

# When Blemishing Leads to Blossoming: The Positive Effect of Negative Information

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This research uncovers a counterintuitive effect of negative information, showing that under specifiable conditions people will be more favorably disposed to a product when a small dose of negative information is added to an otherwise positive description. This effect is moderated by processing effort and presentation order, such that the enhanced positive disposition toward the product following negative information emerges when the information is processed effortlessly rather than effortfully and when the negative information follows rather than precedes positive information. Four studies demonstrate this *blemishing effect* in both lab and field settings and explore the proposed mechanism and boundary conditions.

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Imagine that you decide to invite your friend to a fancy restaurant to celebrate her birthday. You go online and look up some local options and a new age fusion restaurant catches your eye. You want to learn more about it, so you examine the reviews of the restaurant. Most of the reviews are very good: great food, pleasant music, relaxed atmosphere. Then you come across a review that mentions that there is no parking nearby, a piece of information that is negative but not quite central to your value proposition for restaurants. How does this small dose of negative information influence the positive impression you had begun to form of the restaurant? Is it possible that this weak piece of negative information could actually enhance your positive reaction?

Intuition and past research would suggest that if the weak negative information has any effect, it might be negative—that is, it could undermine the favorable impression you

had begun to form. For example, past research on topics such as information integration (Anderson 1971), the negativity bias (Herr, Kardes, and Kim 1991; Mizerski 1982), and attitude ambivalence (Priester and Petty 1996) has shown that negative information encountered during the evaluation process can carry considerable weight and negatively influence subsequent judgments. In contrast to this notion, we propose that the weak negative information might sometimes enhance your evaluation and, thus, your likelihood of patronizing the restaurant. In essence, we posit that weak negative information can sometimes bolster, or intensify, the initial favorable impressions arising from positive information. Thus, counterintuitively, the restaurant in the example might actually benefit from sharing relatively minor negative details or reviews.

In the next section, we present our conceptualization for this so-called *blemishing effect*, whereby adding a minor negative detail in an otherwise positive description of a target can give that description a more positive impact (or make it seem more positive) than it would have on its own. We outline potential underlying processes for this effect and highlight the conditions under which it is likely to occur. We then present four studies that test various aspects of the conceptualization and attempt to rule out different alternative accounts.

## THEORETICAL BACKGROUND

Although intuitively it might seem that consumers would react unfavorably to negative information, we propose that weak negative information that just blemishes a target can actually enhance its appeal under specifiable conditions. We

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base this hypothesis in part on past research exploring primacy effects in impression formation. The core logic is that when individuals encounter weak negative information after already having received positive information, the weak negative information ironically highlights or increases the salience of the positive information. This makes the positive information seem more positive and ultimately fosters more positive evaluations. Of importance, however, is that if the effect is driven by primacy, it should only occur under some conditions. In this section, we review relevant work from the literature on primacy effects in impression formation and explore the moderating role of processing effort.

### Primacy and Processing Effort

Primacy effects were first documented by Asch (1946), who showed that when individuals formed impressions of targets, they tended to base those impressions more heavily on the information they received early on than on the information they received later. In the decades after this initial finding, researchers examined numerous moderators of primacy effects, with perhaps the greatest attention being devoted to processing effort—defined as the motivation or ability to think about a target. The dominant finding in this domain is that, all else equal, primacy effects are more likely to occur when processing effort is low rather than high. This effect has been shown using diverse operationalizations of low processing effort such as mental fatigue, distraction, low accountability, low personal relevance, and low need for cognition (e.g., Kruglanski and Webster 1996; Petty et al. 2001; Webster, Richter, and Kruglanski 1996).

The rationale for this low-effort tendency toward primacy is that focusing on the early information is less effortful than waiting, withholding judgment, and considering a more extensive set of inputs when forming an impression of a target. Thus, unless there is reason to withhold judgment until all the information is received and processed, it is easier from a “cognitive miser” perspective to reach a quick impression after receiving some (albeit limited) initial information. In other words, low-effort processors form evaluations on the basis of early information and then stick with those evaluations, even in the face of subsequent contradictory information (Hogarth and Einhorn 1992; Jones and Goethals 1971; Kruglanski and Webster 1996). In contrast, when processing effort is high, people tend not to latch onto the early information but rather withhold judgment until more information has been received and considered. As a result, effortful processing promotes evaluations of targets that are based more on an integration of all available information than on the early information alone.

A crucial question in our research is, What happens when the early information about a target is followed by a minor piece of conflicting information? The answer to this question is quite straightforward when processing effort is likely to be high—the conflicting information should be integrated with the early information to affect overall evaluations. For example, a weak negative piece of information about a target should drive impressions in a slightly negative direction if

individuals are withholding judgment until all available information has been received. Also germane, high processing activity has been shown to reduce defensive reactions and open people up to conflicting information (e.g., information that contradicts one’s initial belief or previous behavior; Block and Williams 2002), which should lead them to incorporate that information into their overall judgments.

When processing effort is restricted, however, the answer may not be as straightforward. One possibility is that when processing effort is low and a subsequent piece of information conflicts with earlier information, people simply ignore or dismiss the conflicting information, especially if it is weak or not central to their value proposition (e.g., Abelson 1959; Jones and Goethals 1971; Kruglanski 1990). If true, receiving a minor piece of conflicting information should be no different from not receiving that information. For example, if a minor negative detail about a restaurant is ignored or dismissed after earlier positive information, that detail should have no impact on people’s ultimate evaluations of the restaurant, which reflect only the initial positive material (for a review, see Smith, Fabrigar, and Norris 2008).

Another possibility is that under low-processing conditions the subsequent conflicting information could result in a bolstering, or intensifying, of the initial impression that had already begun to form. In other words, it is possible that when processing effort is low and people are inclined toward primacy, negative information received after a positive impression has begun to form could accentuate rather than attenuate that initial positive impression. If indeed this does occur, adding a minor negative detail in an otherwise positive description of a target (e.g., the restaurant in the opening example) could give that description more positive impact—or make it seem more positive—than it would have on its own. Exploring this possibility, which we term the *blemishing effect*, is the primary aim of the current research.

### The Blemishing Effect

Why would a weak negative piece of information bolster an initial impression that is based on early positive information? In accord with prior theorizing, we propose that encountering minor conflicting information is a signal for the decision maker to pause and reevaluate his or her initial impression based on the early information (Kruglanski 1990). The conflicting information is weak, so it holds little sway. However, the reevaluation it prompts could trigger bolstering processes that intensify or accentuate the initial impression. For example, the reevaluation necessarily causes people to revisit their original impressions. This refocus on early information might enhance its salience or perceived favorability, which in turn increases the impact of that early information on overall attitudes and impressions (Fazio 1995; Judd and Brauer 1995). Thus, we postulate that compared to situations in which only positive information is received, situations in which weak negative conflicting information is received can heighten people’s focus on initial

positive information, make that positive information seem even more positive, and enhance final evaluations.

