We hypothesize that the accessibility of task-relevant knowledge determines whether judgments reflect the substance of the information that is brought to mind or the ease of generating and retrieving such information. Our findings indicate that when relevant knowledge is highly accessible or not at all accessible, judgments are based on the content of the information considered. Between these extremes in knowledge accessibility, judgments are based on the perceived ease with which information can be retrieved. This perceived ease is a function of both the number of reasons requested and the wording of the retrieval request.

A growing number of investigations document the finding that the ease with which information comes to mind may serve as the basis for judgment (see Menon and Raghubir 2003; Schwarz 1998; Wänke, Bohner, and Jurkowitz 1997). Typical of these studies is the demonstration that research participants perceive a person or issue to have more of a characteristic the fewer the number of reasons or instances they are asked to think of in support of this inference. For example, Wänke et al. (1997) reported that a BMW car was evaluated more favorably when respondents were asked to think of one rather than 10 reasons to drive it. Such findings are seen as evidence that judgments are based on the perceived ease of knowledge generation or retrieval. For simplicity, we adopt Wänke et al.’s (1997) term for this phenomenon, “retrieval ease.”

The view that judgments may be based on retrieval ease is intriguing because it stands in contrast to evidence indicating that judgments are based on the substance of the information considered (see Meyers-Levy and Malaviya 1999). A reliable finding is that the greater the extent to which message-related information is processed, the greater the number of favorable associations to its advocacy and the more favorable its evaluation (e.g., Cacioppo and Petty 1979). According to this view, thinking of more reasons to drive a BMW should enhance evaluation rather than undermine it. Indeed, there is evidence of this content-based outcome (Menon and Raghubir 2003; Wänke, Bless, and Biller 1996). The question raised by these findings is, When will judgments be guided predominantly by retrieval ease and when will they be primarily content based?

Schwarz and Vaughn (2000) address this issue. They propose that retrieval ease will affect judgments when this experience is perceived to be diagnostic. When the information value of retrieval ease is called into question because the experienced ease can be attributed to factors other than the target object, retrieval ease is uninformative and individuals rely on content in forming their judgments. In a test of this prediction, Schwarz et al. (1991) found that respondents had greater self-perceptions of assertiveness after they had recalled six rather than 12 assertive behaviors. This outcome implies that judgments were based on retrieval ease. How-
ever, when the perceived ease of recalling assertive behaviors could be attributed to the musical context in which recall occurred, judgments were content based: respondents rated themselves as more assertive when 12 such behaviors were recalled.

Thus, it is important to identify factors that determine whether the retrieval ease experience is viewed as diagnostic of one’s feelings about an object. We hypothesize that the accessibility of knowledge is one factor that moderates whether or not retrieval experience is seen as diagnostic and thereby determines whether retrieval ease or content serves as the primary basis for judgments. Three predictions are made: (1) When knowledge relevant to a judgment is relatively inaccessible, respondents will infer that it will be difficult to retrieve such information. As a result, retrieval ease will not be diagnostic, and judgments will be based on a scrutiny of the content available in the task environment. (2) When knowledge relevant to a judgment is highly accessible, respondents will infer that it will be easy to retrieve such information. Once again, retrieval ease will not be viewed as diagnostic, and judgments will be based on the content of the information considered. (3) Between these extremes, when knowledge is moderately accessible, respondents will be uncertain about the ease with which they can retrieve information. Thus, retrieval ease will be viewed as diagnostic, and judgments will reflect retrieval ease rather than content. We refer to these predictions as the knowledge accessibility hypothesis.

THE KNOWLEDGE ACCESSIBILITY HYPOTHESIS

Although the knowledge accessibility hypothesis has not been tested directly, studies reported by Schwarz and his coworkers offer evidence congenial with this view (e.g., Biller, Bless, and Schwarz 1992; Sanna and Schwarz 2003). For example, Biller et al. (1992) provide evidence for the prediction that when knowledge accessibility is limited, judgments are content based. They asked people to recall either three or nine chronic diseases and then estimate the percentage of Germans who suffer from chronic diseases. Individuals who were asked to recall fewer diseases estimated a higher percentage of chronic disease sufferers. Apparently, recalling a small number of diseases was relatively easy, and this ease was misattributed to the high incidence of chronic diseases in the population. However, when prior questioning drew participants’ attention to their lack of expertise about the topic, recalling more diseases led to higher estimates of the incidence of chronic illness. Presumably, respondents who were made aware of their limited access to knowledge viewed their retrieval experience as nondiagnostic and therefore based their judgments on the content of the information retrieved.

There is also evidence consistent with the knowledge accessibility prediction that when people have knowledge readily accessible, judgments will be based on content rather than on retrieval ease (Grayson and Schwarz 1999; Rothman and Schwarz 1998). Rothman and Schwarz asked respondents to list either three or eight behaviors that they performed to reduce their risk of heart disease. Those without a family history of heart disease exhibited a retrieval ease effect, whereas for those with a family history of heart disease a content effect was found.

