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Price Discount Perception: Consumers' Numeric Interpretation of Semantic Price Claims

Albert J. Della Bitta
University of Rhode Island, dbitta@uri.edu

Patricia A. Norberg

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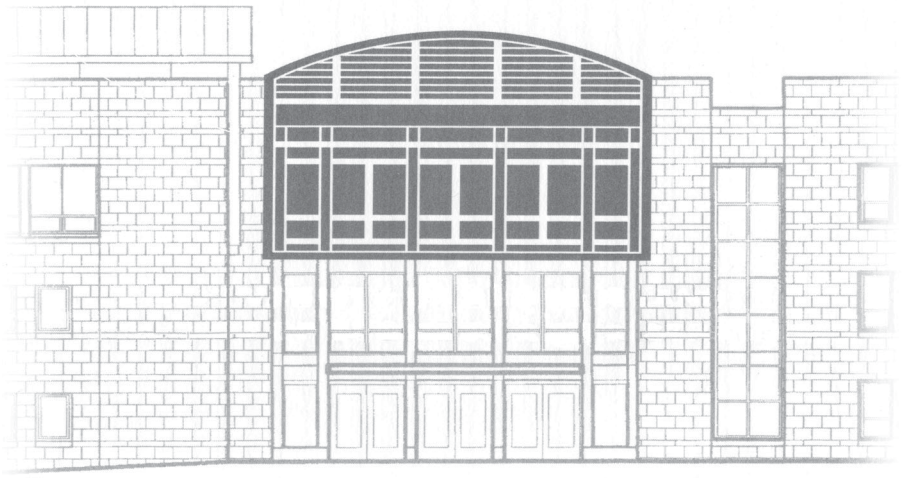

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Patricia A. Norberg and Albert J. Della Bitta

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Office of the Dean
College of Business Administration
Ballentine Hall
7 Lippitt Road
Kingston, RI 02881
401-874-2337
www.cba.uri.edu

Price Discount Perception:

Consumers' Numeric Interpretation of Semantic Price Claims

Patricia A. Norberg

Associate Professor of Marketing and Advertising

Quinnipiac University

Hamden, CT 06518

Phone: 203-582-8256

Email: patricia.norberg@quinnipiac.edu

Albert J. Della Bitta

Professor of Marketing

University of Rhode Island

Kingston, RI 02881

Phone: 401-874-4232

Email: dbitta@uri.edu

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CONTRIBUTION STATEMENT

The use of semantic cues (phrases) in price promotions to describe a reference price and the offered price has been a focus of behavioral pricing research for many years. A related type of semantic *claim* also frequently used in price promotions attempts to encourage purchases by describing the *consequences* of buying at the discounted price (e.g. Super Savings), but despite their potential importance to marketers and consumer protection groups, the interpretation and effect of these claims has basically escaped research attention. Using a variety of methods and conceptual foundations, the present research is the first to comprehensively study consumers' associations of these semantic claims with numerical discount magnitudes as well as their effect on expected price discounts and perceptions of an offer's value. We find evidence suggesting that at least some semantic claims have consistent numerical interpretations and a subset of those were found to influence discount expectations and perceptions of both transaction and acquisition value. These findings demonstrate the importance of considering the link between words and numbers when developing price promotional materials.

ABSTRACT

Behavioral pricing research includes a considerable amount of focus on the effects of semantic cues (phrases) used to label reference and offer prices in price promotions, but a related type of semantic *claim* also frequently used in price promotions has continued to escape research attention – claims that attempt to encourage purchases by describing the *consequences* of buying at the discounted price (e.g. Super Savings). Using a variety of methods and conceptual

foundations, the present research is the first to comprehensively study consumers' discount and value associations of these semantic claims. In a series of three studies, we find evidence suggesting that at least some semantic claims have consistent numerical interpretations and a subset of those were found to influence discount expectations and perceptions of both transaction and acquisition value. These findings suggest the importance of recognizing that consumers may associate specific claims with certain discount magnitudes.

INTRODUCTION

When browsing the Sunday newspaper one finds no shortage of advertisements promoting some sort of Super Deal, Special Sale, Huge Savings or the like, especially during the holiday and post-seasonal retail periods. Notwithstanding that these promotional words, termed "semantic cues," are likely to draw consumers' attention to the advertised goods themselves, marketers employ them for the purpose of influencing consumers' perceptions of the offered deal.

Extant research on "semantic price cues" employed in sale ads has focused almost exclusively on the effects of those words that refer to externally supplied reference prices [general (Monroe, Della Bitta and Downey 1977), "compare at," "regular price" (Berkowitz and Walton 1980; Della Bitta, Monroe and McGinnis 1981; Grewal, Marmorstein and Sharma 1996), MSRP (Compeau, Lindsey-Mullikin, Grewal and Petty 2004)] and offer prices ["sale price" (Fry and McDougall 1974; Barnes 1975)]. Some of this research (Compeau et al. 2004) has detected considerable variability of inferred meaning among consumers regarding cues describing the reference price.

Despite this interest in semantic price cues, there has been a surprising dearth of research, with the exception of Barnes (1975), examining other price-related semantic phrases, such as "Super Deal" or "Special Savings" – phrases that may also communicate value but are not labels for the specific *parts*, offered or reference, of the price comparisons. That is, they are non-price-focused but typically imply or specifically make *claims* regarding the *consequences* of purchasing at the promoted price. Thus, there is a significant paucity of knowledge regarding the effect of such claims on consumers' perceptions of price promotions. Is the variety of these claims used to convey discounts large in number? If so, what does that imply about managers' understanding of their actual effects? Is their use mainly confined to few industries or types of firms? Are the meanings of some claims more ambiguous to consumers than others? Why? And, if so, to what extent do the ambiguous claims have potential to mislead consumers regarding the magnitude of price discount? Also, to what extent do members of the set of unambiguous claims convey different levels of perceived price discounts? How does this occur? Answers to these and other questions have significant implications for managers tasked with communicating sale/discount information to consumers and for those concerned with consumer protection/welfare.

The objective of this paper is to examine consumers' processing of and subsequent responses to these all but ignored "semantic price claims" (SPCs henceforth). We find that these SPCs are ubiquitous in use across numerous product classes and industries and are quite diverse in nature, thereby potentially leading to misinterpretation and deception (refer to FTC Guides Against Deceptive Pricing, Section 233). We seek to examine if any of these claims actually trigger a consistent numeric discount association across subjects and whether or not we can identify them. We also extend the extant semantic price-cue literature by referencing research in linguistics and

cognitive psychology to inform a conceptual framework and hypotheses that can potentially explain the relative effects of such claims. In a series of three studies, we test these hypotheses and report the extent to which consumers can categorize a sample of such semantic claims according to numerical discount size association and how such claims interact with numeric price information to influence value perceptions. Specifically, we investigate the effects of word/number processing on transaction value and acquisition value.

To our knowledge, this is the first pricing study to investigate whether consumers have consistent numeric interpretations of a wide range of semantic claims of this kind. Our findings highlight the need for managers to use caution in selecting words to signal discounts and for consumer-welfare advocates to be attentive to the potential for misrepresentation of price discounts.

The remainder of this paper is organized as follows. First, a review of relevant price research is presented, followed by a discussion of research in cognitive psychology and linguistics regarding semantic associations/categorizations, encoding, and interpretation of numeric and verbal representations of information. Relevant hypotheses are presented next, followed by a discussion of the method and results of three studies. Conceptual as well as managerial/consumer protection implications of research findings are offered. The paper concludes with research limitations and suggestions for future research.

BACKGROUND

The predominant context for studying semantic price cues has been comparative price advertising. Much of this literature is based on assimilation-contrast theory (Sherif and Hovland 1961) and relatedly, adaptation-level theory (Helson 1959). These social judgment and

psychophysical theories respectively help us understand how a stimulus is interpreted based on one's internally held standard for comparison (reference point), which serves as an anchor for evaluation (Gannon and Ostrom 1996). With regard to behavioral pricing, these theories explain how externally-supplied terms for price might influence an internally held reference point or the contrast between a sale price and a reference point (Monroe, Della Bitta and Downey 1977; Monroe 2002; Biswas and Blair 1991, Urbany, Bearden and Weilbaker 1988).

As applied to the examination of semantic price cues, several studies are notable. Berkowitz and Walton (1980) asserted that such cues are contextual stimuli that can influence consumers' perceptions of numerical prices and found partial support for such an effect. Della Bitta, Monroe and McGinnis (1981) also argued that semantic cues are expressions within an ad that facilitate a buyer's ability to evaluate an offer. They suggest that if a sale price is considered to be a reasonable substitute for a higher price, a bargain will be perceived and the new price information will be assimilated into the product-price category reference price. However, if the sale price represents too much of a contrast, it will be perceived as belonging to a different product-price category and will not yield a reduction in the internally held reference price. The authors tested eight different combinations of the semantic cues "regular price," "sale price," "$ amount off," and "percent off." Dependent variables included multiple measures on value of offer, interest in product, search intention and willingness to buy. Results showed that the "sale price" only cue yielded lower perceptions of savings and offer value than "regular price" and "$ off." Generally, the "percent off" format also yielded less favorable perceptions across the dependent measures than the "$ amount off" semantic cue. Grewal, Marmorstein and Sharma (1996) examined the impact of semantic cues by situation and context, finding that semantic cues providing between-store price comparisons (measured by "compare at/sale price") were more

useful to consumers for at-home viewing of ads and had a greater impact on value perception. Within-store comparisons measured by "regularly priced/sale price" were found to be more useful when they were situated in the store itself.