Past research is consistent with the notion that receiving contradictory information can trigger an assimilative process whereby initial reactions are intensified and contradictory information is discounted (e.g., Jones and Goethals 1971; Lord, Ross, and Lepper 1979). In their classic research, Lord et al. (1979) found that when people hold a given attitude toward an object or issue, receiving contradictory arguments can polarize or intensify that attitude because people write off or discount the contradictory information and bolster the initial information that fed into the original attitude. In the current context, it could be that low-effort processors cling to early positive information and form an opinion on the basis of that information. When the minor negative detail is encountered, it triggers a reevaluation in which the minor negative information is discounted and the initial positive information is bolstered. This discounting-bolstering process could intensify the initial positive impression.

### Predictions and Qualifications

To review, the blemishing effect refers to the notion that adding a weak or minor piece of negative information to otherwise positive information about a target can, under specifiable conditions, result in the target being more favorably evaluated than with the positive information alone. On the basis of our conceptualization, two key conditions should be in place for this effect to emerge. First, it should occur primarily under conditions of low processing effort. Again, low processing is hypothesized to gear people toward primacy, which then facilitates the blemishing effect by recommitting individuals to their initial impressions. Under high-processing conditions, primacy effects generally are less likely to occur. Here, impressions tend to be based on a fuller consideration of all relevant information, meaning the presence of negative information should make final impressions more negative. Second, the blemishing effect should only occur when the weak negative information follows the positive information. Indeed, our primacy-based perspective on this effect suggests that presentation order is critical for its emergence. If the order were reversed such that the minor negative information came first, it should offer little advantage or might even backfire by the same primacy logic. Thus, moderating the blemishing effect by presentation order would help substantiate our account for this effect.

We hasten to add that, according to our framework, the negative information need not be the absolute last information received; it simply must follow some initial positive information. Thus, even if someone receives the weak negative detail after just one positive piece of information, we predict the blemishing effect under conditions of low processing effort. Under conditions of high processing effort, in which people withhold judgment until all the information is received, we predict a different outcome. In this case, the presence of weak negative information (compared to exclusively positive information) should dampen positive eval-

uations, irrespective of whether it precedes or follows the positive information.

We present a total of four studies. Study 1 demonstrates the blemishing effect on purchase intentions after a manipulation of processing effort. Study 2 replicates the effect using actual choice data in a field setting. Study 3 measures individual differences in processing effort and further tests the robustness of the effect. Finally, in study 4, processing effort and the timing of the negative information (i.e., whether before or after positive information) are manipulated, and we explore the mechanism by measuring whether, indeed, participants evaluate positive information more positively (and discount the minor negative) when negative information follows but not when it precedes positive information.

## STUDY 1

Study 1 was designed to provide an initial test of the hypothesis that, under conditions of low processing effort, consumers might evaluate a product more favorably when they received a weak negative piece of information about it after positive information, compared to when they receive only positive information. To test this hypothesis, we presented participants with all positive or positive and negative information about a pair of hiking boots under high- or low-processing conditions. We then measured their interest in purchasing the boots. We expected to observe the blemishing effect under low-processing conditions. Under high-processing conditions, we expected to observe the opposite effect, such that intentions to purchase would be greater when all of the information was positive.

### Method

*Participants and Design.* One hundred forty-one participants volunteered to take an online survey and received \$5 for their time ( $M_{\text{age}} = 26$ ). Participants were randomly assigned to conditions in a 2 (processing effort: high or low)  $\times$  2 (informational content: positive only or positive + weak negative) between-participants factorial design.

*Procedure.* At the outset of the experiment, participants were informed that they were taking part in a market research study examining consumers' responses to direct marketing via the Internet. Participants were told that they would read a short description of a new product presented in a manner typical of that used in direct marketing online. After this introduction, but before presenting the product information, we manipulated processing effort by varying cognitive capacity. Specifically, we used a divided-attention task adapted from past research (e.g., Fitzsimons and Williams 2000; Williams, Fitzsimons, and Block 2004). In the *low-capacity condition* (low effort), participants were told that for purposes of experimental control, we would like them to do their best to not shift their eyes from the computer screen. Instructions indicated that each time they accidentally looked away from the screen they should look back immediately,

and at the end of the task they would be asked to report the number of times they had looked away. Tracking their own side-glances was expected to reduce participants' processing capacity in this condition. In the *high-capacity condition* (high effort), we simply instructed participants to process the information as if it were online.

Of importance, this manipulation was pretested on a sample of 148 participants, who were randomly assigned one of these conditions while reading information about a product. After reading the information, pretest participants reported the extent to which they invested effort and resources on the task, using scales ranging from 1 (not at all) to 7 (very much). Participants in the high-capacity condition reported they invested more effort and resources ( $M_{\text{eff}} = 5.03$ ,  $M_{\text{res}} = 4.03$ ) than did participants in the low-capacity condition ( $M_{\text{eff}} = 3.71$ ,  $M_{\text{res}} = 2.93$ ). This effect was significant for both effort ( $t(1, 146) = 4.05$ ,  $p < .01$ ) and resources ( $t(1, 146) = 3.42$ ,  $p < .01$ ).

After the effort manipulation, we presented all participants with a description of the hiking boots. In the *positive-only condition*, participants read about a new pair of hiking boots that had a designer orthopedic sole to protect feet, that came in many colors, that was waterproof, that had a 5-year warranty, and that included two spare shoelaces. In the *positive + weak negative condition*, participants received the same information in the same order, with the exception that "comes in many colors" was replaced with "comes in only two colors." To ensure that the initial positive attribute (orthopedic sole) was very positive and that the negative attribute (comes in only two colors) was negative but relatively weak, we pretested these attributes on a sample of 92 participants. Pretest participants rated each attribute on a 7-point scale anchored at strong disadvantage (1) and strong advantage (7) for a pair of hiking boots. These ratings were then analyzed using *t*-tests against the scale midpoint of 4, which revealed that the positive attribute was perceived to be very positive ( $M = 5.96$ ;  $t(91) = 15.54$ ,  $p < .001$ ) and the negative attribute was perceived to be moderately, but significantly, negative ( $M = 3.54$ ;  $t(90) = -5.25$ ,  $p < .01$ ).

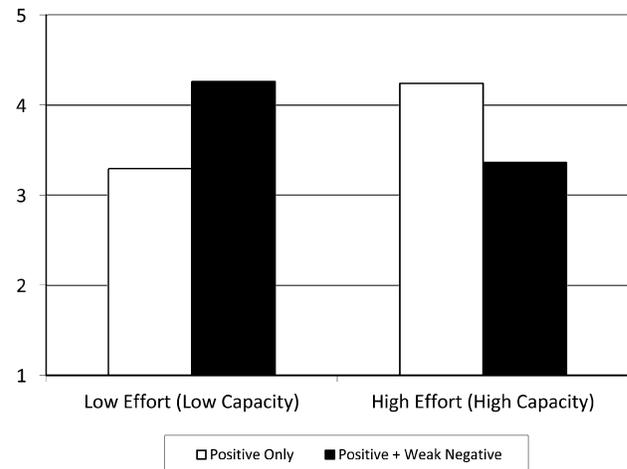
Finally, after receiving the product description, participants were asked, "To what extent would you be interested in purchasing the product?" Responses were provided on a scale ranging from 1 (not at all) to 7 (very much).