Interpreted in knowledge accessibility terms, respondents without a history of heart disease were not likely to have vulnerability-reducing behaviors highly accessible in memory, but given the prevalence of heart disease they were likely to have at least moderate access to these behaviors. Under such moderate accessibility conditions, the perceived ease of retrieving behaviors would be uncertain (it might be easy or difficult), and therefore the retrieval ease experience would be diagnostic. In contrast, respondents who were at risk of contracting heart disease were likely to have vulnerability-reducing behaviors highly accessible in memory (cf. Tormala, Petty, and Briñol 2002). Retrieving these behaviors would be perceived as relatively easy regardless of whether three or eight behaviors were requested, and this experience would not be viewed as diagnostic. Here, the behaviors that respondents retrieved were likely to be used in assessing their vulnerability, and thus judgments would be content based.

OVERVIEW OF THE RESEARCH

Several goals guided the development of our experiments. One was to test the knowledge accessibility predictions regarding when judgments would depend on retrieval ease and when they would be content based. Although the research we have reviewed can be interpreted in a manner that is consistent with the knowledge accessibility predictions, these studies are open to alternative explanations. For example, Schwarz and his collaborators offer a plausible motivational account for their findings (Grayson and Schwarz 1999; Rothman and Schwarz 1998). Likewise, Biller et al.’s (1992) content effect might have occurred because respondents construed the inquiry about their (low) level of expertise as a signal to focus on content irrespective of how diagnostic they perceived their retrieval experience to be. In the present research, we provide convergent evidence for the view that knowledge accessibility is one of the factors that can influence the perception of how diagnostic retrieval ease is likely to be.

A second goal was to provide documentation for the knowledge accessibility premise that judgments based on retrieval ease and those based on content involve distinct processes. This entailed demonstrating that there were consequences unique to each type of judgment process.

A final goal was to identify antecedents of retrieval ease beyond the number of reasons respondents are asked to consider. Identifying such antecedents would provide convergent evidence for the retrieval ease construct and indicate the robustness of the phenomenon.

Four experiments are reported to address these issues. Each experiment includes treatments that replicate Wänke et al.’s (1997) demonstration of a retrieval ease effect. Re-
search participants were shown an ad for a BMW car in which the text asked the viewer to think of either one or 10 reasons to buy/drive the car. We anticipated that this situation would represent moderate knowledge accessibility. The perceived ease of retrieving reasons would therefore be diagnostic, and the retrieval ease effect should be found. Evaluations should be more favorable when respondents are asked to think of one reason rather than 10 reasons.

These baseline conditions were investigated in the context of an additional variable in each experiment. In experiments 1 and 2, we examine the judgment process when knowledge accessibility is low versus moderate by varying respondents’ familiarity with the car, for which they are asked to generate one or 10 reasons. In experiment 3, we compare the judgment process when accessibility is high versus moderate by varying whether or not a prime is presented prior to the request to think of one or 10 reasons to drive a BMW. Our prediction is that both high and low knowledge accessibility would prompt content-based decisions. Evaluations should be more favorable the greater the number of reasons requested. Finally, in experiment 4, we explore a new antecedent of retrieval ease by altering the wording of the request to think of one or 10 reasons.

EXPERIMENT 1

Experiment 1 examines the knowledge accessibility predictions that judgments are based on content when knowledge is not accessible in memory and are based on retrieval ease when knowledge is moderately accessible. To test these hypotheses, we used respondents’ familiarity with the target car to vary knowledge accessibility. We chose the BMW to represent the moderately familiar target because it had been used successfully for this purpose in previous research (Wänke et al. 1997). Hyundai, a small share brand, was selected as the less familiar target on the basis of a pretest in which 10 respondents were asked two questions regarding their familiarity with a Hyundai automobile and 10 other respondents were asked the same questions about a BMW: “How familiar are you with BMW/Hyundai?” and “How much do you know about the features of the target car?” Respondents exhibited greater familiarity with a BMW ($M = 5.20$) than with a Hyundai ($M = 2.25$; $F(1, 18) = 23.93, p < .001$). Thus, we concluded that the two cars could be used to represent moderate and low knowledge accessibility.

We predicted that when our respondents were asked to generate reasons to drive a car for which they had little knowledge accessible (Hyundai), retrieval ease would not be diagnostic. They would focus on relevant information in the task environment, which was limited to the picture of the car in the ad. Here, the number of reasons generated would reflect the number of reasons requested by the ad headline. If this analysis is correct, judgments should be content based: evaluations should be more favorable when respondents were asked to think of 10 reasons to drive a Hyundai than when they were asked to think of one reason. By contrast, in the baseline BMW condition, we predicted that retrieval ease would be diagnostic and evaluations would be more favorable when respondents were asked to think of one rather than 10 reasons.

