MARKETING DECEPTION: BRAND IDENTIFICATION AND SEARCH, EXPERIENCE, AND CREDENCE CHARACTERISTICS AS MODERATORS OF TRUTH-BIAS AND DETECTION ACCURACY

By

Kim Blaine Serota

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ABSTRACT

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In marketing communication, as in interpersonal communication, there is a presumption that people can detect deception as it is occurring and, therefore, protect themselves from the deceptive intent of the message. The Park-Levine probability model (Park & Levine, 2001) posits that in interpersonal situations the veracity judgment is a function of the receiver's truth-bias and the base rate of untruthful messages evaluated. The original model was supported by empirical testing. The study presented here extends the Park-Levine model in two ways. First, it provides a conceptual replication using marketing claims such as those found in advertising or other marketing communications to support the model. Second, it shows that truth-bias toward marketing claims and, subsequently, accuracy of detection is moderated by the presence or absence of a brand and by information search characteristics that determine whether or not the claim can be verified prior to purchase. Results demonstrate that the model can be generalized to non-interpersonal situations and that factors influencing accuracy need to recognize the interaction between truth-bias and base rates in order to be meaningful interpreted.

To Karen; this is as much hers as it is mine.

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CHAPTER 1: INTRODUCTION

The question of how receivers detect deceptive messages has been explored across a variety of disciplines and contexts. In social psychology and communication, there has been a pervasive assumption that accuracy is tied to individual differences and the abilities of receivers. In most cases there is also a presumption that the veracity of the message is readily knowable. Theory varies according to whether the locus of detection is principally psychophysical or is transactional with the sender. An emerging alternative to prevailing theory proposes that the truth is often not readily knowable and that those judging message veracity rely on heuristics, primarily truth-bias, that rarely improve accuracy by much better than chance. In other contexts involving applied communications and mass media, there is little specific theory regarding detection of deceptive messages; instead recognizing deception is assumed to be one of many informational outcomes of the receiver's evaluation of messages received.

The purpose of this study is to test the impact of truth-bias on the accuracy of veracity judgments of non-interpersonal messages, specifically claims made in the context of marketing communications. Two important factors influencing the evaluation of marketing claims are inferences receivers make from branding information and the perceived ability to verify the claim, which may be inferred from the product form or its attributes. This study will examine the potential for these two types of information to moderate truth-bias and influence judgment accuracy. In this introduction, literature is reviewed and several hypotheses are presented. In the following sections a method for testing these hypotheses is described, and results of the study are presented, reviewed, and discussed. This report concludes with a discussion of study limitations and

implications for further research. In summary, this study provides a conceptual replication of existing research testing the influence of truth-bias on deception detection accuracy and extends that research from interpersonal communication to mediated promotional messages and assesses additional factors that can alter the accuracy of veracity judgments.

Background: The Marketing Communication Context

In the realm of marketing, some communication is intended to persuade by presenting the producer's goods and services in ways that will achieve favorable outcomes for the producer. Although marketing is an exchange that is normatively undertaken with the goal of creating value for both the producer and the consumer, the producer often seeks to maximize value by obtaining the highest possible return at the lowest possible cost. The consumer also seeks to maximize value; value is achieved by obtaining desired goods, services, and ideas, also at the lowest possible cost. When conducted ethically, both parties are rewarded by a fair and equitable exchange. Supply and demand factors determine what both parties will consider equitable.

However, except when a monopoly exists, the producer is faced with competition. In order to maximize value, the producer's goal is to create competitive advantage by having the best price or by being differentiated with the best product and/or the best time and location of delivery (Day, 1984; Porter, 1985). The producer will also strive for the most compelling promotional message in order to achieve perceived preference for these differentiating characteristics (Parasuraman, 1997; Woodruff, 1997). When the cost to achieve competitive advantage exceeds the cost at which the producer can meet normative or personal ethical standards (e.g., acceptable levels of integrity, fairness, trust,

respect and empathy; Murphy, 1999, 2002) or when goals are not being met, there is increased incentive for lying, deception, and other forms of unethical behavior (Lewicki, 1983; Lewicki & Robinson, 1998; Schweitzer, Ordóñez, & Douma, 2004). Alternatively, when the bar of ethical standards is set too low for utilitarian or other reasons, as in the famous cases of Nestlé's infant formula marketing in Africa (Robin & Reidenbach, 1987; Sethi, 1994) or the Enron energy and financial scandal (Healy & Palepu, 2003), marketing deception and other unethical practices may be treated as routine. And finally, deception may result from the intersection of greed and immorality (Cooke, 1997, 2004).

