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When Does Expensive Food Taste Better? Top-Down and Bottom-Up Processing in Price-Quality Inferences

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Three experiments and a field study examined when and how a restaurant's menu price affects perceived food quality. Results show that consumers can make quality inferences using two distinct types of cognitive processes: a top-down process based on prototype resemblance or a bottom-up process based on beliefs about price-quality correlation.

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Expensive or Cheap? Reference Prices and Consumer Perception of Value

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EXTENDED ABSTRACTS**“When Does Expensive Food Taste Better? Top-Down and Bottom-Up Processing in Price-Quality Inferences”***Manoj Thomas, Cornell University, USA**Vicki G. Morwitz, New York University, USA**Leonard Lodish, University of Pennsylvania, USA**Jin Seok Pyone, Cornell University, USA*

It is widely accepted that price influences consumers' responses to marketplace offerings in two distinct ways. Price not only serves as a measure of economic sacrifice, but also influences consumers' inferences about the quality of the product. However, research has shown that the relationship between price and perceived quality is inconsistent; consumers sometimes consider a higher price as a signal of better quality, and sometimes do not. Several influential papers have presented different perspectives on when and why consumers use price as a signal of quality. The present research extends this body of work by suggesting that whether consumers use price as a signal of quality is contingent on the type of cognitive process they rely on to make inferences. We show that consumers tend to rely on two distinct types of cognitive processes to make inferences about quality: a top-down process based on prototype resemblance or a bottom-up process based on their belief about the correlation between price and quality. Under conditions of top-down processing, consumers begin with the representation of a prototypical high quality product in their mind, and make spontaneous inferences by comparing the new product to this mental prototype. Usually, a prototypical high quality product has a conjunction of positive attributes (i.e., attributes that are associated with high quality). Therefore, when the new product has a conjunction of positive attributes and thus resembles the prototype, they infer that the new product will have the same quality as the prototype and this spontaneous inference makes them more likely to consider a higher price as an indicator of better quality. Conversely, when the new product has one or more negative attributes and thus does not resemble the prototype, they do not consider a higher price as an indicator of better quality. Even when the new product has a higher price, they infer that since the new product does not resemble the prototype it will not have the same quality as the prototype. We refer to the tendency to inconsistently interpret price based on top-down processing as the prototype resemblance effect in price-quality inferences. Interestingly, this prototype resemblance effect does not manifest when inferences are based on bottom-up processing (i.e., based on their belief about the correlation between price and quality.)

As an illustrative example, consider the example of a consumer who is trying to infer the quality of food at two new restaurants in her city. Both restaurants have unimpressive decor. However, they differ on price. A typical meal at one of the restaurants costs \$25 while at the other restaurant it costs \$12. Will she consider the higher priced restaurant to have better quality food than the lower priced one, given that both restaurants have unimpressive decor? This consumers' inference will be contingent on the type of cognitive process she relies on to make the inference. If she relies on top-down processing, she will infer that the expensive restaurant will not have better quality food because it has unimpressive decor and thus does not resemble a prototypical high quality restaurant. In contrast, if she relies on bottom-up processing, she will infer

that the expensive restaurant will have better food because price is positively correlated with quality.

Three experiments and a field study were conducted to examine the role of top-down and bottom-up processing in quality inferences. The studies presented in this article characterize how the activation of prototypes influences price-quality inferences. Although there is a rich literature on the role of prototype-based processing in consumer behavior (see Loken, Barsalou and Joiner 2007 for a recent review), and some researchers have examined the role of knowledge and beliefs in quality inferences (Baumgartner 1995; Kardes et al. 2004; Rao and Monroe 1988), we are not aware of any research that specifically examined the effects of prototype activation on price-quality inferences. The present research aims to remedy this omission. We address three specific questions in this research: (i) What is the structure of mental prototypes used in quality inferences (Study 1)? (ii) How do these prototypes influence consumers' interpretation of price (Study 2)? (iii) How do top-down prototype based inferences differ from inferences that are based on beliefs about the correlation between price and quality (Study 3)? We use response time data to examine whether consumers actually rely on their price-quality beliefs to make quality inferences. We show that participants' response times are influenced by prototype resemblance, but not by their price-quality beliefs. To the best of our knowledge, none of the previous studies have examined the patterns in response times and its implications for the theories of price-quality inferences. Further, we use data collected outside laboratory settings to empirically test which of the two modes of inferences is more pervasive in everyday quality inferences—the top-down process based on prototype resemblance or the bottom-up process based on beliefs about the correlation between price and quality. We analyze consumers' food quality ratings of 1,620 restaurants, and find that the dominant propensity is to rely on prototype resemblance. Finally, this study also contributes to the small but growing body of literature which suggests that a high price can play the role of a placebo and unconsciously influence consumers' actual product experiences (see Rao 2005; Shiv, Carmon, and Ariely 2005). The results from our field study, together with findings from placebo effect research (Shiv, Carmon, and Ariely 2005), suggest that when a restaurant with good décor charges a higher menu price, a consumer might actually experience the food to be of better quality. But when similar food at the same price is offered by a restaurant with mediocre décor, the consumer's experience might not be so favorable.