Method

Ninety-nine research participants read an ad for either a BMW or a Hyundai. The target ad included only a color picture of the product, the brand name, and one version of the following text: “There are many reasons to drive a (BMW/Hyundai). Can you think of (one or 10) good reason(s) to drive it?” Participants were given a separate piece of paper with either one or 10 numbered lines on it and asked to fill in their reason(s) for driving the car mentioned in the ad.

The listing of reasons was followed by an evaluation of the target product on 13 seven-point, bipolar items (e.g., dislike-like, unfavorable-favorable, unreliable-reliable). These items represented a single reliable factor ($\alpha = .97$) and therefore were averaged to form an evaluation score where higher numbers indicate more favorable evaluations. Respondents then completed some additional questions, including three that served as manipulation checks. These questions pertained to respondents’ perception of the ease in thinking of reasons and included the following items: “How difficult was it to generate reasons?” “How annoying was it to generate reasons?” and “How confident were you about generating reasons?” Responses were on seven-point scales ranging from “not at all” to “very much.” These items, which loaded on a single factor that is reliable ($\alpha = .82$), were averaged to form a perceived ease score such that higher scores indicate greater ease and confidence and less annoyance in thinking of reasons.

In summary, experiment 1 employed a 2 (number of reasons: one, 10) × 2 (brand: BMW, Hyundai) between-subjects design. After viewing the ad, respondents reported the reasons that came to mind, evaluated the car that was depicted in the ad, and reported their perception of the ease associated with thinking of reasons.

Results and Discussion

Manipulation Checks. Analysis of the number of reasons actually listed revealed only the expected main effect of the number of reasons requested ($F(1, 95) = 143.64, p < .001$): more reasons were listed when the ad headline requested 10 rather than one reason (see table 1).

Also as expected, analysis of the perceived ease score revealed an interaction between the reasons requested and the car brand ($F(1, 95) = 8.92, p < .01$). Thinking of one reason to drive a BMW was perceived to be easier than thinking of 10 reasons to drive a BMW ($F(1, 95) = 32.18, p < .001$). However, the number of reasons requested did not affect the perceived ease of thinking of reasons to drive a Hyundai ($F’s < 1$). Moreover, thinking of one reason to drive a Hyundai was viewed as significantly more difficult than thinking of one reason to drive a BMW ($F(1, 95) = 25.57, p < .001$). This pattern of findings is consistent with...
### CONTENT VERSUS RETRIEVAL EASE IN JUDGMENTS

**TABLE 1**

MANIPULATION CHECKS—MEANS (AND STANDARD DEVIATIONS) CATEGORIZED BY TREATMENTS FOR EXPERIMENTS 1–3

<table>
<thead>
<tr>
<th>Experiment</th>
<th>Process measure</th>
<th>Experimental condition</th>
<th>1 reason</th>
<th>10 reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Number of reasons listed</td>
<td>BMW</td>
<td>1.00 (.28)</td>
<td>6.93 (3.21)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hyundai</td>
<td>.74 (.45)</td>
<td>6.32 (3.54)</td>
</tr>
<tr>
<td></td>
<td>Perceived retrieval ease</td>
<td>BMW</td>
<td>4.47 (1.47)</td>
<td>2.36 (1.43)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hyundai</td>
<td>2.51 (1.35)</td>
<td>2.05 (1.27)</td>
</tr>
<tr>
<td>2</td>
<td>Number of reasons listed</td>
<td>BMW</td>
<td>1.39 (1.04)</td>
<td>7.06 (2.82)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hyundai</td>
<td>1.38 (.62)</td>
<td>6.75 (2.84)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Saab</td>
<td>1.74 (1.76)</td>
<td>8.47 (2.15)</td>
</tr>
<tr>
<td></td>
<td>Perceived retrieval ease</td>
<td>BMW</td>
<td>4.07 (1.20)</td>
<td>2.39 (1.03)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hyundai</td>
<td>3.46 (1.35)</td>
<td>1.81 (1.10)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Saab</td>
<td>2.51 (1.50)</td>
<td>2.63 (1.38)</td>
</tr>
<tr>
<td>3</td>
<td>Total thoughts listed</td>
<td>No prime</td>
<td>4.46 (1.35)</td>
<td>7.60 (3.35)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Toyota prime</td>
<td>4.20 (2.31)</td>
<td>5.40 (1.92)</td>
</tr>
<tr>
<td></td>
<td>Prime-related thoughts</td>
<td>No prime</td>
<td>.50 (.64)</td>
<td>1.13 (1.22)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Toyota prime</td>
<td>1.07 (.91)</td>
<td>1.60 (1.22)</td>
</tr>
</tbody>
</table>

our contention that, for an unfamiliar brand, thinking of even one reason is perceived to be relatively difficult. As a result, the perceived ease of generating reasons is unlikely to be considered diagnostic in making a judgment.