Marketing messages are purposefully planned and executed often with the intent to persuade consumers to think, feel, and act in ways that are favorable to the producer. From a marketing science perspective, the focal question in the study of deceptive advertising and marketing persuasion most frequently has been whether or not a promotional message was appropriately comprehended (Jacoby & Hoyer, 1987) and, as a result, was the consumer (receiver) harmed (Burke, DeSarbo, Oliver, & Robertson, 1988; Boush, Friestad, & Wright, 2009). Although there are ancillary issues such as whether or not consumers have pre-existing false beliefs that may be reinforced through or in spite of marketing messages (Russo, 1976; Russo, Metcalf, & Stevens, 1981), the contemporary focus of marketing deception research has been the *effect of the message* on the receiver. Three factors account for this approach. First, marketing scholars are most concerned with whether or not marketing communications are effective and influence buying behavior. The introduction of false or misleading information can create unfair advantages that often lead to unjustifiably favorable attitudes, increased product interest, and more sales for the deceptive marketer. For the deceived consumer the result is a

failure to have their needs met at the desired value level. Second, the marketing profession is concerned because deception by some can distort perceptions of the roles and practices of all marketers. The third important factor that drives the marketing science approach is the evolution of legal and regulatory perspectives. Commercial speech, unlike interpersonal speech, is highly regulated (Preston, 1977; Boush, et al., 2009). Much of the research in the area of marketing deception has been conducted in order to inform and structure the regulatory processes that are intended to protect competitors and consumers from unfair advertising. In the United States, the Federal Trade Commission (FTC) and industry organizations such as the Better Business Bureau (BBB) and the American Association of Advertising Agencies (AAAA) rely on rules that are fundamentally derived by observing either (a) the act of deceiving or (b) the effect of advertising on consumers (Gardner, 1975). As has been demonstrated by the relatively small number of successful attempts to prosecute deception by major advertisers, it is extremely difficult to prove intent (Preston, 1977).

As a result, marketer scholars have tended to define deception in ways that reflect a legalistic view. Prior to the formation of regulatory agencies and interest groups, the response to marketing deception was fundamentally the warning philosophy of *caveat emptor,* or "buyer beware." In its earliest incarnation, the FTC was focused not on consumers, but on protecting competition and marketing practioners; and in this context the existence of marketing deception was identified by focusing on the message. According to an early 20th Century FTC definition, when "an objectively ascertainable material fact is presented falsely, is ambiguous, or is misleading" the presenting message was viewed as evidence of the sender's act of deception (Gardner, 1975). More recently,

the FTC perspective has shifted to one of protecting consumers. Gardner offered a conceptualization that shifted the evidence of deception from the message to the behavioral outcome, "If an advertisement (or advertising campaign) leaves the consumer with an impression(s) and/or belief(s) different from what would normally be expected if the consumer had reasonable knowledge, and that impression(s) and/or belief(s) is factually untrue or potentially misleading, then deception is said to exist. (p. 42)" Subsequently, marketing scientists have shifted their focus from judging message veracity to the less difficult issue of establishing when the consumer has been harmed, regardless of intent.

While the approach taken by marketing scientists, industry oversight groups, and government regulators serves a useful purpose, the effect of this approach has been to deflect attention away from a theoretically meaningful understanding of deception detection processes in the commercial environment. There is an implicit assumption that agencies need to regulate marketing communications because consumers cannot judge the veracity of marketing messages for themselves. While this may be correct it is an assumption made in the absence of empirical evidence and ignores the point that the outcomes that drive the regulatory process might be moderated by the varying abilities of consumers to detect deception in different situations.

Objective

The purpose of this study is to examine one aspect of the marketing deception process as a first step toward developing a more comprehensive theory of deception in mediated promotional communication. Specifically, this study addresses the ability of the consumer to know whether or not she or he has been deceived by marketing messages.

Furthermore, the study hypothesizes that the accuracy of detection is moderated by factors promoting the inference of truthfulness and the potential for verifying the veracity of the promotional message.

It is reasonable to assume that consumers, given a choice, would prefer to avoid false information in order to make accurately informed purchase decisions. While the regulatory and monitoring functions provide some measure of protection and assurance, the first line of defense would ideally be the consumer's own perceptions and interpretations. This raises the fundamental research question of this dissertation: Can consumers distinguish truths from lies in marketing communications, thereby knowing the veracity of the message, and gain the ability to avoid being deceived? In order to address this question it is necessary to assess their accuracy in making veracity judgments. This issue is a bounded subset of the larger communication question: can human beings make accurate veracity judgments?