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"When Payless Meets Prada: Subtractive Judgments in Evaluating Product Bundles"

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Consumers often encounter combinations that include products from different price tiers. For example, retailers and manufacturers commonly bundle high- and low-priced products together, such as a computer with a printer or a sofa with an ottoman. Additionally, some combinations are formed coincidentally, such as when consumers place items from different price tiers into a shopping basket or purchase them in the same shopping episode. Despite its importance, the notion of how consumers determine their willingness to pay (WTP) for combinations is not well-understood.

Logically, estimating a bundle's overall value should involve adding the subjective value of each individual item. Some research assumes that bundle valuation is perfectly additive, such that WTP for a bundle is equal to the sum of WTP for its individual components (Bitran and Ferrer 2007). Empirical evidence shows that, in fact, WTP is often subadditive, such that the value of two items is discounted when they are evaluated together rather than separately (Cooke & Pecheux; Heeler et al. 2007). Regardless of the magnitude of this discount, conventional wisdom would suggest that the value of the bundle should be higher than the value of any individual item in the combination.

In contrast to prior literature documenting bundle valuation that is perfectly additive or subadditive, we identify conditions in which it is instead subtractive. That is, we show cases in which WTP for a combination is less than WTP for a single item in the combination, despite the fact that when evaluated individually, each item in the combination has positive utility for consumers. In addition, we propose a novel explanation for this subtraction effect and show that it cannot be explained by consumer expectations for quantity discounts or inferences that one of the bundle components is low-quality.

We argue that adding an inexpensive item to an expensive item decreases rather than increases WTP for the offering because of categorization. In particular, we argue that when items classified into opposite categories (e.g., expensive vs. inexpensive) are combined, the combination is perceived to be less extreme than its components (e.g., moderately expensive). Relying on this overall impression of the combination, individuals assign a lower numeric value to the combination than to the expensive item when articulating WTP. As a result, WTP for the combination is lower than WTP for the expensive item alone, despite the combination's objectively greater value.

We conducted four experiments to document the subtraction effect and examine its antecedents and consequences. Study 1 tests the proposition that individuals are less willing to pay for an expensive item when it is combined with an inexpensive item rather than evaluated alone. Across six product categories, online participants evaluated either an expensive item alone, an inexpensive item alone, or a combination that included the same expensive and inexpensive items presented to participants in the first two conditions. Results demonstrate the subtraction effect by showing that WTP for the

combination was lower than WTP for the expensive option alone in each of the six categories, as well as overall across categories.

Study 2 examines the role of impression formation in the subtraction effect by comparing WTP for a combination when items are presented side-by-side but evaluated either individually or as a combination. In particular, it shows that neither quality inferences nor expectations for quantity discounts can fully account for the subtraction effect. We predict that the subtraction effect is more likely to be observed when consumers evaluate the combination as a whole rather than evaluating each component of the combination in piecemeal fashion. As expected, mean WTP across categories was lower for the combination (when the offering was evaluated holistically) than for the expensive option alone (when the offering was evaluated in piecemeal fashion).

Study 3 provides further evidence that categorization causes the subtraction effect by documenting that this effect is attenuated when people focus on other attributes, such as functionality, rather than price. This study was similar to study 1, but in order to prompt categorization on a dimension other than price, half of the participants answered a question about the functionality of each product prior to articulating WTP. For example, when evaluating luggage, some participants were asked to indicate the expected size of the luggage relative to an average brand. As predicted, the subtraction effect was attenuated when participants focused on functionality rather than price.

Finally, Study 4 documents the role of categorization by showing that the subtraction effect is weaker when options are classified into the same category rather than opposite categories. We reason that introducing an extremely high reference price prior to evaluation should reduce the likelihood that expensive and inexpensive items are classified into opposite categories, since both items are likely to be perceived as inexpensive relative to the high reference price. Thus, participants estimated the likely price of a reference item prior to evaluating the target item(s) for each category. Reference items were selected such that participants would perceive the price to be relatively similar or extremely high compared to the prices of the target item(s). Consistent with our prediction, exposure to an extremely high reference price prior to evaluating the target option attenuated the subtraction effect.

Data from four studies offer converging support for the notion that adding an inexpensive item to an expensive one can decrease rather than increase the perceived value of an offering. This research has important managerial and theoretical implications. In particular, it suggests that bundling products from different price tiers may result in decreased revenue. Furthermore, it illuminates the role of categorization in value judgments, showing that changes in the qualitative classification of item(s) can impact numeric evaluation.