Slightly different in terms of theoretical underpinning, Lichtenstein, Burton and Karson (1991) relied on correspondence-inference theory (Jones and McGillis 1976) to develop hypotheses on the impact of semantic cues. They suggested that consumers are more likely to elaborate on information that is consistent with their current beliefs and when the information is distinctive in some way. In addition, such information (high consistency/high distinctiveness) was found to have a greater effect on perception than high consistency/low distinctiveness information. Tying to the work of Della Bitta, et al. (1981), low consistency/high distinctiveness would attract attention and create a contrast effect.

In addition to examining effects on reference prices per say, a number of studies have examined the effects of price related variables including trust/believability and perceived quality. Barnes (1975) demonstrated that semantic cues such as "regular price" and "sale price" (construed as high information cues) were perceived by respondents as being more believable and yielding higher perceptions of value for money than cues such as "Special" (termed low information cues). Cues such as "Compare At"/"Now Only" were perceived as ambiguous, yielding varied interpretations. Berkowitz and Walton (1980) also examined these and other cues, finding that semantic cues of "% Off/"Now Only" were judged less positively by respondents for perceived savings and price acceptability of a camera product while "Compare At" was judged slightly more positively. However, the effects were not consistent across the two other product categories that were used in the study (aspirin and camera).

Biswas, Pullig, Krishnan and Burton (1999) considered how *another* brand's use of pricing and semantic cues might affect the *focal* brand's price and associated semantic cues. Also relying on adaptation level theory and assimilation contrast theory, they argued that prices are evaluated in the context of other available price information and therefore the plausibility of the price claim would be based on other available information. They also suggested that concreteness of the price cue influences perceptions of savings and that abstract cues (e.g. A $199 value) would lead the consumer to question the validity of an offer and be motivated to seek out additional external information. Cue concreteness was defined to be the degree of detail and specificity about the price comparison being made.

The concept of concreteness is consonant with Grewal and Compeau's (1992) suggestion that clarity and informativeness influence response to price information; Ford, Smith and Swasy's (1990) findings that consumers are more skeptical of abstract (non-price specific) ad claims; and Mobley, Bearden and Teel's (1988) findings that "tensile" price claims were perceived as less believable and less effective. Biswas et al. (1999) found that the effect of other information (competitor price information) was stronger for abstract cues, and perceived value and attitude towards the deal were higher for abstract cues when other information was available. This effect did not materialize for concrete cues.

Compeau, et al. (2004) further examined the meaning consumers derive from semantic cues that refer to reference prices, arguing that vagueness allows for multiple interpretations which may be misleading or deceptive. Their findings suggest that Regular Price, Manufacture's Suggested List Price (MSLP) and "Compare At" differ in terms of consumer perception of meaning. They found that "Regular Price" and "Sale Price" were fairly easy for subjects to interpret, but MSLP and "Compare At" produced quite varied interpretations, thereby providing

little useful information. Thus, the MSLP and "Compare At" cues were deemed to have considerable potential for deception. Relatedly, Darke and Chung (2005) showed that semantic cues also affect quality perceptions via attribute framing – specifically that discounts and "Everyday Low Prices" are highly vulnerable to negative quality perceptions.

Clearly, these studies provide substantial evidence that semantic cues describing or serving as labels for numeric price information do influence consumers' price perceptions, and the influence of such cues can in some cases leads to misinterpretation, can affect quality perceptions, may affect internal reference prices (assimilation effect) or may trigger skepticism towards the sale (contrast effect). However, past research has directed little attention towards the semantic phrases that we have termed SPCs – Semantic Price Claims – which are non-price focused semantic price phrases (c.f. Grewal & Compeau 1992). These phrases focus on the *consequences* of a price discount rather than serving as descriptions of the prices themselves. To the best of our knowledge, no research has examined whether any of the many SPCs employed in promotions have common numeric value associations for consumers or whether such claims might be deceptive based on the FCC Guides Against Deceptive Pricing (Sections 233.1 through 233.5) . It is here that we position our research and examine from a semantic categorization framework the degree to which SPCs are associated with more concrete numeric values in the context of discount/sale advertising and, if so, how that affects deal perception.

CATEGORIZATION AND ENCODING/REPRESENTATION

Individuals tend to cognitively arrange stimuli into categories to derive meaning from them and to conserve cognitive resources. Categorization might be influenced by only a few

features of an object or a large number of diverse physical and abstract features. One such scheme is based on the semantic meaning an individual derives from stimuli. Categorization via semantic meaning may be determined by a variety of attributes including the physical characteristics of stimuli themselves, the frequency with which their names co-occur in everyday usage, or the contexts in which their names appear; the latter two comprising what has been termed language-based semantics (Buchanan, Westbury and Burgess 2001). Thus, words like "dog" and "cat" can be considered to reside in the same category, not necessarily because they share physical features but because their names often occur together (house pets, cat and dog fight, etc.).

Categorical alignment reflects closeness in semantic meaning, and words representing objects, images, concepts or other stimuli perceived as having closeness in meaning are considered to be in the same "semantic neighborhood." This semantic linking of words by individuals is said to occur through unconscious activation of associative processing (Clark and Paivio 2004). A common method used to reveal such semantic word associations is the free-elicitation task. Here, exposure to a word is expected to result in activation of what the subject perceives as semantically related words. Using large samples of participants, inventories of words have been constructed, along with measures of their various properties including association set size, concreteness ratings, and measures of association strength (cf. Nelson, McEvoy and Schreiber, 2004). Other work has employed a computational model of semantic memory using a multi-dimensional semantic space constructed from the co-occurrence of words in Usenet group records (Lund and Burgess 1996). Both approaches have computed measures of semantic distance between a large number of words to define their degree of relatedness in a semantic space – defining semantic neighborhoods.

Research in cognitive psychology demonstrates that categorically aligning words on a semantic level can facilitate cognitive processing (Bassok 2001; Bassok, Pedigo and Oskarsson 2008). In addition, processing of words from different semantic neighborhoods has been found to be more laborious and causes an individual to engage more complexly to construe a higher order set (level of association) (Bassok et al. 2008). For example, although "dog" and "cat" may fall into the same neighborhood of "house pets", "dog" and "snake" requires one to move to a higher order set of "animals," of which "house pets" could be a subset and "reptiles" could be a different subset. Some words may also be ambiguous/difficult to categorize because their meaning is unclear or unknown (e.g. how many people know what a wombat is) or because multiple meanings can be assigned to a given word (e.g. a snake can be a reptile or it can refer to a sneaky, underhanded individual) (c.f. Hino & Lupker 1996; Locker, Simpson and Yates 2003). Also, with associations of this nature it is important to consider that interpretation can be context dependent (Renooij and Witteman 1999). For example, "parrot" and "trunk" might be semantically aligned in the context of pirate ships, but are most likely completely unassociated for a more general use of language.

As suggested above, the research literature on cognitive networks is simultaneously broad and deep within both linguistics and cognitive psychology, developing over a period of decades. Although the majority of this work has focused on semantic word networks, additional work has explored cognitive structures involving numerical representations (Ashcraft and Battaglia 1978, Ashcraft and Stazyk 1981, Groen and Parkman 1972). One view of numeric representation (McCloskey 1992) is that an individual's cognitive structure is comprised of a single semantic code for numeric data, and any such input must be translated into this same abstract representation before manipulation and computation can be performed on it. This is referred to

as a "single coding" model of the numerical cognitive structure. A significantly different viewpoint termed the 'encoding-complex' model has been offered by Campbell and Clark (1988, see also Clark and Campbell 1991). This conceptualization views individuals as developing numerous cognitive representations of numerical data (verbal, visual, magnitude, etc.), depending on the modality/format of the inputs. Further, they posit that these coding schema are not independent but are actually associatively connected, working as a complex and integrated system. Thus, spreading activation not only happens within each cognitive structure but also automatically occurs *between* the various cognitive networks as well as in memory for solutions to numerical problems. Associative learning strengthens links within and between elements of these cognitive systems and increases the likelihood of shared activation. This framework has the important implication that numbers, in addition to words and phrases, will be associatively connected to other words and phrases in semantic memory. A considerable body of research evidence is consistent with this model (e.g., Bernado 2001; Campbell 1994; Campbell and Epp 2005; Campbell, Parker and Doetzel 2004; Lee and Kang 2002; Sciama, Semenza and Butterworth 1999).

HYPOTHESES

As described in the previous section, research in cognitive psychology and linguistics demonstrates that, based on the similarity of meaning, individuals categorize words into semantic neighborhoods, and the strength of associations formed between these words influences the degree of spreading activation when a word is confronted in the environment. Campbell and Clark (1988) offer a model of such cognitive structure and posit that individuals develop multiple

semantic representations of numerical data confronted in the environment, influenced at least in part by the format of the data. The various semantic codes are posited to interact and become associated such that numeric information bonds with words or phrases representing the numeric data. These arguments frame our hypotheses.