## Results and Discussion

We conducted a  $2 \times 2$  ANOVA with processing effort and informational content as the independent variables and purchase intentions as the dependent variable. As illustrated in figure 1, there were no main effects ( $F$ 's  $< 1$ ), but we did find a significant interaction ( $F(1, 137) = 8.64$ ,  $p < .01$ ). Under low-effort conditions, participants were more interested in purchasing the boots when they were presented with a weak negative attribute ( $M = 4.26$ ) than when they were presented with positive attributes only ( $M = 3.29$ ;  $t(1, 137) = 2.14$ ,  $p < .04$ ). Conversely, under high-effort conditions, participants were more interested in purchasing the

FIGURE 1

PURCHASE INTENTIONS AS A FUNCTION OF PROCESSING EFFORT (CAPACITY) AND INFORMATIONAL CONTENT



boots when they were presented with positive attributes only ( $M = 4.24$ ) than when they were presented with a weak negative attribute ( $M = 3.36$ ;  $t(1, 137) = 2.02$ ,  $p < .05$ ).

This result provided an initial demonstration of the blemishing effect. Under low-processing conditions, participants more favorably evaluated a product when they received information about it that described positive attributes coupled with a weak negative attribute, compared to when they received exclusively positive information. Under high-processing conditions, this effect was reversed such that participants were more favorable when they received only positive rather than both positive and negative information. This latter effect was consistent with the tendency of effortful processors to base their judgments on all of the information available, in which case all positive information is more favorable than both positive and negative information.

It is important to highlight that in this initial demonstration, we held the total amount of information presented constant across conditions. Indeed, in the positive + weak negative condition, we simply replaced one of the positive attributes from the other condition with a negative attribute. Every participant thus received the same total amount of information. Had we simply added a piece of negative information at the end of the sequence of positive information presented to other participants, we would have created a potential confound, whereby participants who received the minor negative information also received more total information. This confound would open our findings up to a numerosity heuristic account, suggesting that low-effort processors simply responded more favorably to the appearance of more information—for instance, more features, attributes, or arguments (Pelham, Sumarta, and Myaskovsky 1994;

Petty and Cacioppo 1984; Tormala, Petty, and Briñol 2002). Because participants in study 1 received the same number of attributes across conditions, the numerosity heuristic does not provide a tenable account of the results. Our findings are more congruent with the hypothesized blemishing effect.

## STUDY 2

Study 2 had several objectives. First, we sought to replicate the findings of study 1 in a field setting with actual purchase decisions. We also aimed to increase the generality of the findings by changing several procedural details, among them the target product, the manipulation of processing effort, and the timing of the minor negative information. Finally, we sought to address an alternative explanation for the results of study 1. In particular, it could be argued that the minor negative detail used in the first study—that is, that the product was only available in two colors—was perceived to have positive implications. A pretest for study 1 established that the negative information was indeed perceived as negative, but it remains possible that participants recognized it as negative yet imputed positive meaning into it. For example, perhaps it simplified the product choice by offering fewer options, which was attractive to low-effort processors. Or perhaps it somehow increased perceptions of scarcity or popularity (e.g., “Only two colors left!”), which enhanced perceived desirability among low-effort processors (Cialdini 2009). In either case, it is possible that the negative information we presented was interpreted as an indicator of something attractive.

In study 2, we addressed this issue by using a minor product flaw in the negative information condition that had no apparent upside. In this study, real consumers were approached in contexts in which either high or low processing was likely to manifest. They were given an opportunity to purchase a chocolate bar that was presented with or without a weak negative attribute. We hypothesized that under high-processing-effort conditions, participants would purchase more when they were presented with only positive information, whereas under low-processing-effort conditions, participants would purchase more when they were presented with positive information followed by a weak negative attribute.

## Method

*Participants and Design.* Two hundred thirty-five undergraduates were randomly assigned to conditions in a 2 (processing effort: high or low)  $\times$  2 (informational content: positive only or positive + weak negative) between-participants factorial design.

*Procedure.* All participants were approached on a university campus and offered a chocolate bar. The experimenter first described the chocolate bar as a favorite of consumers on the basis of recent taste test results, then said that the chocolate was nicely chilled (the experiment was conducted on a hot summer day, so it was important to ensure that participants did not suspect that the chocolate

was melting), and finally noted that it was being offered at a discounted rate of 50¢, about half off the normal price. Participants were then given an opportunity to buy as many of the chocolate bars as they wished.

To vary processing effort, we approached students either immediately before taking an exam (low-effort condition) or while they were simply walking outside on campus (high-effort condition). The rationale was that before an exam, students are preoccupied with thoughts about the exam, distracted while rehearsing information pertaining to the exam, and ultimately more cognitively loaded than those simply walking around on campus. Consequently, we expected students about to take an exam to invest less effort in evaluating the chocolate bar than their peers who were not about to enter an exam. To verify that participants were more distracted in the preexam state, we conducted a pretest ( $N = 29$ ) in which students were approached under very similar conditions and asked to report the extent to which they felt they could carefully evaluate a product for purchase at that moment and the extent to which they were preoccupied with thoughts about their current situation. Scales for each item ranged from 1 (not at all) to 7 (very much). Results indicated that participants felt they were less able to carefully evaluate a product and were more preoccupied in the preexam ( $M_{\text{eval}} = 4.07$ ,  $M_{\text{preoc}} = 5.67$ ) rather than the simply walking around ( $M_{\text{eval}} = 5.43$ ,  $M_{\text{preoc}} = 3.86$ ) condition ( $t_{\text{eval}}(27) = -2.21$ ,  $p < .05$ ;  $t_{\text{preoc}}(27) = 2.81$ ,  $p < .01$ ).

To manipulate informational content, the description of the chocolate bar was varied by condition. In the positive-only condition, the experimenter listed three positive attributes as noted above (i.e., consumer favorite, nicely chilled, discounted price). In the positive + weak negative condition, the experimenter also briefly mentioned that the chocolate bar was a bit broken in between noting that it was chilled and that it was being offered at a discounted rate. In this condition, the experimenter held out the chocolate bar, providing visible evidence through a transparent wrapper that it was slightly broken. In the positive-only condition, the experimenter also held out the chocolate bar, but it was not broken. Before running the study, we pretested this condition on a sample of 28 students. Participants were presented with the same description as in the actual study and were asked to rate the extent to which being broken was a disadvantage or advantage for a chocolate bar. Ratings were provided on a 7-point scale ranging from  $-3$  (strong disadvantage) to  $+3$  (strong advantage). Ratings were just moderately negative ( $M = -.57$ ) yet significantly lower than the scale midpoint of 0 ( $t(27) = -2.16$ ,  $p < .04$ ), as intended.

