</b>				
Chewing gum $\rightarrow$ Big Red	<b>.30*</b>	<b>.29*</b>	-.21*	-.23*
Cinnamon $\rightarrow$ Big Red	.12	.01	-.06	-.10
Fresh breath $\rightarrow$ Big Red	.05	-.02	-.04	-.05
<b>Aspect Accessibility (Brand Name <math>\rightarrow</math> Aspect)</b>				
Big Red $\rightarrow$ chewing gum	<b>.23*</b>	.19	-.20*	-.23*
Big Red $\rightarrow$ cinnamon	<b>.19*</b>	-.27*	-.31*	-.36*
Big Red $\rightarrow$ fresh breath	<b>.22*</b>	-.01	-.03	-.12*

\*Contrast is significant at  $p < .05$ .

Notes: Contrast values reflect the proportion successfully recalling brand name/aspects after exposure to junior brand versus the proportion successfully recalling brand name/aspects after exposure to control brand. Positive (negative) values indicate reinforcement (dilution) effects. Bolded contrasts are consistent with prediction. a  $\rightarrow$  b indicates that a is a retrieval cue for retrieving b.

choice. We focus on the situation that has most consistently shown evidence of dilution through accessibility measures, that is, when both attribute and category similarity are low.

- H<sub>3</sub>: When category similarity and attribute similarity are low, given distinctive aspects as a choice criterion, the probability of the senior brand being included in a consideration set decreases.
- H<sub>4</sub>: When category similarity and attribute similarity are low, given distinctive aspects as a choice criterion, the probability of the senior brand being chosen decreases.

**Method**

The design is a 3 (senior brands: Big Red, Gap, and Trix) × 2 (condition: diluting versus control) factorial design in which we manipulate the senior brand between subjects and the condition within subjects. Participants were 219 undergraduate students who participated in one diluting condition and two control conditions. As in our previous studies, we achieved manipulations through ad exposures using a computer-administrated procedure. Advertisements in the diluting condition were for a junior brand in a dissimilar category and with dissimilar attributes (e.g., when Big Red was the senior brand, the junior brand was Big Red strawberry snack bars). Advertisements in the control conditions were identical except that we identified the brand as a well-known brand in the category (e.g., when Big Red was the senior brand, the advertisement in the control condition was for Nutri-Grain strawberry snack bars). After participants were exposed to the advertisements, we asked them to choose a brand in each senior-brand category, given distinctive aspects of the senior brand as a choice criterion. We examine how consideration and choice of the senior brand are affected by exposure to a junior brand (versus exposure to an identical product that does not use the senior brand’s name).

Previous results showed that students are highly familiar with Big Red chewing gum, that cinnamon flavor is strongly associated with Big Red, and that the snack bar category and strawberry flavor are viewed as dissimilar to Big Red’s distinctive aspects. Therefore, one of our junior brands is Big Red strawberry snack bars, and our choice cri-

terion is long-lasting cinnamon flavor. Furthermore, pretest participants indicated (on seven-point scales) a high level of familiarity with Gap clothing (M = 6.82) and Trix cereal (M = 6.22); that cotton and khakis are strongly associated with Gap (M = 6.10 and 6.52, respectively); and that colorful, fun, fruity, and for kids are strongly associated with Trix (M = 6.40, 5.20, 6.06, and 6.56, respectively). Pretest participants further indicated that the bed sheets category is dissimilar to clothing (M = 2.04) and that the cake mix category is dissimilar to cereal (M = 2.21). Finally, pretest participants indicated that stain resistant is an unlikely attribute of Gap clothing (M = 3.13) and that low fat is an unlikely attribute of Trix cereal (M = 2.13). Therefore, our two other junior brands are Trix low-fat cake mix and Gap stain-resistant sheets. Our clothing choice criterion is “a good source for cotton khakis,” and our cereal choice criterion is “a colorful, fun, fruity cereal for kids.”