Also, as mentioned previously, research in linguistics focuses on *word* pairs to investigate the alignment of words and the ease of processing similar words. Based on the model offered by Campbell and Clark (1988), we propose that in the context of pricing, and other areas characterized by word-*number* pairings, the same type of phenomenon might be operating. Specifically, if words used in sale ads have consistent discount or value associations as a result of past exposures to sale ads (conceptually driven memory), then such words would form semantic neighborhoods around the associated value perceptions [see figure 1]. However, other words not having consistent past exposure would be more difficult to process and might be considered ambiguous. Thus, we expect that those SPCs that can be identified as having similar numeric discount associations across individuals will fall into the same semantic neighborhood and those identified as differing significantly in terms of perceived numeric discount/value will fall into different neighborhoods. It is important to note that these associations are based on first assuming the domain or context in which the processing is taking place is sale advertising. As per Darke and Chung (2005), the framing of meaning assignment is important at this level of analysis.

[Insert Figure 1 About Here]

H1: In the context of sale advertisements there exist some SPCs that subjects will categorize by numeric discount association more consistently than others, reflecting common semantic neighborhoods.

Again, as discussed in the preceding section, the cognitive alignment of semantic claims by consumers is expected to be influenced by numeric associations developed over time. That is, semantic claims will tend to be categorized according to *ordered* numerical magnitudes. This leads to the second study hypothesis.

H2: Among those SPCs demonstrating consistency of categorization, subjects will consistently judge some to convey greater numerical discount magnitudes than others.

Of course, although a consumer may associate in memory a certain semantic claim with a particular numerical discount magnitude, it does not necessarily follow that exposure to a promotion employing the claim will affect their price discount expectation. However, there is substantial support in the literature for the occurrence of such an effect. Research exploring the influences of anchoring, framing, placebos, priming and subliminal stimulus presentations have produced supportive evidence for effects on consumer's expectations and/or behavior. These processes have been shown to result not only from conscious, deliberate thought but also through automatic processes working at the unconscious level (Adaval and Monroe 2002, Bargh 2002, Blankenship et al. 2008, Dehaene et al. 1998, Mussweiler and Englich 2005). Also, recent evidence suggests that even when automatic associational processes are involved, the degree to which related information residing in memory becomes activated is an important, if not an essential, condition influencing the effect of the stimulus (Kahneman 2003, Mussweiler 2002, Wegener et al., 2010, Yi 1990). Therefore, regardless of the processes involved in developing such associations, it appears reasonable to expect that semantic claims consistently associated with specific numerical discount levels will increase consumers' expectations that those discount levels will appear in an offer being promoted.

H3: When exposed to print advertisements containing semantic claims associated with higher [lower] numerical discount magnitudes, subjects' discount expectations will be correspondingly higher [lower] than subjects in the lower [higher] claim group.

Because we expect that SPCs not demonstrating high degrees of variability in numeric discount association will be more strongly linked to related numeric discount information, we suggest that perceptions of value can be prompted based on associated or conceptually related SPCs OR based on actual numeric discount information (see figure 2). Thus, we might conceptualize this associated value as being the higher order set containing both the SPC and the associated numeric discount in a similar way that pets is a higher order set containing dog and cat.

[Insert Figure 2 About Here]

Explaining figure 2 in more detail, hierarchically if an individual is asked to choose from a list of sale terms that are associated with "low discount," (s)he will rely on memory/past exposures to sales claims that might have appeared in ads for sales. In our figure, a low value claim might be "special sale." In parallel, if an individual is asked what percent off they would consider to be a low discount, they might say 10%. Thus, both "special sale" (verbal) and 10% (numeric) have an associated link at a set level that might be called "low discount." Thus, the word and value appear in the same semantic neighborhood.

Continuing to work through the set of low discount as shown in the figure, an actual linking between the physical words and numbers that convey the same meaning is expected to take place. In other words, if one sees the claim "special sale" and processes its meaning as "low discount," then other information that is semantically linked to "low discount" including numeric

associations, should come to mind. Linking of the claim to the numeric information is assumed to occur at the set (meaning) level, or reflecting acquisition value. That is, value for the money (price for quality) acts as an indicator for the set in which word claims and numeric discounts are associated. Acquisition value then is the indicator for the latent or underlying associative meaning of the claim and discount at the immediate set level.

Previous work in value assessments as related to price, though, demonstrates that the absolute assignment of value works through comparison with other available and related information, and without the comparison, the abstract valuation of "good" and "bad" assignment to a given level of acquisition value may be difficult for the consumer to determine. The evaluation of the "value of a deal" therefore requires a relative comparison to other available information (c.f. Thaler 1985) or, in the context of sales advertisements, assessing the link between the information provided in an advertisement and comparative information (Darke and Chung 2005) from other internally held sets of discounts as described above. Thus, because pondering the value of a deal in light of other deal alternatives implicates the value associated with price in an absolute sense, as in Grewal, Monroe and Krishnan (1998), we also suggest that the influence on acquisition value will occur through transaction value. Different from these authors however, who showed this to be true for evaluation of *price*, we suggest the same order of process operates when estimating *perceived discount* based on SPCs.

Because we expect that SPCs will have little or no influence acquisition value directly, we offer no alternative hypothesis. However, we do submit that:

H4: Perceived transaction value as an indicator of underlying meaning of SPCs will differ [not differ] for phrases in different [the same] semantic neighborhoods as defined in terms of numeric discount associations.

CONTENT ANALYSIS VALIDATION OF SALE PHRASES

Before designing the studies it was important to validate our assumptions that SPCs are commonplace in sale ads and are present in a variety of forms. This involved identifying an ample number of currently used SPCs. Since newspaper ads are the likely media used to advertise sales, our sample of ads was drawn from weekend newspapers serving eight major US metropolitan markets over a period of three months (spanning back-to-school and late fall). As shown in table 1, the newspapers chosen served both coasts, the Midwest, and both southern and northern metropolitan areas. Table 2 illustrates that the business categories of the 133 firms using such phrases in their advertisements was quite diverse, ranging from department stores to roofing companies.

[Insert Table 1 About Here]

[Insert Table 2 About Here]

Three hundred seventy-four advertisements were found containing SPCs, and this number excluded ads found more than once on a particular issue day. Of these phrases, 139 *unique* phrases described sale offers, as shown in table 3. Note that the same ads often appeared multiple times within newspapers but were only counted once for our analysis. The 139 unique phrases also exclude redundancy across advertisers (multiple advertisers using the same phrase). Thus, the actual usage of a phrase across the three-month period was much greater than what is reported here.

The majority (50%) of the phrases described the sale itself (e.g. "hot sale"). Others described the deal ("sizzling deal"), discount involved ("deep discount"), the buy ("hot buy"),

value, offer and miscellaneous other characteristics of the sale promotion. Although a number of the phrases referred to characteristics of the sale - special reasons for the sale (e.g. closeouts), time constraints, and/or purchase limits - these were eliminated from the study because they represented potential confounds with the phrases themselves. Seventy-seven phrases remained for further study.

[Insert Table 3 About Here]

Content analysis demonstrated that SPCs are common in newspaper sale ads. Phrases were a minimum of two words, with the "core words" Sale, Deal, and Savings being most frequent. Frequently used "modifiers," or descriptors of the sale/deal/savings, across all advertisements examined included some variation of Hot (52 occurrences), Hurry (28), Great (27), and Super (21). Huge (18), Special (17) and Spectacular (11) were also used fairly frequently. Thus, our assumption regarding frequent usage of such phrases is supported, as is the justification for examining how such SPCs might influence consumers' discount perceptions.

STUDY 1

Our first and second hypotheses suggest that SPCs will form semantic neighborhoods in the context of sale ads and at least some will be consistently associated with numerical discount magnitude. If consumers consistently group some phrases based on perceived discount, then we can infer that the consistency in grouping by discount would reflect the underlying neighborhoods. The groupings might be represented linearly, if perfect agreement among participants in classifying words took place. Inconsistencies would lead to deviation from linearity, and therefore MDS may be best suited to identify neighborhoods.

To test our hypotheses, we recruited participants to classify semantic phrases based on discount size perception and then tested the significance of grouping consistency across subjects using Kendall's Coefficient of Concordance (Siegel 1956), so that we were comfortable that neighborhoods are indeed apparent. Borrowing from research in linguistics (Buchanan, Westbury and Burgess 2001; Steyvers, Shiffrin and Nelson, 2005) we then employed MDS to depict visually the semantic neighborhoods that formed. The purpose of this study phase therefore was to provide an initial examination of how SPCs are categorized to form semantic neighborhoods and to examine the degree of variability inherent in the discount perceptions.

Method

A categorization exercise was used to examine the perception of sale phrases (SPCs) drawn from the sample of newspaper ads. Use of the method assumes that participants are able to arrange the semantic stimuli into ordered categories; for our purposes each having relative homogeneity regarding inferred discounts.

Thirty-seven individuals were recruited from classes at a northeast university to participate in the study for class credit. Each was provided with a packet contained 87 slips of paper labeled with the various phrases. All were two-word phrases with a core word of sale, deal or savings. Each of these core words was paired with a modifier (29 modifiers, e.g. special, super, blowout, etc.) to form a completely crossed set of labels. Note that the labels included the unique phrases identified in the content analysis, plus additional phrases created to accommodate a full factorial design (e.g. special sale and special deal appeared in the content analysis but not special savings).