A related question has to do with what resources are available to the consumer as a marketing lie detector. A well-established element of marketing theory is that a consumer's ability to verify product quality and characteristics varies with the kinds of goods and services being promoted (Zeithaml, 1981). Some product information is easily obtained (i.e., pricing, color, size) while in other cases the consumer is left to make purchase decisions based on limited information (e.g. restaurant reviews, which may or may not conform to the consumer's tastes) or no information at all; thus the consumer is faced with uncertainty and potentially higher levels of suspicion or skepticism. Similar to several of the theorems in Berger's uncertainty reduction theory (Berger & Calabrese, 1975; Berger & Gudykunst, 1991), an increase in communicative activity should reduce

consumer uncertainty, but when the levels of uncertainty remain high preference (liking) may be weak and other forms of negativity such as suspicion are likely to occur. In marketing this has been exacerbated by the inherent lack of reciprocity in mass media communication. This is changing with the increasing use of internet and phone based media as well as integrated marketing communication (IMC) strategies that focus on relationships and the creation of a marketing dialogue (Duncan, 2005; Blakeman, 2007). But the messages emanating from producers are still predominantly one-way in nature.

Detecting Deception

From the interpersonal communication perspective, there are four major theories of deception detection that can be collapsed into two competing paradigms that differ with regard to when the deception is actually detected. The first holds that deception can be detected at the time the deception occurs by observation of nonverbal cues and/or patterns of behavior that reveal the sender is engaged in deception (Ekman & Friesen, 1969a, 1969b). The second view is that receivers are handicapped by their own biases and information processing capabilities and therefore, except in a few limited circumstances, cannot accurately detect deception as it is occurring (Levine, 2009; Levine et al., in press). Furthermore, according to the second view, people cannot confirm or negate the veracity of a message without the availability of information from sources or experiences external to the message interaction being observed.

Direct observation approaches. The prevailing paradigm in the deception literature is based in Ekman and Friesen's (1969b) fundamentally psycho-physiological concept of leakage. The idea of leakage is that deception is an emotionally-charged activity and the affects of emotion are largely uncontrolled. Furthermore, it is believed

that interpretative rules can be assigned to the facial display of emotions and other nonverbal gestures or behaviors (Goffman, 1963). And despite serious concerns about the ecological validity of research used to establish interpretations of nonverbal communication (Argyle, 1972), the notion that nonverbal cues are associated with leaking emotions has provided the foundation for an extensive body of deception detection research (Knapp, 2008). The leakage approach was extended by Zuckerman, DePaulo, and Rosenthal's (1981) four-factor theory. This conceptualization, which blends the physiological and psychological, states that truths and lies are differentiated by four internal states: emotions, arousal, cognitive effort, and over control. Zuckerman et al. (1981) associate these states with various nonverbal behaviors. When an individual is consciously telling a lie he or she is more likely to experience strong emotions and a heightened state of arousal, increase their cognitive effort, and attempt to control nonverbal displays. The resulting nonverbal behaviors provide cues that a receiver may use to detect that a deception is occurring. A third approach to deception detection falls within the prevailing paradigm of direct observation theories, but differs with regard to the fundamental complexity of the process. Developed by Buller and Burgoon, the interpersonal detection theory (IDT; Buller & Burgoon, 1996; Burgoon & Buller, 2008) takes a transactional approach to detection (cf. DePaulo, Ansfield, & Bell, 2006 and Burgoon & Levine, 2009). In this approach, detection accuracy is "*related to context interactivity, receiver truth-biases, receiver familiarity, receiver decoding skills, sender encoding skills, and sender deviations from expected patterns.* (Burgoon & Levine, 2009; p. 228)" DePaulo et al. have criticized Buller and Burgoon for merely giving a timeline to the sequencing of deceptive interactions. At the very least, the number of independent

variables and the degree of variability within each makes it almost impossible to falsify IDT, if it is in fact a theory.

Indirect evidence approach. The fourth major theoretical approach is Levine's (2009) truth-bias theory (TBT). TBT argues that receivers cannot accurately detect deception because their biases inhibit their ability to make accurate judgments and because the information necessary to overcome these biases is not usually present when the deceptive message is being delivered. Levine argues:

(1) Senders deceive for a reason. This "principle of veracity" holds that there is a moral asymmetry in which truthful statements are preferable to lies unless a sender has a reason to lie; lies require justification that the truth does not (Bok, 1999).