After viewing the advertisements, participants engaged in practice trials to learn the computer-administered choice task and then took part in the main experiment. The choice task was a simulated shopping experience. The brands were represented in color as brand logos or packages of equal size. Participants were asked to choose a set of up to four brands that they would consider, given the choice criterion. Then, this set of brands was displayed on the screen, and participants were asked to choose the brand option that best satisfied the choice criterion. In each step of the simulated choice process, the brands were displayed on the screen in random order. This was done for each of the three senior-brand categories. Following the choice task, participants were asked to recall ad content and to respond to manipulation and confounding check measures. As in the prior studies, we deleted any respondent who failed to report the disclaimer (1.2%); this did not vary by condition ( $\chi^2_2 = 1.52, p > .10$ ).

**Results and Discussion**

The results appear in the top half of Table 4. When exposure to the junior brand resulted in significantly reduced probability of consideration or choice, significant differences in proportions appear in bold. In support of H<sub>3</sub>, the likelihood

**TABLE 4**  
**Studies 4 and 5: Proportion of Respondents Considering and Choosing Senior Brand**

Senior Brand	Consideration		Choice	
	Exposed to Junior Brand?		Exposed to Junior Brand?	
	No	Yes	No	Yes
<b>Study 4: No Delay</b>				
Big Red	.85	.52	.60	.15
Trix	.72	.55	.31	.08
Gap	.68	.49	.25	.09
<b>Study 5: Five-Day Delay</b>				
Big Red	.60	.48	.43	.22
Trix	.69	.52	.33	.31
Gap	.45	.29	.38	.17

Notes: Bolded pairs of proportions within the “Considered” and “Choice” columns are significantly different at  $p < .05$  and are consistent with prediction.

of the senior brand being included in a consideration set was significantly decreased with the introduction of a dissimilar junior brand for two of the three brands ( $\chi^2_1 = 17.56$ ,  $p < .01$ , for Big Red; and  $\chi^2_1 = 4.55$ ,  $p < .05$ , for Gap). In support of H<sub>4</sub>, the probability of choosing the senior brand was significantly reduced in all three categories ( $\chi^2_1 = 19.87$ ,  $p < .01$ , for Big Red;  $\chi^2_1 = 4.18$ ,  $p < .05$ , for Trix; and  $\chi^2_1 = 3.89$ ,  $p < .05$ , for Gap). Thus, conditions that resulted in measured dilution when we used accessibility measures also resulted in decreased consideration and choice of the senior brand, as we predicted. Furthermore, these results have generality across brands.

## Study 5: Consideration and Choice Effects with Delay

In each of the four preceding studies, we examined dilution effects shortly after exposure to the junior brand. In Study 5, we examined whether effects on consideration and choice probabilities occur when there is a substantial delay between exposure to the junior brand and the choice involving the senior brand. The design and procedures are identical to those of Study 4, except that the procedure is administered with paper and pencil, and there is a five-day delay between exposure to the diluting advertisements and the choice task. Participants were 49 randomly assigned undergraduate students.

The results appear in the bottom half of Table 4. Significant differences appear in bold. Consideration and choice effects are apparent even with a five-day delay between exposure to the junior brand and the choice task. Exposure to the junior brand significantly decreased consideration probability for two of the three brands ( $\chi^2_1 = 4.93$ ,  $p < .05$ , for Trix; and  $\chi^2_1 = 3.63$ ,  $p < .05$ , for Gap) and also decreased choice probability for two of the three brands ( $\chi^2_1 = 5.39$ ,  $p < .05$ , for Big Red; and  $\chi^2_1 = 4.84$ ,  $p < .05$ , for Gap). Together, Studies 4 and 5 provide strong evidence of the power of a junior brand to decrease the consideration and choice of a senior brand.

## General Discussion

We focused on two questions of interest to brand managers and public policy makers: First, how can and should trademark dilution be measured? Second, when is it likely to occur? We draw on our results to address these questions and identify important research issues.