Participants were informed that the labels are often used to describe characteristics of sales and were drawn from a survey of newspaper-based sale ads. They were asked to first review a broad sampling of the slips for initial orientation regarding the nature and variety of phrases involved. Their second task was then to review all of the slips and sort them into five piles, such that the phrases in each pile described roughly the same discount magnitude and different piles contained phrases describing different discount magnitudes. Five piles was determined to be the appropriate number via a pretest of the exercise. In the pretest, an adaptation of the own-category method (Hovland and Sherif 1952; Sherif and Hovland 1953), participants were told they could sort phrases into as many discount piles as they felt were appropriate to group the phrases. The majority of participants in this exercise used five piles.

Participants were instructed to then order the piles from phrases depicting the lowest discounts (Pile 1) to highest discounts (Pile 5). Finally, once the piles were in low-to-high order, subjects were asked to mark them with a point estimate of the discount percentage that the phrases in each pile reflected. Before commencing the exercise, the administrator made sure all participants understood the instructions.

Following this exercise, participants responded to a short debriefing questionnaire containing measures of confidence in the accuracy of their categorizations, questions on their perceptions of semantic sales-phrase usefulness to consumers and any additional thoughts they had. Gender was also recorded. The task took approximately 20 minutes to complete.

Analysis

After examining responses, three were excluded from analysis for completing the exercise incorrectly (neglecting to mark discount sizes on the piles, leaving slips unclassified or marking discount sizes on piles that were not in order of low to high), resulting in 34 usable responses.

To perform an initial inspection of phrase-discount size linkages, mean discounts and pile rankings for the phrases were calculated (see table 4 for a partial list). A check of the mean discount sizes by pile showed that pile number corresponded to discount size association (e.g. Pile 1 had the lowest mean discount and Pile 5 had the highest). With regard to phrases specifically, Blowout Sale, Blowout Deal and Blowout Savings ranked highest in pile and mean discount percentage (57%, 51% and 49% respectively), while Cool Deal, Cool Sale and Cool Savings ranked lowest in terms of pile and perceived discount percentage (16%, 15% and 14% respectively).

[Insert Table 4 About Here]

Next, agreement across judges' phrase orderings was determined using Kendall's coefficient of concordance (Seigel, 1956). Since our participants were confined to categorizing semantic phrases into one of five piles, they did not actually rank the 87 phrases. However, parallels between the categorization task used and a true ranking task were deemed sufficiently similar to use the analysis as at least a rough measure of the degree of inter-judge concordance. The issue of ties was addressed by employing the standard procedure (Seigel, p. 233-235).

Since this study utilized what is actually considered a large sample (N=34) for assessment of concordance, the χ^2 approximation of W was employed to test the significance of results (Marascuilo and McSweeney 1977). The test confirmed that judges differed significantly (d.f.=86, $p<.001$) in their ordering of the 87 semantic phrases overall. Given this evidence of

discordance among participants' arrangements of the phrases, the next task was to identify any phrases that were *not* inconsistently rated. Frequency analysis revealed that Pile 3, the middle pile, was rarely used; the average frequency a phrase was categorized into Pile 3 was 2.6 times across the 34 participants. Focus was then placed on the two low-level and the two high-level piles that were used to develop an index of the degree of variability in the label perceptions. The index value was $I = F_{(1:2)} - F_{(3:4)}$ where $F_{(1:2)}$ is the frequency with which participants placed a label in piles 1 or 2, and similarly, for $F_{(3:4)}$, across the 34 participants. Thus, large positive and negative index values would represent considerable agreement among participants and small values represent considerable disagreement. Results showed a total of 22 phrases yielding relatively high positive or negative index values, indicating considerable agreement among participants on the numeric discount association and support for H1 and H2.

Discussion

Results of study 1 demonstrate that participants associated SPCs with conceptual perceptions of numerical discount, such that a 22 of the 87 phrases examined fall consistently into semantic neighborhoods in the context of discount size. These were identified for further investigation in follow-up studies 2 and 3.

Although it was our expectation that the lagging word in the phrases (previously termed "core word") would influence participants' claim-numerical discount associations, inspection of the mean discount pile rankings and participant comments acquired in study 1 showed that the completely crossed design may have led participants to group phrases together that had the same modifier (e.g. Blowout Sale, Blowout Deal and Blowout Savings were frequently grouped

together). Thus, in preparation for studying the effects of SPCs using an experimental design with an advertisement as the stimulus in study 2, we evaluated the SPC data from study 1 using MDS, similar to procedures successfully employed in linguistic semantic studies (Burgess and Conley 1998; Lund and Burgess 1996; Steyvers, Shiffrin and Nelson 2005).

[Insert Figure 3 About Here]

A narrowed list of SPCs (7 modifiers x 3 core words) was used in order to test the effects of core word and modifier word. The MDS generated a similar 2-D space as the one in figure 3, and although modifier word sufficiently represented one dimension, core word did not stand out as strongly as the second dimension. The SPCs were then submitted to repeated measures ANOVA (test of within subjects were Greenhouse-Geisser adjusted). Results show that the modifier effect is significant with regard to discount size perception [$F(4.4,144)=40.34$, $p<.000$], core word was not significant [$F(2,61)=1.58$, $p=.22$] but modifier x core [$F(7,245)=2.26$, $p=.03$] was significant. Again, these results support H1 and H2 in that some phrases have significantly different numeric discount associations, reflecting categorization into what is conceptualized to be semantic neighborhoods in a sales context, but it does appear that core word only affects perception in the context of a modifier.

Although the ANOVA did not show significant differences by core word, we still chose to consider the modifier and core word effects independently in study 2. In study 2, the between subjects design eliminates the potential confounding effect of a crossed design in study 1 that might have led to biased categorization and nonsignificant core word main effects. In study 2, we provide further evidence that SPCs do have numeric (discount range) associations, that they do influence discount expectations (H3), and we test the effects on transaction (H4) and acquisition value perceptions. Similar to study 1, we expect discount perceptions associated with

high positive index values (high value phrases) to be significantly higher than those with high negative index values (low value phrases). We do not expect significant main effects for core word, but we do expect a significant interaction effect of modifier x core.

STUDY 2

Study 2 was designed to determine whether SPCs that subjects consistently associated with discount levels could actually affect discount expectations (H3) and value perceptions (H4). One-hundred undergraduates (62% female, 38% male) at a northeast university participated in the study for a chance to win one of two $25 gift certificates. A 2 modifier x 2 core word between-subjects design was used to test effects on discount expectation and value perception. Based on study 1 findings, four semantic price claims, two high and two low, were chosen to examine the influence of both modifier word and core word of the phrases. Thus, two modifiers (special, blowout) and two core words (sale, deal) were used to construct the four advertisement treatment conditions. The two modifiers were chosen because participants in study 1 generally associated blowout with high discount and special with a significantly lower discount. Although some modifier words (smart, cool) were associated with even lower discounts as compared to special, our results showed that these words were less frequently used in sale ads compared to the word special. Further, since special was included in earlier studies on semantic price phrases (Barnes 1975), we wished to examine the actual numeric association to this particular price term to tie in to previous research.

None of the words classified in the highest numeric discount range occurred at a exceedingly high frequency in the content analysis, but since we needed to ensure significantly

different numeric discount associations, we chose blowout (highest mean percentage value as indicated in table 4) for the high value modifier.

Newspaper format print ads were constructed for each experimental cell. The ads were for a Seiko watch (watches being a relevant and familiar product to the sample subjects), which was pretested and found to be a known brand (high recall rate when asked to list brands of watches), and a brand associated with a variety of price points (the watch was classified in low, medium and high price categories, where low was less than $50, mid-priced was pretested to be between $50 and $250 and high price to be more than $250). Pretest participants who matched our experimental participants in terms of age and college level confirmed these price-range perceptions.

For the promotional stimulus presentation, in addition to the brand name and a picture of both a men's and woman's watch, the regular price of the watch was displayed ($99) along with the manipulated phrase and a blank line where the percent off would have appeared in the sale ad (see Appendix). Participants were told that the ad information was taken from an actual newspaper advertisement but the percent off was deleted from the version they would see. They were then asked to view the ad and write in the percent off they think appeared in the actual newspaper ad. After responding, subjects answered a set of 7-point Likert-type scales on transaction value, acquisition value, regular price perception, perceived quality, search intention, attitude toward the deal and intention to buy. Scale items were taken from Grewal, Monroe, Krishnan (1998), as identified in table 5 along with the measures.

[Insert Table 5 About Here]

Analysis

Covariates were first checked, and the results indicated that perceived quality was not significantly different across conditions, while regular price perception differed significantly by core word [$F(1,94)=8.56$, $p<.01$)]. Therefore, regular price perception was retained as a covariate in the analysis. Attitude towards the deal, search intention and intention to buy did not differ significantly by condition, but regressions showed attitude and intention to buy to be significant predictors of transaction value and acquisition value. Search intention, however, was not found to be a significant predictor (see table 6).

[Insert Table 6 About Here]

We then examined effect of phrase on subjects' discount expectations. ANOVA revealed significantly different discount expectation by phrase [$F(3,95) = 16.45$, $p<.001$]. Also, as expected, pairwise comparisons showed that discount perceptions of high value phrases were different from low value phrases ($p<.01$), but not from each other ($p=.192$). Likewise, the low value phrases were not significantly different from each other ($p=.293$). See table 7 for means and standard deviations by treatment conditions.