**Evaluation.** Means and standard deviations categorized by treatments are shown in table 2. An ANOVA on the evaluation score identified a significant interaction between the number of reasons requested and the brand of car evaluated \( F(1, 95) = 9.85, p < .01 \). Respondents were more favorable when asked to think of one reason rather than 10 reasons to drive a BMW \( F(1, 95) = 4.81, p < .05 \), but they were less favorable when asked to think of one reason rather than 10 reasons to drive a Hyundai \( F(1, 95) = 5.05, p < .05 \).

These results offer support for the knowledge accessibility predictions. As expected, when little knowledge is accessible (Hyundai), requesting more reasons increases the number of reasons actually listed but does not influence the perceived ease of generating those reasons. As a result, judgments reflect the content of information that is brought to mind, becoming more favorable as more good reasons are considered. By contrast, when knowledge is moderately accessible (BMW), requesting more reasons increases both the number of reasons actually listed and the perceived difficulty of generating reasons. The observation that judgments become less favorable as the number of reasons requested increases implies that judgments are based on retrieval ease and not on the content of the information considered. This contention is supported by the correlations among the dependent measures. Perceived ease is significantly related to evaluation \( r = .60, p < .001 \), whereas the number of reasons listed is not \( r = -.10, p > .20 \).

### EXPERIMENT 2

Although the findings of experiment 1 offer support for the knowledge accessibility hypothesis, it might be argued that Hyundai and BMW differ on dimensions other than the accessibility of knowledge about the brand. For example, BMW is commonly considered to be a higher quality car than Hyundai. Perhaps higher quality cars are more likely to be evaluated in terms of the subjective feelings that they evoke than lesser quality cars. To rule out the possibility that some characteristic of the cars other than knowledge accessibility determines the judgment strategy employed, we conducted a follow-up study using a subject population (Korean students) for whom both Hyundai and BMW represented relatively familiar cars and Saab served as the unfamiliar car. If we observe a retrieval ease effect when Hyundai represents a higher level of familiarity, the likelihood is reduced that some aspect of the cars other than respondents’ access to knowledge accounts for the effects reported in experiment 1.

**Method**

One hundred and three undergraduate students at Yonsei University in Seoul, Korea, participated in this study. The procedure used in experiment 1 was repeated, and the design was expanded to include a third car (Saab). This change was made because we anticipated that both BMW and Hyundai would be at least moderately familiar to our Korean respondents. By contrast, Saab was expected to be relatively unfamiliar. The stimulus information and dependent mea-

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1 The authors thank a *JCR* reviewer for suggesting this experimental design.
TABLE 2
BRAND EVALUATIONS: MEANS (AND STANDARD DEVIATIONS) CATEGORIZED BY TREATMENTS FOR EXPERIMENTS 1–4

<table>
<thead>
<tr>
<th>Experiment</th>
<th>Experimental condition</th>
<th>1 reason</th>
<th>10 reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BMW ad</td>
<td>6.32</td>
<td>5.77</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.62)</td>
<td>(.95)</td>
</tr>
<tr>
<td></td>
<td>Hyundai ad</td>
<td>4.35</td>
<td>4.97</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.19)</td>
<td>(.84)</td>
</tr>
<tr>
<td>2</td>
<td>BMW ad</td>
<td>5.94</td>
<td>5.46</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.50)</td>
<td>(.60)</td>
</tr>
<tr>
<td></td>
<td>Hyundai ad</td>
<td>5.26</td>
<td>4.75</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.49)</td>
<td>(1.05)</td>
</tr>
<tr>
<td></td>
<td>Saab ad</td>
<td>4.66</td>
<td>5.45</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.90)</td>
<td>(.61)</td>
</tr>
<tr>
<td>3</td>
<td>No prime</td>
<td>6.19</td>
<td>5.49</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.47)</td>
<td>(.97)</td>
</tr>
<tr>
<td></td>
<td>Toyota prime</td>
<td>5.77</td>
<td>6.23</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.06)</td>
<td>(.62)</td>
</tr>
<tr>
<td>4</td>
<td>“Think of reason(s)”</td>
<td>6.08</td>
<td>5.80</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.62)</td>
<td>(1.17)</td>
</tr>
<tr>
<td></td>
<td>“Imagine reason(s)”</td>
<td>5.99</td>
<td>6.07</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.67)</td>
<td>(.80)</td>
</tr>
</tbody>
</table>

Measures were translated into Korean by one researcher and then back translated into English by another researcher to ensure accuracy. After exposure to an ad for one of the three car brands, respondents listed their reasons to drive the car, evaluated the car, indicated their perception of the ease in generating reasons, reported their familiarity with the car, and completed demographic items. The evaluation scales and the perceived ease measures were the same as those used in experiment 1 ($\alpha = .93, .76$, respectively.) Familiarity was assessed by asking respondents to rate their familiarity with the car prior to participating in the research using a seven-point scale ranging from “not at all familiar” (1) to “very familiar” (7).