## Results and Discussion

Because individual participants were permitted to purchase as many chocolate bars as they wished, we conducted a 2  $\times$  2 ANOVA with processing effort and informational content as the independent variables and the number of chocolate bars purchased as the dependent variable. Replicating study 1, there were no main effects ( $F$ 's  $< 1$ ), but we did find a significant interaction ( $F(1, 234) = 8.67$ ,  $p < .01$ ).

As illustrated in figure 2, this interaction assumed the predicted form. In the low-processing-effort condition (when students were about to take an exam), participants purchased more chocolate bars when a negative attribute was mentioned ( $M = .41$ ) than when there was only positive information ( $M = .21$ ;  $t(1, 234) = 2.25, p < .03$ ). By contrast, in the high-processing-effort condition (when students did not have an upcoming exam), participants purchased more chocolate bars when there was only positive information ( $M = .43$ ) than when a negative attribute was also mentioned ( $M = .25$ ;  $t(1, 234) = 1.92, p < .05$ ).

In short, we replicated the interaction from study 1 despite many procedural changes. Of greatest importance, we conducted this study in a field setting and measured actual purchase behavior. This finding suggests that even when considering and making real purchases, consumers under processing constraints appear to be more attracted to products with minor negatives than to otherwise equivalent products but without those negatives. Moreover, unlike study 1, the negative information in study 2 could not be viewed as increasing the simplicity of the product choice or the perceived scarcity of product options.

Nevertheless, it is worth noting some conceptual resemblance of the results of study 2 to past research by Simonson, Carmon, and O'Curry (1994), which suggests that product blemishes in the context of discounted prices can increase sales by providing an explanation for the discounts. In study 2, the product was offered at a discounted price, and for some participants a blemish enhanced its appeal. Critically, though, we found this effect under low-effort-processing conditions only. The attributional reasoning described in past research on blemish-discount pairing likely requires more effortful thought, and the effortful thinkers in study 2 showed the opposite effect. Thus, the evidence seems more consistent with the primacy and bolstering account outlined earlier. Of course, unlike past research on product blemishes, our account also predicts an order effect, which will be tested in a later study.

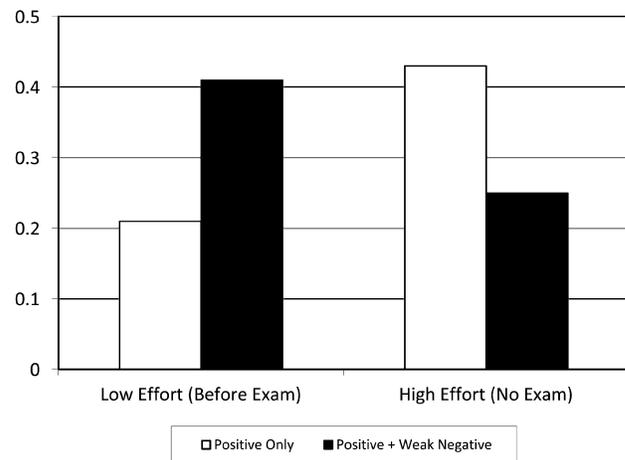
### STUDY 3

Study 3 was designed to extend the findings of the first two studies. First, we sought to test the blemishing effect in the context of minimal information. To this point, it could be argued that the blemishing effect only occurs when consumers receive much more positive than negative information. In contrast to this view, our primacy account suggests that even with just one initial piece of positive information, a subsequent negative item could enhance low-effort processors' reactions compared to when only the positive information is received. To examine this possibility, in study 3 participants received either one (only positive) or two (positive + weak negative) pieces of information before making their decisions. We hypothesized that low-effort processors would still show enhanced reactions in the positive + weak negative condition compared to the positive-only condition.

We also changed numerous other procedural details (e.g.,

FIGURE 2

ACTUAL PURCHASING AS A FUNCTION OF PROCESSING EFFORT (EXAM STATE) AND INFORMATIONAL CONTENT



different product category, different measure of behavioral intentions). Most important, rather than manipulating processing effort in this study, we measured it as an individual difference variable to provide some insight into the types of consumers who might show a general susceptibility to the blemishing effect. Specifically, we assessed individual differences in holistic versus analytic processing (Choi, Koo, and Choi 2007). Past research suggests that the holistic thinking style is characterized by fast, global, effortless processing; in contrast, the analytic thinking style is characterized by effortful and deliberative thinking and taking details into account (e.g., Chaiken 1980; Chaiken and Maheswaran 1994; Maheswaran and Chaiken 1991). This variable also maps onto the distinction between those who form global versus more differentiated judgments, which has been shown to correspond to the tendency to show primacy effects (e.g., Webster et al. 1996). Thus, we expected holistic thinkers to show the blemishing effect, whereas analytic thinkers would show the opposite.

### Method

**Participants and Design.** Eighty-three participants volunteered to take an online survey to be entered in a raffle for a \$25 Amazon.com gift certificate ( $M_{\text{age}} = 35$ ). Participants were randomly assigned to informational content conditions (positive only or positive + weak negative) and completed an individual difference measure of holistic (low-effort) versus analytic (high-effort) processing.

**Procedure.** At the outset of the study, participants were informed that they would read a short description of a new product as part of a general marketing survey. After this introduction, all participants received information about a

new brand of champagne glasses. The description of the champagne glasses in the positive-only condition included just one positive attribute: unique elegant design. In the positive + weak negative condition, the product's description included the same positive attribute, as well as one negative attribute—that the glasses did not come in a hard box. Both attributes were pretested on 7-point scales ranging from strong disadvantage (1) to strong advantage (7). The positive attribute was perceived as very positive ( $M = 5.91$ ;  $t(91) = 17.56$ ,  $p < .01$ ), whereas not coming in a hard box was perceived as moderately negative ( $M = 3.12$ ;  $t(90) = -6.99$ ,  $p < .01$ ).

After reading the description, participants indicated the extent to which they would be willing to try the champagne glasses on a scale ranging from 1 (not at all) to 5 (very much). Finally, after a brief delay and filler task, participants completed an abbreviated version of the analytic-holistic scale (Choi et al. 2007; see appendix). This scale measures the general tendency to think in a holistic or analytic manner. Participants responded to each item on a scale ranging from 1 (does not describe me at all) to 5 (describes me very much;  $\alpha = .69$ ).