[Insert Table 7 About Here]

Next, the impact of the phrases on transaction value and acquisition value were assessed. Since correlations among the component measures of these constructs were substantial (see table 8), MANOVA was employed for the analysis. Transaction value significantly differed by condition [$F(3,96)=3.92$, $p=.01$] as hypothesized (H4) but not acquisition value [$F(3,96)=1.89$, $p=.14$], in line with our expectation that the null hypothesis would be supported. Since acquisition value is significantly correlated with transaction value, as would be expected, we suggest that SPCs indirectly influence acquisition value through transaction value. This

conclusion is consistent with Grewal et al. (1998) who found that price influenced acquisition value through transaction value.

[Insert Table 8 About Here]

Running mediation analysis using Hayes and Preacher's (2011) MEDIATE procedure for SPSS (http://www.afhayes.com/spss-sas-and-mplus-macros-and-code.html), which allows use of a categorical independent variable having more than two levels and bootstrapping to test the significance of the mediated path, we tested the indirect effects of SPC on acquisition value as mediated by transaction value. The *a* path between the treatment condition (SPC) and transaction value was significant [$F(3,96)=3.92$, $p=.01$, $r^2=.11$)]. Examining the phrases themselves, blowout deal ($t=3.29$, $p=.00$) and blowout sale ($t=2.26$, $p=.03$) impacted transaction value significantly more than special deal. Special sale ($t=1.62$, $p=.11$) did not differ from special deal in its impact on transaction value. The full model (regressing acquisition value on transaction value and the phrase conditions) was also significant [$F(4,95)=18.03$, $p<.01$, $r^2=.43$], with the *b* path between transaction value and acquisition value also significant ($t=7.93$, $p=.00$) . Indirect effects (the *a x b* cross product) of phrase (blowout deal and blowout sale relative to special deal) were significant, based on 5000 bootstrap samples. Using this procedure, if the confidence intervals do not contain zero, the point estimates are significant (Hayes, 2012a; Zettle, et al. 2011). As expected, the direct effect of phrase on acquisition value was not significant, indicating full mediation. See table 9 for point estimates and confidence intervals.

[Insert Table 9 About Here]

In addition, also using Hayes (2012a,b) mediation procedure for continuous variables, we checked for indirect effects of discount (continuous independent variable) on acquisition value through transaction value. Results showed the *a* path from perceived discount to transaction

value as significant [$F(1,96)=20.55$, $p<.001$, $r^2=.18$]. The full model (regressing AV on perceived discount and transaction value) was also significant [$F(2,95)=35.77$, $p<.001$, $r^2=.43$], with a significant *b* path from transaction value to acquisition value ($t=7.52$, $p<.001$). The indirect effect (*a x b* cross product) of discount on acquisition value through transaction value was significant, based on 5000 bootstrap samples (see table 9). As expected, the direct path from discount to acquisition value was not significant ($t=.35$, $p=.72$), indicating full mediation.

Discussion

Study 2 adds further support for H1 and H2, while also demonstrating support for H3 and H4. Results suggest that at least some SPCs can convey different numeric associations, and there does seem to be an associative relationship that links such phrases to numeric discounts that can influence discount expectations and then be expressed in higher order associations of transaction value.

Although we have demonstrated in study 2 that numeric associations to SPCs differ significantly across phrases and affect price expectations and value perceptions, we only tested four phrases (two different modifier words and two different core words). In study 3, we employ additional phrases (four modifiers and three core words) using a panel of non-student adults.

STUDY 3

Using study 1 results, two modifier words with the lowest numeric discount associations and two modifier words with the highest discount associations (see table 4) were selected for

study 3, resulting in a 4 modifier word (cool, smart, blowout, unbeatable) X 3 core word (deal, sale, savings) between subjects design. As in Study 2, we examined the effects of SPC on numeric discount expectations and higher order associative meaning, namely transaction value and acquisition value. Aside from employing an online survey and testing the effects of additional semantic phrases, the ad was the same as that used in study 2.

Three-hundred sixty-five non-student participants completed the study using an online survey. Participants were drawn from a Toluna, Inc. internet panel of consumers, and we specifically requested 30+ year olds to ensure a nonstudent sample. In addition, survey instruments employed questions to identify and reject responses of participants who were not sufficiently engaged. Finally, data went through a final cleansing. Three recall questions ("what was the advertised brand," "what phrase was used in the advertisement to describe the discount," "what was the regular price") were asked immediately after participants viewed the advertisement to ensure that they processed at least one piece of information from the ad. Those who did not recall any of the information or who made a disingenuous response (e.g. "I don't care") were eliminated from analysis. Of the 365 completed surveys, 12 were discarded, yielding a final sample of 353 participants. Sample descriptives appear in table 10.

[Insert Table 10 About Here]

Participants were asked to indicate the numeric discount they believed appeared in the actual ad and then to complete a series of scales to measure regular price perception, transaction value, acquisition value, perceived quality, information search, attitude and intention to buy. This time, scale items used to capture transaction value were adapted from Darke and Chung (2005) to accommodate more recent conceptualization and operationalization of the construct. Acquisition value items were changed to semantic differential to correspond with Urbany,

Bearden, Kaicker and Borrero (1997), but otherwise the measures correspond to Grewal et al. (1998) (see table 11). All other measures used are adapted from Grewal at al. (1998). Attention to phrase and perceived concreteness of phrase were also collected as potential covariates.

[Insert Table 11 About Here]

Analysis

The covariates of age, gender, attention to phrase, perceived concreteness and clarity of phrase were found to be non-significant in affecting perceived discount. Perceived quality and regular price perception were also examined and although regular price perception did not differ significantly by condition, perceived quality did [$F(2,341)=3.38$, $p=.04$] and therefore was kept as a covariate where appropriate. All other variables were dropped from analysis. Attitude toward the deal, search intention and intention to buy did not significantly differ by condition, but regressions showed attitude and intention to buy to be significant predictors of transaction value and acquisition value. Search intention, however, was not found to be a significant predictor (see table 6).

The main effect of phrase on numeric discount perception was significant [$F(11,341)=2.12$, $p<.018$]. Following up with ANOVA of modifier X core resulted in a significant effect of modifier [$F(3,341)=3.30$, $p=.021$] and modifier X core interaction [$F(6,341)=2.23$, $p=.04$], but the main effect of core word was not significant [$F(2,341)=0.077$, $p=.926$]. These results mirror the sorting task results of study 1. Note that perceived quality was not a significant covariate and therefore was dropped from analysis.

Examining further the differences in modifier values, smart (low value modifier) differed from blowout ($p<.01$) and unbeatable ($p=.06$) in the expected direction, but cool did not differ significantly from the high-value modifiers blowout and unbeatable. In fact overall, cool showed a higher mean value than expected and significantly differed from smart ($p<.05$). Also as expected, blowout and unbeatable did not significantly differ from each other. Consistent with study 2, blowout was perceived by study participants as indicating a higher numeric discount compared to other semantic terms (table 12).

[Insert Table 12 About Here]

MANOVA using transaction value and acquisition value as dependent variables were used to test H4. For transaction value, we did expect to find a direct, significant effect of SPC on price expectations and value perceptions. Transaction value for blowout ($M=5.60$) was significantly greater than for smart ($M=5.10$) at $p=.018$. Transaction value for smart was also significantly less than unbeatable ($M=5.50$, $p=.047$) and cool ($M=5.50$, $p=.052$). Thus, in support of H4, SPCs seem to affect higher order transaction value assessments. As expected, neither the modifier nor the core words had a direct, significant effect on acquisition value. Interaction effects were not present.

Similar to study 2, mediation analysis using Hayes and Preacher (2011) MEDIATE procedure for SPSS was used to test the indirect effects of SPC on acquisition value through transaction value. We used only the modifier word (collapsing over core word) for the analysis. The *a* path from modifier word to transaction value approached significance [$F(3,349)=2.31$, $p=.08$, $r^2=.02$)], and examination of the individual modifiers showed that smart ($t= -2.37$, $p=.02$) impacted transaction value significantly relative to blowout. Cool and unbeatable did not differ from blowout in the impact on transaction value. The full model (regressing AV onto the SPC

modifiers and TV) was significant [$F(4,348)=68.46$, $p<.001$, $r^2=44$], with a significant *b* path from transaction value to acquisition value ($t=16.48$, $p=.00$). Indirect effects (the *a x b* cross product) of phrase (blowout deal and blowout sale relative to special deal) were significant, based on 5000 bootstrap samples. Indirect effects of modifier (smart relative to blowout) was significant, based on 5000 bootstrap samples. As expected, the direct effect of modifier on acquisition value was not significant, reflecting full mediation. Table 9 contains the point estimates and confidence intervals for the mediation.

Likewise, using Hayes (2012a,b) mediation procedure for continuous variables, we checked for indirect effects of discount (continuous independent variable) on acquisition value through transaction value. Results showed the *a* path from perceived discount to transaction value to be significant [$F(1,351)=41.52$, $p<.001$, $r^2=.11$) and the full model (regressing AV onto perceived discount and TV) to be significant [$F(2,350)=138.59$, $p<.001$, $r^2=.44$]. The *b* path from transaction value to acquisition value was significant ($t=16.26$, $p<.001$), with a direct effect of discount on acquisition value remaining ($t= -1.91$, $p=.057$). The indirect effect of perceived discount through transaction value was significant based on 5000 bootstrap samples (See table 9), reflecting significant mediation.