In sum, experiment 2 employed a 2 (number of reasons: one, 10) $\times$ 3 (brand: BMW, Hyundai, Saab) between-subjects design. The effects of these manipulations on respondents’ lists of reasons, evaluation of the car, and perception of the ease associated with thinking of reasons were assessed.

Results and Discussion

Manipulation Checks. An ANOVA on the familiarity measure was conducted to test the assumption that for our Korean participants Saab is a less familiar car brand than is Hyundai or BMW. Consistent with this assumption, a main effect of familiarity was observed ($F(2, 97) = 10.84, p < .001$). Hyundai ($M = 5.34$) was more familiar to respondents than was BMW ($M = 4.43$; $F(1, 97) = 5.18, p < .05$), and both of these brands were more familiar than Saab ($M = 3.44$; $F(1, 97) = 21.64, p < .001$) for Hyundai, and $F(1, 97) = 5.84, p < .05$ for BMW). No other effects on familiarity were significant (all $p's > .10$).

Next, an ANOVA was conducted on the number of reasons actually listed by respondents to verify that more reasons were listed when the ad headline asked the reader to think of 10 rather than one reason to drive the car depicted. As expected, there was a significant main effect of number of reasons requested ($F(1, 97) = 217.45, p < .001$; see table 1): more reasons were listed when 10 reasons were requested ($M = 7.44$) than when one reason was requested ($M = 1.51$).

Finally, an ANOVA on the perceived ease score was conducted. Paralleling the findings of experiment 1, a significant interaction between the number of reasons requested and car brand was observed ($F(2, 97) = 6.33, p < .01$; see table 1). Contrasts indicated that generating one reason to drive a BMW was perceived to be easier than generating 10 reasons to drive a BMW ($F(1, 97) = 15.14, p < .001$) and generating one reason to drive a Hyundai was perceived to be easier than generating 10 reasons to drive a Hyundai ($F(1, 97) = 13.26, p < .001$). These differences suggest that the retrieval experience would be informative and thus might serve as a basis for judgments of BMW and Hyundai. In contrast, respondents perceived it to be equally difficult to generate one reason or 10 reasons ($F < 1$) to drive a Saab. This invariance in the perceived ease of generating reasons to drive a Saab reduces the likelihood that retrieval ease would be viewed as diagnostic for judgments.

Evaluation. Means and standard deviations categorized by treatment are shown in table 2. An ANOVA on the evaluation score revealed a significant interaction between the number of reasons requested and brand ($F(2, 97) = 9.23, p < .001$). As anticipated, contrasts indicated a retrieval ease effect for both Hyundai ($F(1, 97) = 3.91, p < .05$) and BMW ($F(1, 97) = 3.85, p < .05$). For these relatively familiar cars, evaluations were more favorable when one reason rather than 10 reasons was requested. In contrast, evaluation of the less familiar Saab produced a content effect ($F(1, 97) = 10.80, p < .001$); evaluations were more favorable when 10 reasons were requested than when one reason was requested.

The findings of experiment 2 suggest respondents’ access to knowledge about the car they evaluated, and not some other difference between the cars, accounts for the judgments reported in experiment 1. Across the two experiments, a single car (Hyundai) is used to represent both limited knowledge accessibility (U.S. respondents in experiment 1) and moderate knowledge accessibility (Korean respondents in experiment 2). Further, the judgment process was independent of respondents’ overall liking for the cars. A retrieval ease effect was observed for both Hyundai and BMW, despite the fact that BMW was evaluated more favorably than Hyundai ($M = 5.70$ vs. $5.01$; $F(1, 97) = 15.23, p < .001$). In contrast, Hyundai and Saab were evaluated similarly overall ($M = 5.01$ vs. $5.03$; $F < 1$), but a retrieval ease effect was observed for Hyundai and a content effect was observed for Saab.

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Further, the results of experiment 2 suggest that even when a brand is relatively familiar, information about it may be only moderately accessible. As noted earlier, although our Korean respondents reported a relatively high degree of familiarity with Hyundai \((M = 5.34\) on a seven-point scale), their judgments were based on retrieval ease. This outcome is expected when information is moderately but not highly accessible. We reason that information will be highly accessible only when there has been some recent consideration of the product or the product category, and such an assessment of cars seems unlikely for our student respondents. With this observation in mind, we used a contextual prime to create our high knowledge accessibility condition in experiment 3.

**EXPERIMENT 3**

Experiment 3 extends the test of the knowledge accessibility hypothesis by examining the prediction that when information relevant to a decision is highly accessible in memory judgments will be content based. Respondents were again shown an ad that asked them to think of either one or 10 reasons to drive a BMW. Accessibility of relevant reasons was varied by whether or not respondents were exposed to a prime immediately prior to the BMW ad. The prime was an ad for another brand of automobile that listed a number of attributes of the car that might be viewed as reasons to drive it.