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“The Effect of Shipping Fee Structure on Consumer Evaluations of Online Offers”

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Long Abstract. According to Forrester Research, online spending in the U. S. in 2008 was about \$141 billion and should reach \$156 billion in 2009. The growth in e-commerce as well as direct to consumer retailing has highlighted the importance of shipping fees. A critical decision is how to present these fees to consumers particularly when 30% of online shopping carts are abandoned due to shipping and handling surcharges (Jupiter Research 2006). Despite its importance to online and other direct retailers, only a few studies have examined the effects of shipping fees (cf. Lewis 2006; Lewis, Singh and Fay 2006; Schindler, Morrin and Bechwati 2005).

We investigate the effects of two common shipping fee structures—flat rate shipping and threshold based free shipping—on consumer evaluations of online offers. Drawing on the price partitioning literature (e.g., Hamilton and Srivastava 2008; Morwitz, Greenleaf and Johnson 1998), the basic premise is that separating the shipping fee from the product price makes the shipping fee more salient. Given that most evaluations are based on some standard of comparison (Kahneman and Tversky 1979), we propose that consumers use different referents to evaluate the shipping fees. Specifically, while the referent used to evaluate flat rate shipping is likely to be based on prior experience and/or knowledge and is somewhat imprecise, the natural referent used to evaluate threshold based free shipping is the possibility of free shipping that is more precise. A memory based referent requires more effort to access in the case of flat rate shipping whereas the stimulus based referent of free shipping in the case of threshold based free shipping is vivid and easily accessible. As such, given threshold based free shipping, order values below the threshold are coded as a loss whereas order values above the threshold are coded as a bonus or a quantity discount relative to the natural referent of free shipping. Our main prediction is that online offers will be evaluated less (more) favorably when the shipping structure is threshold based free shipping than flat rate shipping for order values below (above) the threshold for free shipping.

We report the results of five between-participants experiments which demonstrate that evaluations systematically vary as a function of shipping fee structure. Study 1a shows that compared with flat rate shipping, consumer evaluations are more favorable when an online offer has threshold based free shipping for order values above the threshold. The reverse is true for order values below the threshold for free shipping as the offer is evaluated less favorably with threshold based free shipping than with flat rate shipping. In addition, perceptions of shipping fee fairness mediate the effect of shipping fee structure and order value on offer evaluations. Study 1b demonstrates that the results are robust to the difference between order value and the threshold for free shipping. Specifically, consumer evaluations do not differ when the order value is just below the threshold (e.g., order value of \$19.99 relative to a \$25 threshold for free shipping) or significantly below the threshold (e.g., order value of \$19.99 relative to a \$75 threshold for free shipping).

Study 2 sheds more light on the underlying mechanism by examining the effect of shipping fee structure on consumer evaluations when an alternative referent is made salient. Our conceptualization suggests that making an alternative referent salient is likely to shift attention away from the shipping fee and reduce the reliance on the shipping fee referents, thus attenuating the effect of shipping fee structure on consumer evaluations. For example, an offer that

is presented as a 20% discount off the regular price is likely to alter the focus of attention from shipping fee to the price discount. Consistent with the proposed mechanism, study 2 demonstrates that the effects of shipping fee structure are similar to those in study 1 in the absence of an alternative referent. However, there is no difference in consumer evaluations across the threshold based free shipping and flat rate shipping structures in the presence of an alternative salient referent, regardless of order value. These results highlight the shift in attention from the shipping fee and the associated referents in each of the two shipping fee structures to the price discount when it is made salient. Importantly, we rule out positive affect as an alternative explanation for the results.

Another question that this research investigates is whether the shipping fee structure affects consumer perceptions of the extent to which retailers use shipping fees to generate profits. Study 3 demonstrates that while participants are more likely to believe that the retailer is making profit in the threshold based free shipping condition than in the flat rate shipping condition for order values below the threshold, the reverse is true for order values above the threshold. With a flat rate shipping structure, since all consumers have to pay for shipping regardless of order value, the shipping fee is more likely to be viewed as the actual cost that the retailer incurs for delivery. With a threshold based free shipping structure, in the presence of the referent of free shipping, consumers are likely to believe that the retailer is using the shipping fee to generate profits.

Study 4 examines whether providing a justification for shipping fee structure and linking the shipping fee to the actual cost of delivery moderates the effect on evaluations of online offers as well as perceptions of shipping fees as generating profits. The results suggest that consumer evaluations as well as perceptions of shipping fees as generating profits do not differ across the flat rate and threshold based free shipping structures for all order values when a justification for the shipping fee is provided. The justification for the shipping fee and linking it to actual cost of delivery encourages consumers to view the shipping fee as the cost of doing business rather than as a loss or that the retailer is trying to making money on the shipping fee.