Discussion

Combined, the findings from this study, study 1 and study 2 suggest that at least some SPCs do have different numeric discount associations among consumers, where high value SPCs have significantly higher numeric discount associations compared to low value SPCs and affect discount expectations as well as value perceptions. This was true with regard to the smart (low

value) phrase compared to unbeatable (high value) and blowout (high value). However, study 1 findings showed cool to be consistently associated with low value phrases, while in the ad experiment (study 3), cool reflected higher value. We believe that the sorting task (study 1) prompted relative valuation across phrases, as the participants have reference phrases to guide the relative discount size of one phrase over another. In contrast, participants in the experiment were exposed to only one ad with one phrase and asked to, in an absolute sense, assign a discount. If the participant does not have a strong internal reference valuation, then they are likely to categorize the phrase as "middle value." This is in line with research that demonstrates people use the compromise heuristic when judging prices (Drolet, Luce and Simonson 2009), thus choosing the middle value when they were uncertain in the study presented herein. Unfortunately, we have no way of parsing out the degree to which people in the cool condition might have defaulted to a middle value (i.e. 50%) versus the other conditions. We discuss this further in limitations and future research.

GENERAL DISCUSSION AND IMPLICATIONS

This paper offers several conceptual contributions to understanding how consumers interpret and are affected by semantic price claims. First, we draw attention to semantic claims and distinguish them from "semantic price cues" that have been investigated previously. The unique characteristic of the claims that are investigated here is that they do not focus on actual components (offered or reference) of the price comparisons themselves. Next, to our knowledge, we are the first to offer a quite comprehensive conceptual basis for understanding the nature and influence of these claims. This basis is informed by theoretical contributions from the

disciplines of linguistics and cognitive psychology that have been empirically supported. Our results across three empirical studies are also consistent with the conceptual foundation offered in this paper.

Results from a series of three studies show that some semantic phrases describing a sale have relatively coherent numeric associations across subjects and can influence the way the sale is perceived and valued. This supports the notion of semantic neighborhoods, and extends current research on semantic associations to supporting the idea that words and numbers (vs. word-word associations) can be linked semantically. Previous pricing research on semantic phrases that referred to components of the price (offered and reference) by and large examined only word-to-word semantic associations but, to our knowledge, the present research on semantic price claims is the first attempt in the marketing domain to investigate word-to-numeric associations. Such associations require spreading activation between various cognitive representations of numerical information including verbal, visual, etc. forms, reflective of the 'encoding-complex' model (Campbell and Clark 1988, Clark and Campbell 1991). We suggest that repeated spreading activation linking numeric discounts and price claims results in the formation of higher order neighborhoods reflective of the value assigned to the linked word/number associations. Acquisition value is suggested to be the indicator for the latent or underlying associative meaning of these higher order sets. Likewise because deals are considered in light of other alternatives, the assessment of a deal or transaction value is the comparative evaluation of higher order sets. Results of studies 2 and 3 support this conceptualization, in that SPCs and discounts were significantly related to transaction value, and the relationships between SPCs/numeric discounts and acquisition value were mediated by transaction value.

In the past, a motivation of researchers' study of price phrases was to examine the influence of phrases and whether or not they were deceptive (Grewal & Compeau 1992). We offer additional implications in this area as well, specifically addressing FTC Code Section 233.5. As noted by Grewal & Compeau (1992), much of the extant research in this area has focused on addressing the first section of the FTC's price-deception ruling and to some extent sections three and four. Grewal & Compeau's (1992) call for more research on vague or subjective price claims aligns with the lack of research associated with the fifth section of the FTC Code, which states:

FTC Code Section 233.5 Miscellaneous Price Comparisons

"The practices covered in the provisions set forth above represent the most frequently employed forms of bargain advertising. However, there are many variations which appear from time to time and which are, in the main, controlled by the same general principles. For example, retailers should not advertise a retail price as a ``wholesale" price. They should not represent that they are selling at ``factory" prices when they are not selling at the prices paid by those purchasing directly from the manufacturer. They should not offer seconds or imperfect or irregular merchandise at a reduced price without disclosing that the higher comparative price refers to the price of the merchandise if perfect. They should not offer an advance sale under circumstances where they do not in good faith expect to increase the price at a later date, or make a 'limited' offer which, in fact, is not limited. In all of these situations, as well as in others too numerous to mention, advertisers should make certain that the bargain offer is genuine and truthful. Doing so will serve their own interest as well as that of the public. [Guide V]" (available at: http://www.ftc.gov/bcp/guides/decptprc.htm)

If future findings continue to show that there is a sufficient amount of variability in the meaning derived from perceptions of semantic claims, then there is ground to argue these claims are deceptive. Likewise, if claims that are paired with certain forms for discounts always inflate the perception of the deal, regulators should be concerned about the use of such terms in the context of that discount form being deceptive.

Our findings also highlight the need for managers to deliberate carefully when selecting words used to describe the consequences of price discounts. Given the wide variety of phrases discovered in our newspaper content analysis, this does not seem to be occurring presently. Such choices likely influence sale perceptions as well as perceptions of other numeric information used in consumer communications. Thus, findings are likely to have broader managerial implications in addition to impacting consumers' discount perceptions. For example, promotions for auto financing, credit cards, etc. often contain words that relate to extensions of credit. If phrases lead to underestimation of discounts, marketers should be concerned that consumers are less likely to process the offer as an attractive deal.

LIMITATIONS AND FUTURE RESEARCH

We have offered a conceptual framework for how consumers form associations between semantic claims and numeric discount levels. Although our findings on the nature and effects of these associations are consistent with this framework, they do not, nor were they intended to, identify the *specific* process(es) of association formation between semantic claims and numerical discount magnitudes. Rather, our focus was on whether such associations, regardless of method(s) of formation, existed for at least some semantic claims and, if so, whether they

affected discount expectations. Therefore, we cannot conclude that processes other than spreading activation in memory and semantic associations are not involved. However, this highlights several areas for future inquiry. Are such associations formed primarily though conscious processes? What factors influence the strength of these associations? How can they be modified (strengthened or weakened) by marketers? These and other areas of research could yield interesting results.

In study 3, we found the modifier phrase "cool" paired with deal and sale to be especially high in numeric discount association as compared to what our sorting study would suggest (there, cool had low discount value and lower variance in value association compared to other phrases). Future research might be directed towards confirming our explanation that relative processing of value (rather than absolute) affects value associations. This is especially important when a given sale ad (e.g. in a newspaper) is viewed in the context of other ads or when a sale is indicated on a store shelf in the context of other sales. Although our sorting participants put cool in the low value pile in study 1, in the study 3 advertisement task we believe participants might have defaulted to using 50% off when they were unsure of the discount, thereby using a compromise heuristic (Drolet, Luce and Simonson 2009). The study 1 sorting task was much more engaging, and we could monitor our participants attention and effort levels. However, in an online environment where involvement is lower, a default type of quick assignment of discount might be likely. Future research might examine this possibility.

Lastly, there are many other phrases that could be tested for effects on perceived value. We tested a handful of phrases that directly signal "sale" "deal" and "savings", but many other phrases used in marketing communications of price and deals could be included in the analysis. For example, do words that signal scarcity (e.g. "act now," "limited time offer") inflate discount

perceptions on a numeric level? In summary, our study is the first of many that could be initiated to examine underlying numeric and abstract value associations tagged to language used in marketing communications. Future research will hopefully lead to better practice and policy around use of language in this field.

APPENDIX

Studies 2 and 3 - Example of Ad Stimuli

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TABLE 1

Metropolitan Area Newspapers Content Analyzed

Newspaper	Location
Boston Globe	Boston, MA
Birmingham News	Birmingham, AL
Register-Guard	Eugene, OR
Grand Rapids Press	Grand Rapids, MI
Hartford Courant	Hartford, CT
New Haven Register	New Haven, CT
New York Times	New York, NY
Providence Journal	Providence, RI

TABLE 2

Categorization of Firms Found to Employ Semantic Phrases in Sale Advertisements

Arts and Crafts
Auto Collision Repair
Auto Part supplies
Automobile Dealers
Bedding
Clothing
Construction Supplies and Tools
Consumer Electronics
Department Store
Fast Food
Financial Services
Flooring
Furniture
Garden Supplies
Grocery
Health and Beauty
Home and Garden
Home Décor
Home Goods
Jewelry
Lighting
Mobil Phones and Service
Office Supplies and Equipment
Optical
Pest Exterminator
Pet Supplies
Pharmaceutical
Photo Equipment and Supplies
Recreational Vehicles
Shoes
Tires Sporting Goods and Equipment
Tobacco
Toys and Child Equipment
Travel
Travel Agencies
Windows

TABLE 3

Semantic Phrases Revealed in Newspaper Analysis

(phrase describes sale itself unless otherwise noted)