We anticipated that the exposure to the prime ad would make reasons readily accessible and that the content of these reasons would guide BMW evaluations. This prediction is supported by research demonstrating that when knowledge is accessible and relevant to the target at the time of encoding, it influences judgments (e.g., Feldman and Lynch 1988; Stapel and Koomen 2001). It is also consistent with the finding of a content effect for individuals who were likely to have judgment-relevant information readily accessible in memory (see Grayson and Schwarz 1999; Rothman and Schwarz 1998). Accordingly, the greater the number of reasons respondents were asked to think of for driving a BMW, the more product-related reasons the prime should help them generate and thus the more favorable their judgments of BMW would be. In the absence of a prime, evaluations were expected to replicate the retrieval ease effect found for BMW in our earlier experiments. Evaluations should be more favorable when respondents were asked to think of one rather than 10 reasons to drive a BMW.

Respondents were not asked to record their reasons as they had been in previous studies. Instead, they engaged in a more general thought-listing task prior to evaluating the car. This change was motivated by our belief that thoughts rather than reasons would better detect the influence of the prime when thinking about the target BMW. In contrast to a thought-listing task, a request to list reasons might prompt respondents to engage in a correction process and exclude those reasons they perceived as being generated as a result of the prime ad (e.g., Martin 1986; Moskowitz and Skurnik 1999).

**Method**

**Stimulus Materials.** All respondents saw an ad for BMW that was similar to the one used in our earlier experiments. The ad headline varied the number of reasons requested (one vs. 10). Accessibility was varied by whether or not respondents were exposed to a prime ad prior to the target BMW ad. The prime was a fictitious ad for the Toyota Camry that presented nine attributes of the vehicle. Of these, three attributes pertained to styling, three to safety, and three to amenities.

**Procedure.** One hundred and eighteen college students were recruited to participate in a new product evaluation study. Participation was motivated by an offer of additional course credit. All respondents were shown the target BMW ad. Respondents who were randomly assigned to the prime condition evaluated Toyota Camry on the same scales used to evaluate BMW immediately prior to viewing the target BMW ad.

After exposure to the BMW ad, all respondents participated in a thought-listing task. They were instructed to list all the thoughts that came to mind when thinking about the BMW ad, starting a new line for each thought. No time limit was given to complete this task. Next, respondents evaluated BMW on 12 seven-point, bipolar items (e.g., dislike/like, not useful/useful, not high tech/high tech). These items loaded on a single factor that is reliable \((\alpha = .90)\). Each participant’s responses to the evaluative items were averaged to form an evaluation score.

In sum, experiment 3 employed a 2 (number of reasons: one, 10) \(\times\) 2 (prime: none, Toyota) between-subjects design. Respondents’ thoughts and their evaluations of the BMW car served as the dependent measures.

**Results**

**Manipulation Checks.** Means and standard deviations for the thoughts measures are reported in table 1. An ANOVA on the total number of thoughts listed revealed a main effect of the number of reasons requested \((F(1, 114) = 24.82, p < .001)\). More thoughts were listed when the BMW ad requested that respondents think of 10 reasons \((M = 6.50)\) rather than one reason \((M = 4.33)\). A main effect of the prime was also observed \((F(1, 114) = 8.02, p < .01)\): more thoughts were listed in the absence of a prime \((M = 6.08)\) than in the presence of a prime \((M = 4.80)\). This finding makes it implausible that the prime increased participants’ motivation to process rather than increased the accessibility of information. These effects are qualified by a significant interaction \((F(1, 114) = 4.95, p < .03)\). The effect of the number of reasons requested was greater in the absence of a prime \((F(1, 114) = 25.52, p < .001)\) than in the presence of a prime \((F(1, 114) = 3.87, p < .05)\).

To gain further insight into the operation of the prime manipulation, we examined prime-related thoughts. Literal associations to or synonyms for the style, safety, and amen-
ies dimensions enumerated in the prime were coded as prime-related thoughts ("looks good," "air bags," and "leather interior"). An ANOVA on this measure reveals two main effects. As expected, the number of prime-related thoughts was greater when the prime was present rather than absent ($F(1, 114) = 7.38, p < .01$). There were also more prime-related thoughts when 10 reasons rather than one reason were requested ($F(1, 114) = 9.41, p < .01$).

Taken together, these findings suggest that the prime focused respondents' thinking by reducing the total number of thoughts that they generated and by increasing respondents' access to prime content that could serve as a basis for generating reasons. Therefore, we concluded that our prime manipulation served its intended purpose.

Discussion

These results provide further evidence for the knowledge accessibility hypothesis. When target-relevant information is only moderately accessible, as was the case in the no-prime condition, the retrieval ease effect observed for BMW in experiments 1 and 2 is replicated. However, when a priming task makes target-relevant information highly accessible, the predicted content effect is found. Furthermore, it is unlikely that this content effect is due to the prime increasing the personal relevance of the task (as might be argued in the case of Rothman and Schwarz's [1998] high vulnerability participants) because fewer total thoughts were listed in the prime versus the no-prime condition.