## Results and Discussion

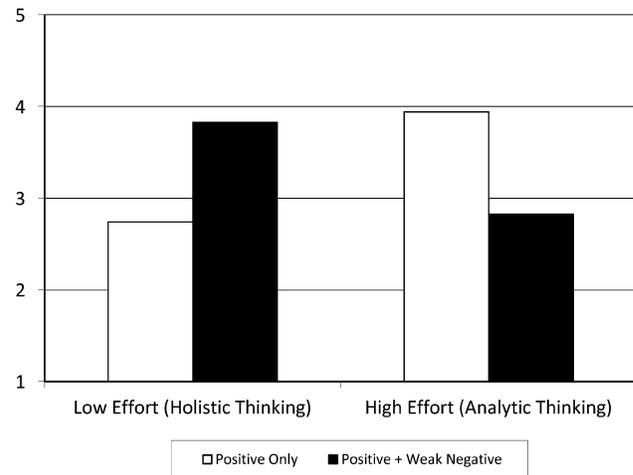
To test our hypotheses, we conducted a median split to categorize participants as either holistic/effortless thinkers or analytic/effortful thinkers. (Importantly, we replicated all reported effects, leaving the processing effort measure as a continuous predictor and testing the interaction in regression.) We then conducted a  $2 \times 2$  ANOVA with thinking style and informational content as the independent variables and the willingness-to-try index as the dependent variable (see fig. 3). This analysis revealed no main effects ( $F$ 's  $< 1$ ), but we did find the predicted interaction ( $F(1, 82) = 9.73$ ,  $p < .01$ ). Holistic (low-effort) thinkers reported greater willingness to try the product when its description included negative information ( $M = 3.83$ ) rather than when it was exclusively positive ( $M = 2.74$ ;  $t(1, 79) = 2.18$ ,  $p < .04$ ). Analytic (high-effort) thinkers, by contrast, reported more willingness to try the product when only the positive attribute was described ( $M = 3.94$ ) compared to when the additional negative information was included ( $M = 2.83$ ;  $t(1, 79) = 2.23$ ,  $p < .03$ ). Thus, we replicated the key interaction using individual differences in effortless versus effortful thinking.

## STUDY 4

As outlined earlier, we hypothesize that the blemishing effect observed in studies 1–3 stems partly from primacy, such that low-effort processors latch onto the initial positive information they receive, particularly when subsequent information is negative and risks complicating the final decision or evaluation. If true, the ironic benefit of adding weak negative information should not occur when that negative information precedes rather than follows positive information. When negative information precedes the positive in-

FIGURE 3

WILLINGNESS TO TRY AS A FUNCTION OF PROCESSING EFFORT (THINKING STYLE) AND INFORMATIONAL CONTENT



formation, favorable evaluations should be attenuated among low-effort processors. In contrast, high-effort processors should be relatively unaffected by the sequence or order of information, as they are more likely to withhold judgment until all of the information has been presented. Study 4 was designed to test this hypothesis and provide evidence for the role of sequencing as critical to the blemishing effect. In this study, all participants received a piece of negative information, and we manipulated its timing (positive + weak negative vs. weak negative + positive) along with processing capacity.

Another goal in study 4 was to explore the mechanism behind the blemishing effect. Our hypothesis is that the effect derives from a bolstering of initial positive impressions when subsequent negative information is encountered under low-processing conditions. That is, we postulate that when low processors receive a piece of negative information after initial positive information, they cling to the initial positive information and enhance their perceptions of it. As a consequence, they come to view initial positive information as even more positive, and likewise might discount the negativity of the subsequent negative information, as a means of bolstering their initial impressions (see Jones and Goethals 1971). To test this mechanism, we asked participants in study 4 to evaluate each of the individual product attributes they received after reporting their overall product evaluations. We expected participants under low-processing conditions to rate the positive attributes as more positive (and possibly the negative information as less negative) when they received negative information after but not before positive information. Under high-processing conditions, we expected no enhancement or discounting. Thus, interaction effects on ratings of the positive and negative information

would be compatible with the mechanism we propose for the blemishing effect.

Finally, study 4 aimed to further boost the generality of the findings by making several other procedural changes. First, we presented more product information. Specifically, we presented a longer list of seven favorable attributes and also a very minor negative. The negative information had nothing to do with the product itself; we simply included a picture of the product to reveal slightly damaged packaging. Presenting the negative information graphically helped establish that the blemishing effect is not contingent on the presentation modality, and it helped increase the generality of the findings, as consumers might sometimes observe a negative without being directly told about it in real world shopping or sales settings.

## Method

*Participants and Design.* One hundred thirty-six participants took an online survey in exchange for \$5 ( $M_{\text{age}} = 27$ ). Participants were randomly assigned to conditions in a  $2$  (processing effort: high or low)  $\times$   $2$  (presentation order: weak negative + positive or positive + weak negative) between-participants factorial design.

*Procedure.* As in study 1, participants were informed that they were taking part in a market research study examining responses to direct marketing via the Internet. After this introduction, but before presenting the product information, we varied processing effort (or cognitive capacity) using the same divided-attention manipulation as in study 1. After this manipulation, we presented all participants with information about a pair of hiking boots. The information included a text description along with a picture of the boots. In this study, the description included a greater number of attributes. In summary, the boots had a designer orthopedic sole to protect feet, a long and padded tongue for added comfort, availability in many colors, water resistance, highly breathable materials, a 5-year warranty, and two spare shoelaces. All participants received a minor negative feature in this study, which was presented graphically. Specifically, the picture that accompanied the description showed the boots resting beside a shoe box with minor damage. In the positive + weak negative condition, participants first read the positive description of the hiking boots' features and then saw the picture with the damaged box. In the weak negative + positive condition, participants first saw the picture with the damaged box and then received the positive description of the boots' features.

To ensure that the damaged box seemed damaged, but also that a damaged box was perceived to be a relatively minor flaw, we pretested our materials on a sample of 64 participants. Pretest participants received either the picture of the boots with the damaged box or a different picture of the same boots with an undamaged box. They then rated the packaging on a 9-point scale anchored at not damaged at all (1) and very damaged (9). Results indicated that the undamaged box indeed seemed undamaged ( $M = 3.93$ )

relative to the damaged box ( $M = 5.89$ ;  $t(62) = -3.43$ ,  $p < .01$ ). Of importance, though, the damaged box was perceived as just moderately damaged, hovering close to the scale midpoint of 5.

After participants had learned about the product and seen the picture, we assessed their evaluations of the hiking boots. First, participants provided overall ratings of the boots on a series of semantic differential scales, ranging from  $-3$  to  $+3$ , with the following anchors: bad–good, unappealing–appealing, unsatisfying–satisfying, unprofessional–professional. We averaged these ratings to form a composite index of product evaluation ( $\alpha = .80$ ), scored such that higher values indicated more favorable evaluations. Next, participants completed a series of process measures. First, participants rated the boots along each of the individual attribute dimensions. More specifically, participants rated the extent to which the boots were bad (1) or good (9) on each of the following dimensions: orthopedic sole, padded tongue, water resistance, breathability of materials, availability in many colors, warranty, and spare laces. We averaged these ratings to form a composite index of attribute assessments ( $\alpha = .76$ ). In addition, participants provided an evaluation of the negative information by rating the packaging on a scale ranging from 1 (not damaged at all) to 9 (very damaged). Finally, as a manipulation check for processing effort, participants reported the extent to which the task was hard, tiring, and effortful on separate scales ranging from 1 (not at all) to 9 (very much). We averaged these responses to create an aggregate index of processing effort ( $\alpha = .84$ ).