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“More than Just a Constraint: Budget Constraints Shape Preference”

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No matter their income or net worth, consumer purchases are all constrained by finite resources. Few consumer decisions are not affected by budget constraints. Despite its omnipresence in consumer decision making, research on the role of budget constraints on consumer decisions has been surprisingly limited. Heath and Soll (1996) and Ulkumen, Thomas, and Morwitz (2008) both focus on the mechanics of consumer budget setting and budget estimation, but devote less attention to how budgets impact consumer decision making. Hauser and Urban (1986) examine budget planning and show how budget constraints influence consumers' desire to maximize “bang for the buck.”

While economists' notion of the hyper-rational agent has been sufficiently lambasted over the years, it is still universally accepted that consumers try to get the most for their money. While this effort is bound to be error-prone, consumers nevertheless attempt to assess the value of products relative to their price, and purchase the product that offers the most utility relative to the utility of the money exchanged. Extant theory posits that budget constraints should not play a role in the evaluation of a product's utility, but only in the evaluations of the relative price comparisons.

In contrast, we demonstrate that consumers' budget constraints affect even their evaluations of a product's desirability in two different ways. First, consumers tend to devalue products that are outside of their budget. Rather than recognizing that expensive products are superior to less expensive products (although perhaps not be worth the extra expense), consumers who are unable to afford a product convince themselves that expensive products are actually inferior. Second, consumers become sensitized to quality differences within the range of prices they are accustomed to shopping. For example, a woman accustomed to buying handbags in the price range of \$50 to \$100 would more readily notice the difference in quality between a \$75 and a \$95 handbag than between a \$150 and \$300 handbag.

To test our first proposition, we recruited 78 members of an online panel to participate in a study on product preferences. We told all participants to consider that they were planning to purchase an iPod nano™ to exercise with. Participants were told that they had budgeted \$170 for the purchase and had narrowed the decision down to one of two options—one with 8 GB storage for \$133.99 or one with 16 GB storage for \$159.95. They evaluated the desirability of each iPod nano on a 0 to 100 sliding scale and made a selection. In their evaluations of the products (in this and the following evaluations), they were asked to ignore price and only evaluate the product's desirability. After making this decision, participants were then told that they also wanted to purchase an armband to hold their iPod during exercise. Of course, their remaining budget for this decision depended on their previous iPod selection. Those who had selected the 8 GB nano had \$36.01 remaining in their budget, while those who had selected the 16 GB nano had only \$10.05 of their original budget remaining. The two armbands offered cost either \$17.95 or \$6.80. Thus, participants either had enough money in their budget for both or only for one of them. We hypothesized that those with only \$10.05 would devalue the more expensive armband. Consistent with our prediction, the group with enough money remaining for either armband gave the cheaper armband an average rating of 58.8 and the more expensive armband a 64.9. The limited budget group, on the other hand, rated the cheaper armband a 67.6 and the more expensive armband a 57.5. The average difference in the two ratings was significantly different ($p=.04$, one-tailed).

To test our second hypothesis, that consumers become sensitized to quality differences within their budget range, we recruited 131 participants from an online panel for a study on product evaluations. To begin the survey, we asked each participant to report the most they had ever spent on a product from each of 10 product categories. Participants were then asked to rate five products, labeled with their actual online retail price, from several of these categories. Participants were also asked to rate the quality of each product in the set on a 0 to 100 sliding scale. Each person made these ratings for five products from four different product categories. All participants rated surround sound systems, sunglasses, and watches (the sunglasses and watches shown were gender-matched). Men further rated golf clubs, while women rated a set of handbags.

We hypothesized that participants' quality ratings would be sensitized to their budget range. We determined each participant's budget range from the most they had spent on the product category. If \$100 was the most they had spent on a golf club, then their budget range must extend below and above \$100. This reference value was matched to two products from the five products each participant rated. For example, we showed male participants golf clubs (all drivers) priced at \$45, \$87, \$129, \$171, and \$213. A person who has spent at most \$100 on a golf club should be sensitized to the difference between the \$87 and \$129 golf club such that the difference in quality between these two golf clubs is higher than between other clubs. Therefore, we modeled difference in quality ratings between each product and the product just above it. As expected, participants were more sensitive to quality differences in their budget range than between other products. The average difference in quality rating was significantly higher between the two product near the budget reference than between other products ($p=.006$).

If consumers desire to get the most for their money, they need to be able to reliably evaluate products. Based on findings from this research, product evaluations seem to be at least partially determined by consumer budgets; a factor which could prevent some consumers from maximizing utility.

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