A knowledge accessibility interpretation of our findings is consistent with Feldman and Lynch’s (1988) contention that individuals use highly accessible information as a basis for judgment when such information is diagnostic. Additional support for this view was obtained in an experiment that is not reported here to conserve space. In this study, primes consisting of nine attributes were again used. But in this case, the primes for two product categories unrelated to cars preceded the BMW ad. Some respondents were primed with a description of an apartment and others with a description of computers. These primes failed to produce a content effect, presumably because the information in these primes was not considered diagnostic for generating reasons to drive a BMW. These findings make it unlikely that those primed with the Toyota ad simply compared the nine attributes described in the prime with the one or 10 reasons to drive a BMW they were asked to generate as a basis for their evaluation. Further, the correlation between respondents' evaluation of Toyota and their evaluation of BMW in the present study was not significant ($r = .15, p > .25$), which implies that the prime was not used as a comparison standard in judging BMW.

EXPERIMENT 4

To this point, we have focused on determining when judgments will be guided primarily by retrieval ease versus the content of the information retrieved. In these demonstrations, we followed the procedures reported in the literature to vary retrieval ease by using the number of reasons message recipients were asked to generate. In experiment 4, we extend our analysis by examining factors in addition to the number of reasons requested that may serve as antecedents of retrieval ease. Identifying such antecedents would provide convergent evidence for the retrieval ease construct and rule out the possibility that retrieval ease effects require comparing the number of reasons requested to a numerical reference point (e.g., more than four reasons is difficult and fewer than four reasons is easy).

A study reported by Stepper and Strack (1993) supports the notion that factors other than the number of reasons requested may influence perceptions of retrieval ease. These investigators had respondents recall six examples of assertive behaviors. Some respondents were prompted to frown during this recall task, while others were asked to smile. The results revealed that smiling produced greater perceptions of assertiveness than did frowning, presumably because smiling induced the perception that accessing task information was easy whereas frowning made it seem difficult.

Experiment 4 included the baseline moderate knowledge accessibility conditions described in the previous studies. Respondents randomly assigned to these conditions were shown an ad that asked them to think of one or 10 reasons to drive a BMW. The expectation was that the retrieval ease effect would again emerge. Evaluations would be more favorable when the request was to think of one rather than 10 reasons. An additional treatment was included in which the wording of the request was modified with the intention of making thinking of 10 reasons seem easy. Such triangulation would increase confidence that retrieval ease underlies judgments when information is moderately accessible.

Considering how to make 10 reasons seem easy, we speculated that participants might have been sensitive to norms of communication and thus interpreted “can you think of,” used in our baseline condition, as challenging their ability to perform the reason generation task (Hilton 1995). From this viewpoint, the request to think of 10 reasons rather than just one might be viewed as particularly hard work. This
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conjecture led us to frame the retrieval task in a less demanding manner by asking respondents simply to “imagine” one or 10 reasons. We thought that imagining reasons might reduce any pressure participants might feel to generate reasons that would bear up under scrutiny and thereby allow them to rely on whatever came to mind readily. Consequently, imagining reasons might be viewed as more enjoyable and more intrinsically satisfying than thinking of reasons (Glynn 1994). If an imagine instruction made the retrieval task seem easy, more favorable evaluations would be observed when respondents were asked “to imagine” 10 reasons than “to think” of 10 reasons.

A survey was conducted to support our assumptions about how these changes in wording would affect the perceived ease of retrieving one and 10 reasons. Sixty-seven respondents drawn from the same pool of students as those participating in the main study were asked to indicate how easy they believed it would be to think of one good reason and to think of 10 good reasons to drive a BMW, as well as to imagine one good reason and to imagine 10 good reasons to drive a BMW. Respondents evaluated each of these tasks on four seven-point bipolar items: very easy/difficult, not effortful/effortful, simple/complicated, and a breeze/hard work. These items were averaged to form an ease score for each evaluation task (α’s > .90) and were analyzed using the test of related samples procedure. Higher scores indicate greater ease in thinking of reasons. As expected, imagining good reasons (M = 4.37) was perceived to be easier than thinking of good reasons (M = 3.84; d = −4.23, t(60) = −4.78, p < .05). More specifically, imagining one good reason (M = 5.25) was seen as easier than thinking of one good reason (M = 4.64; d = 2.40, t(60) = 4.37, p < .05), and imagining 10 good reasons (M = 3.48) was seen as easier than thinking of 10 good reasons (M = 3.03; d = 1.82, t(60) = 3.21, p < .05). In addition, increasing the number of reasons requested made the task seem more difficult. Thinking of one good reason was seen as easier than thinking of 10 good reasons (d = 6.46, t(60) = 7.83, p < .05), and imagining one good reason was seen as easier than imagining 10 good reasons (d = 7.045, t(60) = 8.38, p < .05). Thus, we concluded that our wording manipulations varied perceived ease in the manner intended.