## Results and Discussion

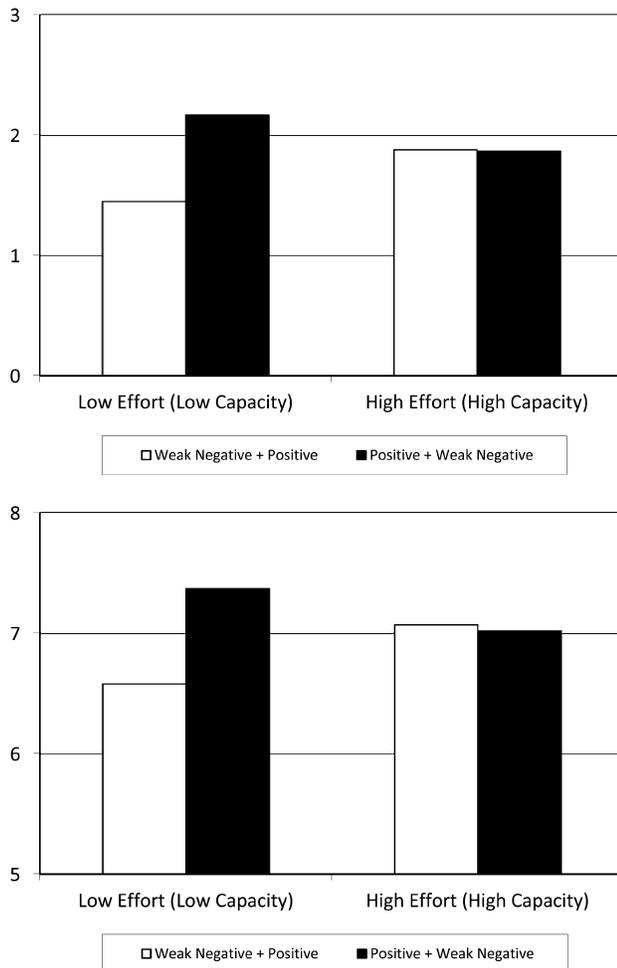
We began by submitting the processing effort manipulation check data to a  $2 \times 2$  ANOVA with the processing effort and presentation order manipulations as the independent variables and self-reported effort as the dependent variable. There was neither a main effect of presentation order ( $F(1, 132) = 2.37$ ,  $p > .12$ ) nor an interaction ( $F(1, 132) = 1.09$ ,  $p > .29$ ). As expected, though, participants in the low-effort condition tended to report that they expended less effort ( $M = 2.46$ ;  $SD = 1.55$ ) than did participants in the high-effort condition ( $M = 3.04$ ;  $SD = 1.85$ ;  $F(1, 132) = 3.67$ ,  $p = .06$ ).

Next, we submitted product evaluations to the same  $2 \times 2$  ANOVA. There was no main effect for processing effort ( $F < 1$ ), but we did find a significant main effect for presentation order ( $F(1, 132) = 4.84$ ,  $p < .04$ ), qualified by a significant interaction ( $F(1, 132) = 5.11$ ,  $p < .03$ ). As illustrated in figure 4 (top panel), the interaction assumed the predicted form. Under low-effort conditions, participants evaluated the boots more favorably in the positive + weak negative condition ( $M = 2.17$ ) than in the weak negative + positive condition ( $M = 1.45$ ;  $t(1, 132) = 2.96$ ,  $p < .01$ ). Under high-effort conditions, however, participants rated the boots equivalently under positive + weak negative ( $M = 1.87$ ) and weak negative + positive ( $M = 1.88$ ) conditions ( $t(1, 132) = .04$ , NS).

We further hypothesized that product evaluations would

FIGURE 4

PRODUCT EVALUATIONS (TOP) AND ATTRIBUTE ASSESSMENTS (BOTTOM) AS A FUNCTION OF PROCESSING EFFORT AND PRESENTATION ORDER



be driven by differences in participants' assessments of the individual product attributes described. In particular, participants in the low-effort condition were expected to evaluate the positive attributes more favorably when a weak negative feature was highlighted after, rather than before, the positive attributes. Participants in the high-effort condition were not expected to show this effect. Analysis of the attribute ratings revealed no main effect for processing effort ( $F < 1$ ), but we did find a marginal main effect for presentation order ( $F(1, 132) = 2.95, p = .09$ ). Most germane, this effect was qualified by a significant interaction ( $F(1, 132) = 3.86, p = .05$ ). As illustrated in figure 4 (bottom panel), under low-effort conditions, participants evaluated the positive attributes more favorably in the positive + weak negative condition ( $M = 7.37$ ) compared to the weak negative + positive

condition ( $M = 6.58; t(1, 132) = 2.44, p < .02$ ). Under high-effort conditions, participants evaluated the positive attributes similarly across these conditions ( $M$ 's = 7.02 and 7.07, respectively;  $t(1, 132) = -.19, NS$ ).

To assess whether the individual attribute assessments mediated overall product evaluations, we conducted an analysis of mediated moderation following the procedures recommended by Muller, Judd, and Yzerbyt (2005). In particular, we examined whether attribute assessments mediated the processing effort  $\times$  presentation order interaction on product evaluations, controlling for the processing effort and presentation order main effects. As noted already, the interaction between effort and order was significant for both attribute assessments ( $\beta = .56, t(132) = 1.96, p = .05$ ) and product evaluations ( $\beta = .64, t(132) = 2.26, p < .03$ ). Moreover, attribute assessments predicted product evaluations ( $\beta = .40, t(134) = 5.03, p < .001$ ). In a final regression analysis treating the interaction, attribute assessments, and the effort and order main effect terms as predictors of product evaluations, attribute assessments continued to be a strong predictor ( $\beta = .36, t(131) = 4.50, p < .001$ ), whereas the interaction effect was reduced ( $\beta = .44, t(131) = 1.63, p > .10$ ). Bootstrapping procedures computing a confidence interval around the indirect effect revealed a significant mediating pathway from the interaction to product evaluations through attribute assessments (95% confidence interval: .02–.60; see Preacher, Rucker, and Hayes 2007).

As noted, we also examined evaluations of the negative attribute—that is, the damaged shoe box. We submitted package evaluations to the same analysis as the other indexes and found no main effects ( $F$ 's  $< 1$ ) but a marginally significant interaction ( $F(1, 133) = 3.26, p = .07$ ). As predicted, participants under low-effort conditions evaluated the damaged packaged as less damaged when it was the last ( $M = 3.81$ ) as opposed to first ( $M = 5.07$ ) information received ( $t(1, 132) = -2.19, p < .03$ ). In other words, participants in the low-processing condition appeared to discount the negativity of the negative information when that information came after, relative to before, the positive information. Under high-effort conditions, participants evaluated the package similarly, regardless of whether it came last ( $M = 4.62$ ) or first ( $M = 4.50; t(1, 132) = 0.23, NS$ ).