### **How Can and Should Trademark Dilution Be Measured?**

We defined blurring dilution as a weakening of the associations between a brand and its distinctive aspects (e.g., category, attributes, benefits) that define the meaning of the brand in consumers' minds and, at a more concrete level, as a reduction in brand name and aspect accessibility. We then operationalized dilution as response latency to recognize distinctive aspects (Studies 1 and 2) and as aided recall of distinctive aspects (Study 3). In Studies 4 and 5, we did not directly measure dilution but rather its predicted effects on consideration and choice.

*Construct validity.* This work provides strong evidence of the construct validity of our measures. First, our measures have content, or face, validity. Definitions of blurring center on the loss of brand meaning coupled with the probability of reduced economic value, particularly through lost sales (Federal Trademark Dilution Act 1995; Schechter [1927] 1970; Simonson 1993). Our accessibility measures capture losses in brand meaning that are theoretically linked to reduced brand choice. Less accessible brand names are less likely to be recalled and less likely to enter a consumer's consideration set when they are encountered in the shopping environment. Less accessible aspects are less confidently associated with the brand in choice situations (Alba, Hutchinson, and Lynch 1991).

Second, we provide evidence of convergent and discriminant validity. Our response latency recognition measure is highly correlated with our aided-recall measure, but it is uncorrelated with brand liking, ensuring that we are measuring blurring dilution rather than tarnishment.

Finally, our measures have nomological validity (Cronbach and Meehl 1955); that is, the measured construct behaves as it is predicted to behave. As we predicted, category and attribute similarity moderate measured dilution. Furthermore, the low-similarity situations that lead to measured dilution also lead to decreased consideration and choice.

*Viability as legal evidence.* Our measures also fall within the guidelines set by the Court; they go beyond mere association but do not extend to actual lost sales, and thus they are potentially useful for brands seeking protection from dilution (Morris and Jacoby 2000). Response latencies are likely the most sensitive measure of dilution, but accessibilities can also be measured in ways that are more amenable to field survey methods (e.g., aided recall; Peterson, Smith, and Zerrillo 1999). Furthermore, as more is learned about individual differences in dilution effects—for example, people with higher brand familiarity and category knowledge (Morris and Jacoby 2000) may exhibit smaller effects—this knowledge may be taken into account when selecting an appropriate dilution measure.

*Blurring versus tarnishment.* Although we isolated blurring dilution in these experimental studies, blurring and tarnishment may occur together. Junior-brand associations may be both unattractive and dissimilar to those of the senior brand. Furthermore, severe blurring may itself lower brand evaluations. Therefore, as a practical matter, firms may wish to assess multiple types of negative junior-brand effects routinely: blurring of distinctive aspects, accretion of unattractive associations, and lowered brand evaluations. The kinds of accessibility measures we examined herein should prove particularly useful for assessing the extent to which negative junior-brand aspects have become associated with the senior brand (Morris and Jacoby 2000).

### **When Is Dilution Likely?**

Our results suggest that blurring dilution is least likely in copycat strategies, that is, when a junior brand emerges in a similar category to the senior brand and with other similar aspects (e.g., high attribute similarity). This finding contra-

dicts what is often brand management's gut reaction: that highly similar junior brands are the most serious threats. However, we agree that similar junior brands create an exposure for the senior brand. By virtue of its strong interconnections with the senior brand in the shared brand network, the junior brand has the power to dilute a senior brand through any future actions that create dissimilar associations (Pullig, Simmons, and Netemeyer 2005; Swann and Davis 1994). In contrast, our data show that junior brands in similar categories but with dissimilar associations can dilute senior-brand knowledge.

Case law implicitly recognizes the danger from junior brands in similar categories (Vapnyar 2003). However, the legal requirement for evidence of dilution means that the senior brand may be unable to protect itself preemptively from the risk of future dilution by a highly similar junior brand. Fortunately, measurable dilution is likely to be found in all other situations we examined. Our results provide some information about where to expect dilution (e.g., not for category associations in similar categories) and where effect sizes are likely to be smallest (e.g., dissimilar category, similar attributes) to guide the measurement process.