Method

Forty-one students participated in the study for extra course credit. Participants were randomly assigned to an experimental condition by the booklet that they received. The target BMW ad was similar to that used in our prior studies. The ad headline manipulated the number of reasons requested (one vs. 10) and the wording of the request (think of vs. imagine). After viewing the BMW ad at their own pace, all respondents completed their evaluations of BMW on the same 12 seven-point, bipolar items used in experiment 3. These items were averaged to an evaluation score (α = .94).

Results

Means and standard deviations for the evaluation score categorized by treatment appear in table 2. An ANOVA on this score revealed a significant interaction between the number of reasons requested and the wording of the request (F(1, 37) = 4.09, p < .05). Replicating the finding of our previous studies, when respondents were asked to think of good reasons to drive a BMW, their evaluations were more favorable if one rather than 10 such reasons were requested (F(1, 37) = 7.55, p < .01). However, when respondents were asked to imagine good reasons to drive a BMW, responses were equally favorable regardless of whether one or 10 reasons were requested (F < 1). Further, respondents’ evaluations were more favorable when they were asked to imagine 10 good reasons than when asked to think of 10 good reasons (F(1, 37) = 6.67, p < .01). When one reason was requested, the request wording did not affect evaluations (F < 1).

Discussion

The results of experiment 4 provide convergent evidence for the retrieval ease construct. Requesting that respondents either think of one good reason or imagine reasons resulted in more favorable evaluations than requesting respondents think of 10 good reasons. This outcome follows from evidence that both imagining reasons and thinking of a single reason are perceived as being easier than thinking of many (10) good reasons. These findings demonstrate that the perceived retrieval ease, and thereby judgments, can be affected by factors other than the number of reasons requested. Such evidence rules out dilution (reasons become weaker when more reasons are generated) as an explanation for the retrieval ease effect (also see Schwarz et al. 1991; Wanke et al. 1996). These findings also make it unlikely that the retrieval ease effect is necessarily based on a comparison between the number of reasons requested and an expectation regarding the number of reasons one should be able to generate.

In a follow-up study, we again showed that retrieval ease effects could be obtained independent of varying the number of reasons respondents were asked to consider. This entailed using the same procedure as that employed in experiment 4 with the exception that respondents were asked to think of the one or 10 best reasons to drive a BMW. The expectation was that the request for the single best reason would require consideration of many reasons to identify the best one and thus prompt a perception that thinking of the one best reason was quite difficult. Consistent with this view, there was a marginally significant interaction (F(1, 114) = 3.16, p = .07) such that respondents who were requested to think of one good reason (M = 6.19) evaluated BMW more favorably than those who were asked to think of the one best reason (M = 5.74; F(1, 114) = 4.24, p < .05), and those who were asked to think of 10 good reasons (M = 5.49; F(1, 114) = 10.32, p < .001). In addition, respondents were no more favorable when asked to think of the one best reason to drive a BMW than when asked to think of the 10 best reasons (M = 5.58; F < 1).

2A JCR reviewer provided this insight.
GENERAL DISCUSSION

The present research offers evidence that knowledge accessibility influences whether judgments depend primarily on retrieval ease or on content. Content-based judgments occur when relevant knowledge is either inaccessible or highly accessible. In these circumstances, the difficulty or ease experienced in generating and retrieving reasons is anticipated and therefore is not perceived as diagnostic. Instead, judgments reflect a consideration of the available content. By contrast, when knowledge is moderately accessible, retrieval ease has a dominant effect on judgments. In this situation, it is unclear whether retrieving reasons will be easy or difficult. Here, the perceptions of ease fostered by the experience are viewed as diagnostic for judgments.

Our conclusion that judgments based on retrieval ease are likely to occur only under special circumstances converges with research in other paradigms that has investigated how the process of thinking affects judgment. For example, there is evidence that moderate schema incongruity enhances judgment relative to either schema congruity or extreme schema incongruity (e.g., Meyers-Levy and Tybout 1989). This outcome has been attributed, in part, to task satisfaction created by the process of resolving moderate incongruity (Maoz and Tybout 2002). However, it has also been found that the advantage of moderate incongruity is limited to respondents with moderate knowledge about the target product (Peracchio and Tybout 1996). Individuals who have substantial knowledge about the target product base their judgments on prior knowledge rather than on process-based affect. This pattern of results parallels our findings that judgments are based on perceived ease when respondents have information moderately accessible but are content based when information is highly accessible. These findings offer testimony to the robustness of the knowledge accessibility hypothesis.

[Down Iacobucci served as editor and Frank Kardes served as associate editor for this article.]

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