In summary, study 4 provided another demonstration of the hypothesized blemishing effect and also expanded our insight into this effect. First, we found that the blemishing effect is moderated by the timing of negative information, such that the effect appears when negative information follows but not precedes positive information. Also important, study 4 provided evidence for the proposed process driving this effect. As predicted, the inclusion of negative information after a series of positive attributes appears to intensify evaluations of the initial positive information under low-processing conditions. These evaluations, in turn, affect overall product impressions. A minor negative, then, can lead people to see early positive information as more positive. Similarly, and consistent with a discounting-bolstering

account, when the negative information follows positive information, it seems less negative.

## GENERAL DISCUSSION

Across four studies, we obtained substantial support for the blemishing effect. When processing effort is low, providing consumers with positive information followed by a minor piece of negative information appears to enhance their overall evaluations of a target, relative to providing exclusively positive information. We have argued that this effect stems from low-effort processors' tendency toward primacy effects, which are bolstered by the later appearance of conflicting information. Consistent with this notion, we found that the blemishing effect was moderated by the timing of the negative information and was mediated by intensified reactions to initial positive information—that is, seeing positive attributes as even more positive. High-effort processors, by contrast, appear to form less favorable evaluations when negative information is included, regardless of its timing. We obtained this pattern across several studies, despite numerous procedural variations, including manipulating and measuring processing effort, conducting both lab and field studies, and measuring product perceptions and actual choice.

Nevertheless, an important question remains: Why did low processing effort promote primacy rather than recency in our studies? Stated differently, why does the blemishing effect adhere to a primacy rather than a recency pattern? Although past research suggests that primacy effects frequently occur under low-processing conditions, some studies in the persuasion domain suggest that recency can be the predominant order effect under low-processing conditions (e.g., Haugtvedt and Wegener 1994). While it is true that some past studies reveal recency when processing is constrained in some way, they also point to primacy as the more likely effect in paradigms such as those studied here. As one example, Petty et al. (2001) found that low effort fostered recency when positive and negative information was divided or “chunked” into meaningful blocks but that streams of uninterrupted (or “unchunked”) information, as in our studies, made primacy more likely.

Hogarth and Einhorn's (1992) classic framework for order effects suggests that the occurrence of primacy versus recency depends largely on three related factors: the complexity of the information being processed, the length of the series being processed, and the evaluative response mode of the processor—specifically, the extent to which an individual is expressing an opinion after each item in the series or only at the very end of the sequence. In this framework, simple information, shorter series, and end-of-sequence response modes constituted a combination of these variables that uniquely contributed to primacy effects. In contrast, more complex information or step-by-step evaluative responding made recency more likely. Although the current studies did vary along numerous dimensions, they generally provided relatively short series of relatively simple information and asked for evaluations only after all of the information had been received. It could be that increased in-

formation complexity, longer information series, or different evaluative response modes would have made recency effects more likely, even under the low-processing conditions.

Jones and Goethals (1971) discussed several determinants of primacy effects that offer further insight here. For example, they argued that primacy can be driven by several distinct processes when people receive sequences of information: attention decrement, discounting, or assimilation. Attention decrement is unlikely to apply to our studies, as participants would not have noticed the negative feature if they had already stopped attending to incoming information. However, discounting and assimilation might apply, as they involve altered interpretations of contradictory information once an initial impression has been formed. With assimilation, individuals form initial impressions and then interpret and recall subsequent conflicting information in a biased (i.e., less contradicting) fashion. We found some evidence for this process in study 4, wherein positive (negative) information was viewed more positively (less negatively) under low processing. Jones and Goethals argued that assimilative processes are likely to drive primacy effects when situational factors increase the speed with which people form initial impressions or feelings of commitment to their initial judgments, both of which could be encouraged by low processing. In essence, any factor that fosters early closure should promote assimilation, which facilitates primacy as long as the conflicting information is relatively easy to re-interpret. This view fits with our conceptualization and could help explain why primacy rather than recency characterized our findings.

## Alternative Mechanisms

In addition to outlining the theoretical and empirical support for our perspective on the blemishing effect, it is important to consider some alternative accounts for why this effect might occur. As one possibility, it could be argued that the blemishing effect stems from increases in the perceived authenticity or credibility of the information or information source (e.g., the seller or company who is presenting negative information). The logic would be that presenting a negative makes the source seem more credible—for instance, more honest or trustworthy—which then enhances product evaluations under low-processing conditions (see Petty and Wegener 1998). Although this perspective has face validity, and might very well operate in some contexts, it is not clear that it can account for all of our findings. For instance, it is unclear why offering a broken chocolate bar would make one seem more credible than offering an intact one, yet it engendered more purchasing in study 2. It also is unclear that an authenticity/credibility effect would be moderated by presentation order as we found. If anything, the opposite result—whereby disclosing a negative early on is more advantageous than disclosing it later—would seem more amenable to an authenticity account, but this pattern would not fit the current data.

As a related alternative, our findings could also be viewed as similar to research on two-sided messages, which reveals

an occasional advantage for persuasive messages that consider two sides of an issue rather than just one side. For example, messages that acknowledge opposing views, or that address product pros and cons, are sometimes more effective than those presenting only one side (e.g., Crowley and Hoyer 1994; Etgar and Goodwin 1982; Golden and Alpert 1987; Kamins and Assael 1987; Pechmann 1992; Rucker, Petty, and Briñol 2008; Smith and Hunt 1978; see Petty and Wegener 1998). The logic here would be that by adding negative information, a communicator seems more credible (Kamins and Marks 1987; Smith and Hunt 1978), or the message itself seems more balanced or informative (Rucker et al. 2008), producing favorable reactions.

Although we do not contest the notion that adding negative information could create a two-sided message in theory, there are numerous differences between the blemishing effect and two-sided message effects. Conceptually, the blemishing effect is distinct in that it is not about raising and addressing negatives, offering more complete information, or seeming more balanced but rather just highlighting a single minor flaw or downside. In fact, to capture this blemish notion but limit perceptions of two-sidedness *per se*, we presented the negative information graphically in study 4, using a picture of damaged packaging that was completely independent of the product's actual merit or desirability. Study 4's paradigm does not seem to fit the typical definition of two-sided messages, yet it produced the blemishing effect.

The moderating conditions we observed are also different from those observed in two-sided message studies. For example, we found that the blemishing effect requires low processing effort, whereas past research on two-sided messages suggests that they should be most persuasive under high-processing conditions (e.g., Hastak and Park 1990; Petty and Wegener 1998; Rucker et al. 2008). Moreover, some research on two-sided messages suggests that they are most effective when recipients have a preexisting attitude toward the target (e.g., a prior negative experience with the product that needs to be addressed or refuted; Allen 1991; Crowley and Hoyer 1994; Kamins and Marks 1987). In contrast, we found the blemishing effect using completely novel products.

It could be that blemishing effects and two-sided message effects look similar but operate under different conditions. For example, perhaps in the context of relatively brief descriptions of new products, like those used here, a blemishing effect prevails and is facilitated by low processing effort. In richer informational contexts, like those in which people receive detailed persuasive messages with arguments and refutations on both sides of a topic about which people might have a prior opinion, perhaps a two-sided message effect becomes more likely, in which case high processing effort fosters the effect. As noted earlier, both information amount (low) and information complexity (low) contribute to primacy effects (e.g., Hogarth and Einhorn 1992); perhaps they foster blemishing effects and help differentiate them from two-sided message effects.