2 Days Only
2-Day Clearance Special
3 Days Only
3-Day Special
4 Day Sale
4 Days Only
4 Days Only, Limited Time
Act Now/Limited Time Offer
All American Sales Event
All Out Clearance
Amazing
Anniversary Clearance
Awesome!
Back to School Savings
Bead Blowout
Beautiful
Best
Best Sale of the Year
Big
Big Blowout
Big Plants Big Savings
Big Time
Bigger
Biggest
Biggest Sale of the Year
Biggest Sale, Great Savings
Big-time Savings
Blast
Blockbuster
Blowout
Bonus
Clearance
Clearance Blowout
Closeout
Closeout Special
Completely Unbeatable
Cool Deals
Customer Appreciation
Deep Discounts
Don't Pay Retail
Doorbuster
End of Summer Sale
Exclusive
Extra Savings
Fantastic
Final Clearance
Wow!, Cool
First Time Ever
Fresh Deals
Front to Back
Gigantic
Going Out of Business
Gorgeous
Great
Healthy
Healthy Savings
High-Speed
Hoopla
Hot
Hot Buy
Hot Deals
Hot Offers
Hot Savings
Hot Summer
Hottest
Huge
Huge Clothing Sale
Huge Fall Sale
Huge Sale (and RV Blowout)
Huge Savings
Huge Summer
Huge, Amazing
Huge, Blowout
Huge, Incredible
Hurry
Hurry In - Limited Time
Hurry Limited Time Offer
Hurry, Hot
Incredible
Last 2 Days
Limited Time
Limited Time Offer
Limited Time, Hurry…
Limited-Time Offers
Living Values
Lovable
Lowest New Tire Prices Guar.
Lowest Prices on Top Quality
Must Liquidate
Naturally Low Prices
No Sweat
Ogre-Sized
Playful Prices

Your Choice
Red Dot Clearance
Red Hot

Red Hot Deal Days
Red Hot Prices
Refreshing
Relocation, Emergency
Rock Bottom
Save a lot of Moo-la
Save Big
Save Now!!
Savings You Can't Miss
Sell-a-thon
Significant
Sizzling
Sizzling Summer Selldown
Smart
Smart Buys
Special
Special Deal
Spectacular
Spectacular Savings!
Spend Big Save Big
Splash
Star-Spangled
Stock Up
Summer Clearance
Summer
Summer Sales Event
Sunsational
Super
Super Clearance
Super Deals
Super Hot
Super Value!
Super, Hot
Terrific

Terrific Savings of at Least 40% off
The Big Sale-Off
Triple Bonus
Unbeatable
Urgent, limited time
Wallet-Friendly
We Save you Money
Wow

TABLE 4

Study 1

Highest and Lowest Mean Pile Classifications*

	N	Minimum %	Maximum %	Mean %
Blowout Sale	34	.25	.80	.57
Blowout Deal	34	.05	.80	.51
Blowout Savings	34	.15	.75	.49
Gigantic Sale	34	.10	.75	.44
Clearance Sale	34	.05	.80	.44
Unbeatable Deal	34	.10	.80	.44
Clearance Deal	34	.05	.80	.43
Doorbuster Sale	34	.09	.80	.43
Doorbuster Savings	34	.05	.80	.42
Gigantic Savings	34	.09	.80	.42
Special Sale	34	.05	.65	.27
Special Savings	34	.05	.60	.26
Special Deal	34	.08	.65	.25
.				
.				
.				
.				
Smart Deal	34	.05	.50	.19
Smart Savings	34	.05	.50	.17
Smart Sale	34	.05	.40	.17
Cool Deal	34	.05	.75	.16
Cool Sale	34	.05	.50	.15
Cool Savings	34	.05	.30	.14
Valid N (listwise)	33			

*Percentages in Table 4 represent Study 1 participants' average estimates of numeric discount for each pile.

TABLE 5

Study 2 Measures, Descriptive Statistics and Scale Reliabilities

Scale/Items*	N	Mean	Cronbach's α
Perceived Quality		**5.43**	
The watch appears to be of good quality.	100	5.51	**.88**
The watch appears to be durable.	100	5.35	
The watch appears to be reliable.	100	5.43	
Transaction Value		**5.28**	
Taking advantage of a price-deal like this would make me feel good.	99	5.36	
I would get a lot of pleasure knowing that I would save money at this reduced sale price.	100	5.53	**.87**
Beyond the money I save, taking advantage of this price deal would give me a sense of joy.	100	4.95	
Acquisition Value		**5.07**	
If I bought this watch at the percent off that I believed was being advertised, I feel I would be getting my money's worth.	100	5.31	
After evaluating the advertised watch's features, I am confident that I am getting good quality features for the price.	100	4.80	**.83**
If I acquired this watch, I think I would be getting good value for the money I spend.	100	5.14	
I would value this watch as it would meet my needs for a reasonable price.	100	5.04	
Intention to Buy		**3.85**	
If I were going to buy a watch, the probability of buying this watch is… (Very low-Very high)	99	3.85	**.92**
The probability that I would consider buying this watch is…	99	4.18	
The likelihood that I would purchase this watch is…	99	3.51	
Search Intention		**5.47**	
I would visit other stores to check prices of this watch.	93	5.48	**.90**
I would search for more information on prices for other watches.	93	5.44	
I would check other stores for lower prices.	92	5.49	
Attitude		**4.98**	
If thinking about buying this watch, my attitude toward the watch would be:			
Favorable-Unfavorable	93	5.04	**.87**
Bad-Good	93	5.14	
Poor-Excellent	92	4.84	

*Scale items were adapted from Grewal, Monroe and Krishnan (1998). All items measured on 7 point scales with Strongly Disagree-Strongly Agree anchors unless otherwise noted. The Acquisition Value scale is an abbreviated scale to keep questionnaire fatigue minimized.

TABLE 6

Study 2 and 3 Regressions on Transaction Value and Acquisition Value

	F (TV/AV)	t (TV/AV)	R^2 (TV/AV)
STUDY 2	10.79**/23.76**		
Attitude		3.00** / 4.29**	.23/.41
Search Intention		0.72 /-1.40	
Intention to Buy		2.96** / 4.13**	
STUDY 3	235.43**/99.65**		
Attitude		15.23**/8.61**	.67 / .46
Search Intention		-1.82 / 1.37	
Intention to Buy		3.22** / 3.57**	

*Significant at p<.05; **signifcant at p<.01

TABLE 7

Study 2 Mean(SD) Numeric Discount Perception (%) by Condition

Modifier	Core Word	Mean	Std. Dev.	N
Low Value (Special)	Sale	26.75	12.49	20
	Deal	22.73	9.53	33
High Value (Blowout)	Sale	40.00	13.45	22
	Deal	45.21	18.03	24

TABLE 8

Bivariate Correlations

Study 2-Top Diagonal; Study 3 – Bottom Diagonal

	PQ	TV	AV	PI	SI	ATT
PQ	1	.287**	.538**	.420**	-.112	.321**
TV	.443**	1	.654**	.421**	-.010	.432**
AV	.555**	.660**	1	.555**	-.201*	.541**
PI	.438**	.666**	.588**	1	-.224*	.445**
SI	.102	-.046	.066	.050	1	-.025
ATT	.519**	.811**	.662**	.742**	.003	1

**. Correlation is significant at the 0.01 level (2-tailed).

PQ=Perceived Quality; TV=Transaction Value; AV=Acquisition Value; PI=Purchase Intention; SI=Search Intention; ATT=Attitude

TABLE 9

Study 2 and Study 3 Bootstrapped Point Estimates for Indirect Effects on Acquisition Value

	Product of ab Coefficients		Bootstrapping 95% CI	
Mediators Tested	**Point Estimate**	**SE**	**Lower**	**Upper**
STUDY 2				
X=Condition, Y=AV, M=TV				
Special Sale	.2580	.1718	-.0788	.6011
Blowout Deal	.4811*	.1607	.1909	.8179
Blowout Sale	.3392*	.1540	.0323	.6521
X=Perceived Discount, Y=AV, M=TV				
Perceived Discount	1.4559*	.3704	.7974	2.2439
STUDY 3				
X=Condition, Y=AV, M=TV				
Cool	-.0616	.1181	-.2963	.1687
Smart	-.3097*	.1428	-.5954	-.0320
Unbeatable	-.0547	.1257	-.3107	.1785
X=Perceived Discount, Y=AV, M=TV				
Perceived Discount	.0161*	.0027	.0106	.0213

TABLE 10

Study 3 Sample Descriptives

Gender	
Male	48%
Female	52%
Age	
25-34 yrs	8%
35-44 yrs	18%
45-54 yrs	29%
55-64 yrs	28%
65+ yrs	17%

TABLE 11

Study 3 Measures, Descriptive Statistics and Scale Reliabilities

Scale/Items*	N	Mean	α
Perceived Quality		**5.39**	
The watch appears to be durable.	324	5.27	
The watch appears to be reliable.	324	5.52	
Transaction Value		**5.42**	**.88**
Compared to the regular price, you would consider the resulting sale price from the discount to be:			
Bad-Good	324	5.25	
Unacceptable-Acceptable	324	5.31	
If you were already thinking about buying this watch, how would you feel about taking Advantage of the [% Off]? Bad-Good	324	5.71	
Acquisition Value		**5.03**	**.86**
At the [%Off], the watch in the advertisement would be:			
Very Poor Value for the Money – Very Good Value for the Money	324	4.98	
An Unreasonable Price for the Quality – A Reasonable Price for the Quality	324	5.06	
A Worthless Buy for the Money – A Worthwhile Buy for the Money	324	5.06	
Intention to Buy		**4.47**	
The probability that I would consider buying this watch is… (Very Low-Very High)	324	4.51	
The likelihood that I would purchase this watch is…	324	4.44	
Regular Price Perception	324	4.33	
Attitude Towards the Deal		**5.40**	**.96**
Favorable-Unfavorable	324	5.53	
Bad-Good	324	5.50	
Poor-Excellent	324	5.18	
Search Intention		**5.26**	**.85**
I would visit other stores to check prices of this watch.	324	5.02	
I would search for more information on prices for other watches.	324	5.39	
I would check other stores for lower prices.	324	5.37	
Attention			
How much attention did you pay to the phrase? (Very Little – Very Much)	324	3.36	
Concreteness			
How concrete (particular or specific) is the phrase in communicating the discount you Would expect? (Not at All – Very)	324	4.01	

* Transaction value items were adapted from Darke and Chung (2005). Acquisition value items were changed to semantic differential to correspond with Urbany, Bearden, Kaicker and Borrero (1997), but otherwise the measures correspond to Grewal et al. (1998). All other measures used are adapted from Grewal at al. (1998).