(2) Receivers are truth-biased. Gilbert (1991) provides evidence that believing is the default method of processing new information and disbelief requires active processing. This leads to the "veracity effect," which states that truths and lies will be judged with unequal accuracy (Levine, Park, & McCornack, 1999). As a consequence, measuring the accuracy of deception detection will be a function of the truth-lie base rate, the ratio of truths to lies in the condition being judged for veracity (Park & Levine, 2001; Levine, Kim, Park, & Hughes, 2006).

(3) Receivers perceive that senders deceive for a reason. This perception is referred to as "projected motive" (Levine, Kim, & Blair, 2010) and is supported by research showing that the patterns associated with truth-bias are altered when receivers have a reason to be suspicious or information that causes them to believe the sender has a reason to deceive (Fein & Hilton, 1994).

(4) Receivers do not accurately detect deception as it is occurring, unless they have a reason to suspect deception (e.g. they infer motive) and the ground truth is known in advance. This outcome is the result of the first three arguments, which suggest that detection ability, or more correctly, inability, is a function of receiver variables rather than sender cues and behaviors, as well as a fourth factor, the absence of sufficient information in the deceptive message or accompanying behaviors to allow the message veracity to be accurately determined. Park, Levine, McCornack, Morrison, and Ferrari (2002) show that most lies are detected after the fact as a result of third party information, physical evidence, and confessions. At-the-time verbal and nonverbal behaviors are rarely the source of detection, although they may increase suspicion, which in turn can lead to confrontation and confession.

The Park-Levine probability model. An important demonstration of truth-bias theory is provided by the Park-Levine probability model (Park & Levine, 2001) and subsequent empirical testing (Levine, Kim, Park, & Hughes, 2006). Levine, Park, and McCornack (1999) had questioned the conclusions of previous detection studies because the results of most research fell into a fairly narrow range of accuracy. Subsequent meta-analysis by Bond & DePaulo (2006) re-affirmed this observation, showing that across 206 detection studies and 24,483 judges accuracy in most studies was within +/- 10% of the average 54% accuracy rate. The common theme in most of these studies was that, as part of the experimental design, ground truth was controlled by presenting subjects with a 50-50 mix of truths and lies.

Park and Levine proposed that detection accuracy depends on two factors:

conditional probability and base rate. The first factor states that accuracy is a conditional probability; that is, the probability that a message is judged truthful given that the message is truthful will be different from the probability that a message is judged a lie given that the message is in fact a lie. The second factor is the probability that the message is a truth or lie. A key assumption is that in reality the truth-lie base rate (the veracity of a source's message) is unknowable, but in deception detection experiments, the veracity of source messages is under the control of the researcher. Levine et al. (1999) found that the conditional probabilities for truth and lie judgments are not the same but the ranges of these probabilities are fairly consistent across studies using an equal number of truth and lie messages. By varying the base rate (changing the mix of truth and lies), truth and lie accuracy can be altered.

An empirical test of the Park-Levine model (Levine et al., 2006) provides evidence that varying the base rate does significantly alter the accuracy rate. In the experiment, subjects judged a series of high-stakes lies. The subjects were divided into treatment groups with each group judging eight videotaped interviews in which the interviewee was either lying or telling the truth. Each treatment group viewed a different mix of messages with the veracity base rate varying from eight truths to eight lies (and each combination in between). Results showed that truth accuracy is higher than lie accuracy and varying the base rate had a substantial impact on overall accuracy; as the proportion of true messages increases, mean accuracy improves. The observed results fit the predicted results with the latter falling within a 95% confidence interval of the observed values. Levine et al. conclude that "chance explains deception detection rates well."

Extending TBT to marketing messages. TBT argues that deception is purposeful and goal-oriented, that people are vulnerable to being deceived because they are predisposed to trust new information, and even when they have reason to not trust a sender, the message judge lacks sufficient information for veracity to be accurately judged. Although TBT has been developed in the context of interpersonal interaction, the principles of truth-bias theory can be applied in communication contexts where the receiver is not directly interacting with the sender. In marketing there are interpersonal interactions such as direct selling, but the majority of marketing communications fall outside the realm of interpersonal communication. Based on TBT trust should be the receiver default when marketing messages are presented to consumers (and in most cases of marketing communication, as in most cases of interpersonal communication, trust is probably justified). But consumers may be wary of new information; and mediated marketing messages, like interpersonal messages, will provide insufficient information to allow the consumer to verify the truthfulness of the claims in the message. In consumer psychology, a number of studies have established that consumers can distinguish persuasive intent from other kinds of message content (cf. Campbell & Kirmani, 2008, for a review and critique) but there has been little evidence to show that consumers can distinguish honest from dishonest persuasion. Before using the information in a marketing message to make a purchase decision the consumer must either choose to trust the claim or seek additional information in order to accurately assess the veracity of that marketing claim.