In short, we see the blemishing effect as conceptually distinct from both an authenticity/credibility effect and a two-sided message effect. Nevertheless, to address these alternatives directly, we conducted an additional study ( $N = 75$ ) that replicated the low-effort conditions of study 4 but added a positive-only condition to the design. The positive-only condition used the same favorable description of the hiking boots as in study 4 but included a picture with an undamaged box. This provided three low-effort conditions: positive only, positive + weak negative, and weak negative + positive. We focused on low effort, as this was the only context in which we obtained the blemishing effect and, thus, the only context in which any alternative account would be relevant. In this study, after presenting the full product description and picture, we asked participants to rate the source (i.e., the company or seller) on authenticity, trustworthiness, credibility, and honesty. Following these items, participants rated the product description itself on the extent to which it provided sufficient information as well as the extent to which it presented both sides, or offered both positive and negative information. There were no differences across conditions in perceptions of the source ( $F(2, 72) < 1.52, p's > .22$ ) or the information itself ( $F(2, 72) < 1.16, p's > .32$ ). Thus, the authenticity and two-sided message perspectives did not appear to provide plausible accounts of our findings.

Finally, the blemishing effect bears some resemblance to the classic *pratfall effect* (Helmreich, Aronson, and LeFan 1970), which refers to the notion that highly competent individuals can gain influence after public pratfalls (e.g., spilling coffee) because pratfalls make them seem more human or approachable. In a sense, the blemishing effect is similar in that an otherwise good product has a minor or tangential flaw that increases its appeal. However, these effects have crucial differences. For example, the pratfall effect is a distinctly social phenomenon in which observers learn more about a person who commits a pratfall (e.g., "Oh, he's a regular guy after all") and come to value the negative feature as it makes the person seem more human. In contrast, the blemishing effect is a broader concept that could apply to people or products, and it is driven by a different mechanism—specifically, enhancing the appeal of a product by making its positive attributes seem more positive and discounting the negative information rather than appreciating it in some way. Also noteworthy, our additional study did measure attributions of potential relevance to the pratfall effect (e.g., authenticity) and found no differences across conditions. Finally, the blemishing effect requires low processing effort, but it is not clear that this would be true of the pratfall effect. It is possible that the pratfall effect demands effortful processing, as individuals must make a reasonably complex attributional inference that a competent individual is also human. Exploring the potential moderators of the pratfall effect is beyond the scope of our research, but it is an interesting avenue for future work.

## Theoretical and Managerial Implications

In addition to applying past research on primacy effects to understand a new phenomenon, the current research contributes to the literature on primacy effects in a potentially important way. Past research in this area suggests that when people receive a series of information and are geared toward primacy, initial information outweighs subsequent information. Our studies are consistent with this notion but go a step further in demonstrating that later information can actually augment the impact of early information. Indeed, under low processing we observed greater positive impact of the initial positive information when it was followed by a negative item than when it was presented on its own. This is consistent with a bolstering perspective that is based on initial inclinations toward primacy. Future studies exploring other factors that increase the impact of early information, rather than simply reducing the impact of later information, would be worthwhile.

Future work should also explore additional boundary conditions for the blemishing effect. As one crucial example, what type of negative information fosters this effect? We have focused on instances in which people receive a single minor negative. In theory, this negative could be minor because it is weak (e.g., just slightly negative on an important product dimension) or because it is peripheral (e.g., very negative on a dimension that is not central to consumers' value propositions). Either way, the distinguishing feature is that on its own it does not hold sway. Systematically investigating variations in negative information, and how those variations moderate the blemishing effect, remains an important step in this domain. Of particular interest from our point of view would be studies varying the amount, extremity, cogency, or source of the negative information. It is possible—perhaps likely—that extensive, severe, or central negatives (or negative information from a valued group member) after initial positive information would create difficult-to-reconcile inconsistencies that preempt the blemishing effect (e.g., Duhachek, Zhang, and Krishnan 2007; Sengupta and Johar 2002). Following our own reasoning, if it proves challenging to bolster the positive impression after strong or extensive negative information, individuals would have to apply other strategies or simply give in and accommodate the negative information. In other words, it is possible that extensive, extreme, or compelling negatives would exert a negative impact, regardless of when they are received or what one's processing effort happens to be. This is important to test, but for now we focused on the more interesting and counterintuitive case of positive effects emanating from negative information, seeking to understand when and why they might occur.

Finally, we think this work has managerial relevance, as the first instinct of marketers is to hide, downplay, or mask negative reviews or disadvantages of their products and services. That is, the lay theory among practitioners is that negative information is something to suppress. In contrast, our studies suggest that under specifiable conditions it can be valuable to highlight negative details or reviews. For example,

if a product's disadvantage is minor or peripheral to consumers' core value propositions, marketers might be better off highlighting that disadvantage in some situations. In short, instead of concealing minor product shortcomings, marketers should consider highlighting them as a new means of persuasion when consumers are unable or unmotivated to invest a great deal of processing effort and when those shortcomings can be presented after positive information has been provided.

More generally, although information acquisition is more and more in the hands of consumers, there remain numerous settings in which marketers do have control over what and how information is presented. In advertising, for example, marketers can present information in an order that would capitalize on the blemishing effect and place this ad in low-processing contexts (e.g., bus posters, pop-up banners, Facebook ads, busy or noisy locations). Even with online customer reviews, there is room for influence. Firms that display product reviews on their Web sites could sort those reviews by valence rather than date. For example, if the owner of the new age fusion restaurant described at the outset of the article notices the negative review about parking, he or she could consider highlighting this review on the restaurant's Web site (after a few positive comments) to elicit the blemishing effect.

## Conclusion

Consumers' responses to imbalanced or contradictory information is an important factor in predicting and shaping their evaluations of and preferences for almost any product or service. Particularly in today's marketing world, in which consumers receive input from numerous and diverse sources, it seems inevitable that they will receive some negative information in addition to the target positive information. The current research suggests that perhaps marketers should embrace rather than fight this reality. Indeed, across several studies, we observed a positive effect of negative information. We believe that this effect has both theoretical and practical importance for persuasion, evaluation, and choice more broadly.

## APPENDIX

TABLE A1

ITEMS FROM THE ANALYTIC-HOLISTIC THINKING SCALE  
(STUDY 3)

	Description
1	The whole, rather than its parts, should be considered in order to understand a phenomenon.
2	It is more important to pay attention to the whole than its parts.
3	The whole is greater than the sum of its parts.
4	It is more important to pay attention to the whole context rather than the details.
5	It is not possible to understand the parts without considering the whole picture.
6	We should consider the situation a person is faced with, as well as his/her personality.

SOURCE.—Choi, Koo, and Choi (2007).

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