### **Further Research**

Three issues deserve special attention: First, how similar must trademarks be to create dilution? The Ninth Circuit recently ruled that Orbit bicycles were not diluted by the junior brand OrbiTrek exercise bicycles, because the marks were not sufficiently similar (*Thane Int'l Inc. v. Trek Bicycle Corp.* 2002). Brand managers should be concerned with this line of reasoning. Judgments about what constitutes sufficient similarity should be guided by an in-depth understanding of the dimensions of similarity (e.g., visual, conceptual, lexical, phonological) that link a junior brand with a senior brand. Such knowledge could also alert brand managers to junior brands that offer greater or lesser dilution exposure to the senior brand.

Second, are some types of trademarks more susceptible to dilution than others? For example, a recent trend is to create "fanciful" or "coined" brand names (e.g., Verizon, Accenture), which do not have suggestive associations with the product they mark. An advantage of fanciful marks is that their associations are (at least initially) under the control of the firm, but are they more or less susceptible to dilution than suggestive marks, such as Drano or Sonicare, which convey product associations? Recent work on memory suggests that the representation of these two types of marks differs such that we would expect fanciful names to be more susceptible to dilution of brand name accessibility than suggestive names (for a similar idea in a somewhat different domain, see Young 2001, cited in Schacter 2001). Furthermore, the language-based associations of suggestive names may reduce overall susceptibility to dilution. If these predictions prove correct, they have three implications for defending against dilution: First, a brand's susceptibility

may be reduced by designing trademarks that facilitate communication of the brand's distinctive aspects. Second, for fanciful marks, resources may be allocated more efficiently by focusing on increasing brand name accessibility, which is more often diluted. Third, it is possible to monitor for dilution more effectively by using multiple measures. Brand name accessibility dilution may occur even when there is no aspect accessibility dilution.

Third, to predict dilution effects correctly, brand managers and public policy makers alike require an understanding of the structure of the shared brand network. On the basis of recent memory research, we assumed that junior brands are encoded proximate to and well integrated with senior-brand knowledge when category similarity is high and more distinctly and distantly from senior-brand knowledge when category similarity is low. In general, the accessibility effects we observed were consistent with this model. However, we did not directly access memory structure. Furthermore, there are many variables that seem likely to alter the degree of interconnectedness of the shared brand network. For example, attribute dissimilarity can manifest in ways that may differ in their capacity to create the close linkages that lead to dilution. Some dissimilar attributes are different points along the same dimension (i.e., cinnamon and strawberry flavors), and others reflect completely different dimensions (i.e., cinnamon flavor and vitamin enriched). It might be expected that the former creates a closer linkage and, thus, greater dilution.

### **Back to Victor's/Victoria's Secret**

Our results suggest that Victoria's Secret may not be much harmed in the short run by Victor's Secret, especially if most consumers who are aware of Victor's Secret know that it sells only "adult" lingerie. This category association is similar to that of Victoria's Secret (i.e., sexually alluring lingerie), though there may be a clear distinction on the "tastefulness" or "product offering" dimensions. Thus, Victoria's Secret may wish to focus on tarnishment or dilution of attribute-level aspects in its attempt to demonstrate harm.

Perhaps a greater concern is the risk of future dilution from this junior brand. Whereas a single "adult" shop named Victor's Secret would seem insignificant in the face of Victoria's Secret's marketing power—simply a joke to be appreciated—the risk is real. One of the values of building equity around an arbitrary mark such as Victoria's Secret (i.e., one that consists of common words that do not suggest or describe the product) is that these marks are the easiest to protect legally from infringement (Launer 1996). If others can use the mark or a parody version of it, the value of building an arbitrary brand is lessened. Although current trademark dilution law does not offer legal remedies for the risk of future dilution, senior brands with nondiluting junior brands would be well advised to monitor the activities of these unintended associates.

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