TABLE 12

Study 3 Mean, (SD) Discount (%) by Condition

Modifier	Core	Mean	Std. Deviation	N
Blowout	Deal	33.65	18.52	26
	Sale	36.55	18.95	29
	Savings	38.26	16.34	27
Cool	Deal	28.28	15.27	32
	Sale	34.19	18.35	31
	Savings	38.81	18.95	27
Smart	Deal	33.28	20.67	29
	Sale	29.35	16.67	31
	Savings	21.38	13.82	29
Unbeatable	Deal	34.31	17.20	29
	Sale	32.77	17.10	30
	Savings	31.67	17.80	33

FIGURE 1

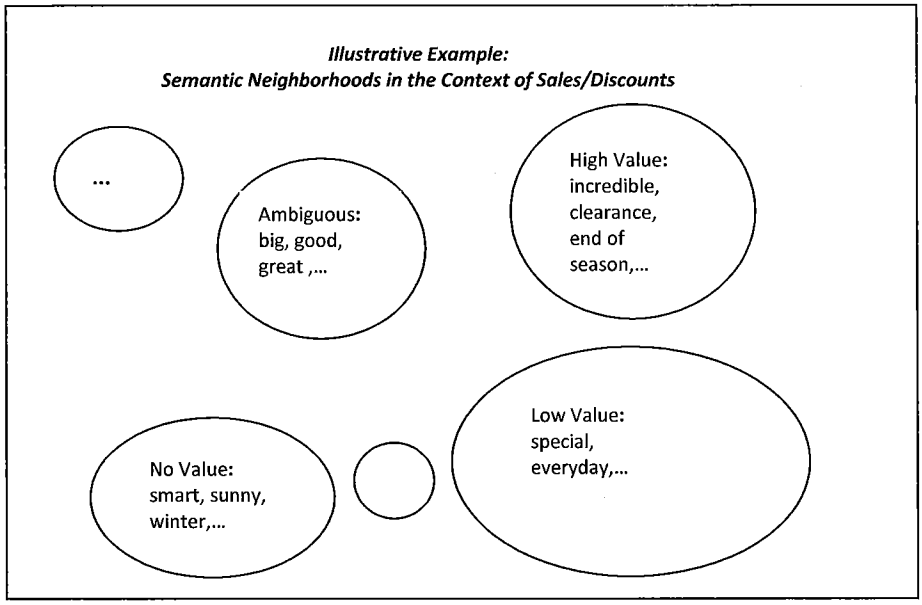

Illustrative Example:
Semantic Neighborhoods in the Context of Sales/Discounts
...
Ambiguous:
big, good,
great ,...
High Value:
incredible,
clearance,
end of
season,...
No Value:
smart, sunny,
winter,...
Low Value:
special,
everyday,...

FIGURE 2

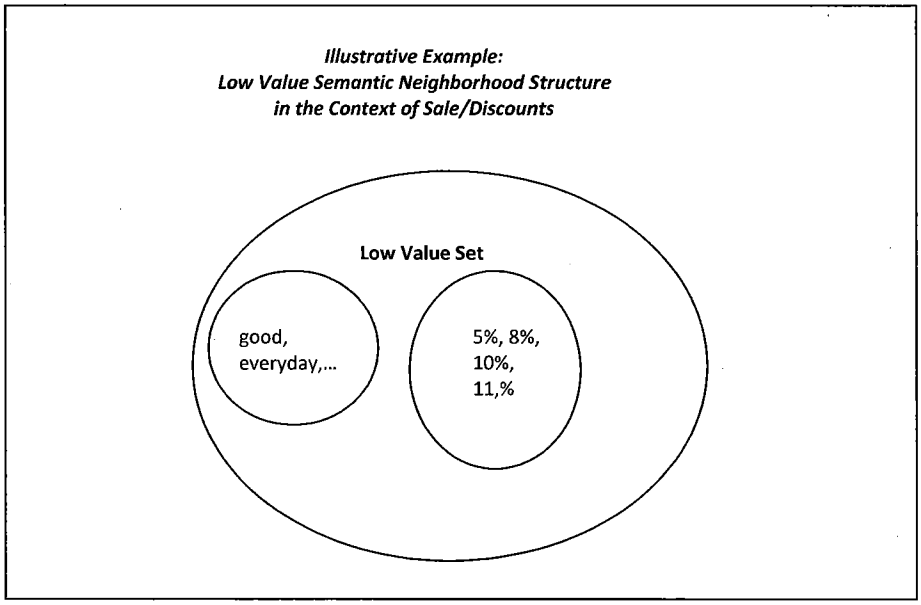
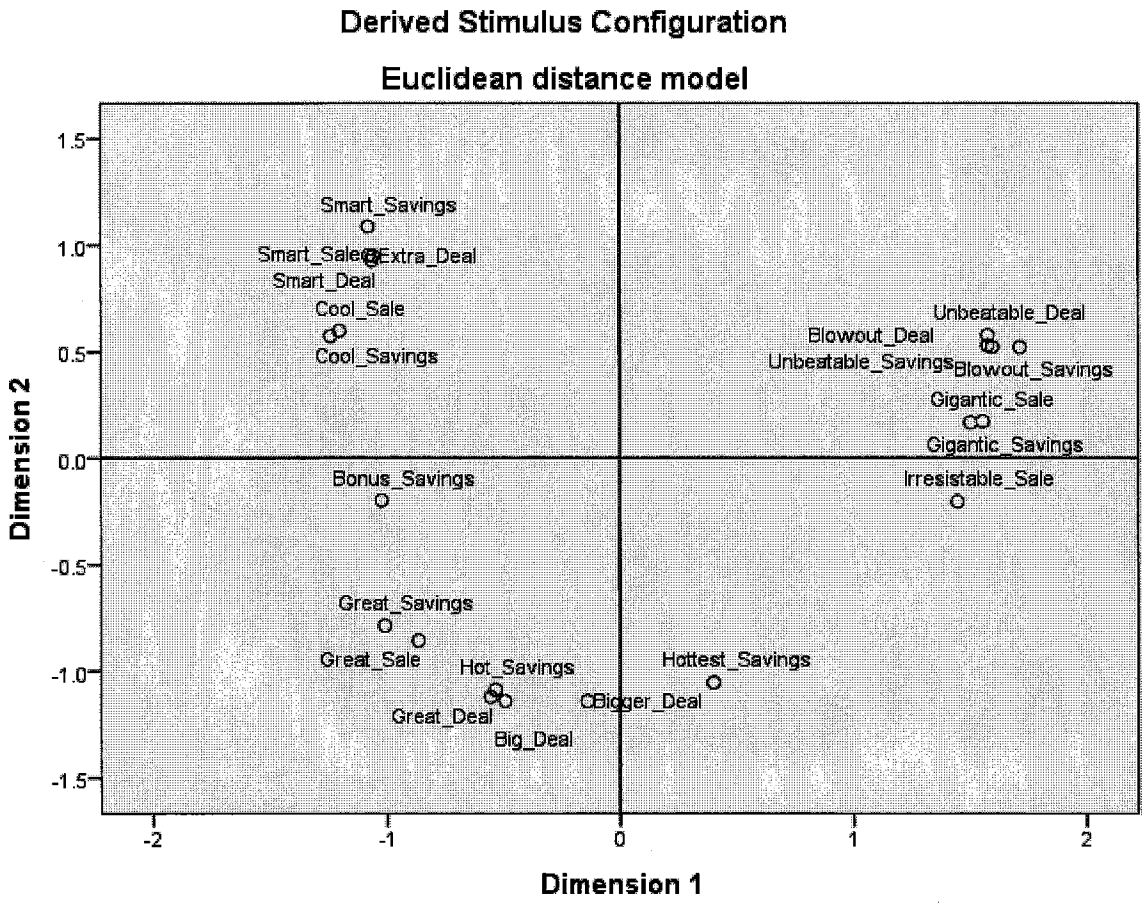

Illustrative Example:
Low Value Semantic Neighborhood Structure
in the Context of Sale/Discounts
Low Value Set
good,
everyday,...
5%, 8%,
10%,
11,%

FIGURE 3: MDS (Study 1)



Founded in 1892, the University of Rhode Island is one of eight land, urban, and sea grant universities in the United States. The 1,200-acre rural campus is less than ten miles from Narragansett Bay and highlights its traditions of natural resource, marine and urban related research. There are over 14,000 undergraduate and graduate students enrolled in seven degree-granting colleges representing 48 states and the District of Columbia. More than 500 international students represent 59 different countries. Eighteen percent of the freshman class graduated in the top ten percent of their high school classes. The teaching and research faculty numbers over 600 and the University offers 101 undergraduate programs and 86 advanced degree programs. URI students have received Rhodes, Fulbright, Truman, Goldwater, and Udall scholarships. There are over 80,000 active alumnae.

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