Branding and Product Classification as Sources of Detection Information

Branding. Park et al. (2002) provide a clear indication that in most cases it takes

more than evaluating the verbal message or coincident nonverbal behaviors to detect deception. To effectively determine whether or not deception has occurred contextual information is required (Blair, Levine, & Shaw, 2010). In marketing, contextual information often takes the form of brand reputation. Aaker (1991) defines brand as a "distinguishing name and/or symbol (such as a logo, trademark, or package design) intended to identify the goods or services of either one seller or a group of sellers, and to differentiate those goods or services from those of competitors. (p. 7)" At a minimum a brand identifies the source of the product and helps to protect the consumer and the producer for products that appear identical but originate from a different source. In contemporary usage a brand is a source of differentiation that helps distinguish product based on characteristics other than price (Olson, 1977). It communicates what the brand stands for and accentuates quality over price (Kirmani & Wright, 1989; Rao & Monroe, 1989). The fair assumption is that good brands want to protect their equity; therefore they will not intentionally undertake marketing actions that will damage their reputation. This is manifest in consumer trust for the brand (Aaker). This trust element of brand equity is grounded in the cognitive functions of branding: awareness, associational schema, quality perceptions and loyalty intentions, a view supported by Keller's (1993) conceptual model of consumer-based brand equity and at least implied by Srivastava, Alpert, and Shocker's (1984) product-based approach to identifying market structure (cf. Serota & Bhargava, 2010, for a discussion of the relationship between market structure, brand architecture, and branding effects). Alternatively, Erdem and Swait (1998) view the role of brands as fundamentally informative; brands have assets (the value ascribed to the brands) that consumers use as signals of product quality, product positions, product attributes, and

product claim credibility. Like Levine's theoretical concern that the veracity of interpersonal messages is not readily knowable, Erdem and Swait stress that product messages are inherently fraught with imperfect and asymmetrical information; therefore, brands provide important cues, or signals, that increase credibility and reduce perceived risk.

Product Classification. Some products or their qualities and characteristics may be more susceptible to false or misleading claims than others. A structure for classifying products based on information resources that consumers might use to detect marketing deception has been suggested by information economics, an emergent component of modern micro-economic theory (Akerlof, 1970; Stigler, 1961). The classification system consists of three components: search, experience, and credence (SEC). The relevance of the SEC approach to markets and marketing has been established through empirical examination of the role of information in advertising, signaling, and information search (Nelson, 1970, 1974; Spence, 1973).

The term *search* refers to the acquisition of information with which the consumer may objectively evaluate products and on which they may base their purchase decision. In 1961, George Stigler's article, "The Economics of Information" published in *The Journal of Political Economy,* proposed that the search for information is an important aspect of economic activity and furthermore the nature and availability of information is critical to the determination or ascertainment of market price. In 2001 Stigler shared the Nobel Prize in Economics with A. Michael Spence and George Akerlof for this work, which collectively became know as the analysis of markets with asymmetrical information. Akerlof (1970) explains that asymmetrical information means buyers and

sellers do not have equal information when they enter into a transaction and the extent to which that information is unequal will affect the outcome of the transaction. In general, the seller has more control over information about the product, and the exercise of this control will influence the economic power of both parties. Within this framework, *seller control* means that the seller may provide full disclosure of information, withhold some information, withhold all information, or create false information. Marketing messages are a form of this disclosure; when the message is anything other than fully transparent, the seller is engaged, to a lesser or greater degree, in deception. The extent to which the buyer is able or willing to search for information that will allow the message to be verified is a contributing factor in detecting and overcoming, or preventing, marketing deception.

Stigler (1961) focused primarily on the price of goods, noting that the dispersion of prices is a measure of ignorance in the market. The market price is the price the buyer ultimately pays for the product and Stigler proposes that prices vary frequently and, with few exceptions, no one can know all the prices that sellers of a given product are quoting at a given time. Therefore, to ascertain the most favorable price, buyers must search to find various price quotes. Stigler goes on to weigh the cost of search against its value in reducing the price to the buyer. If the prospect of significantly reducing the price is high, more searches are warranted; if the prospect is low, the value of the search activity is also low and the buyer will engage in limited search activity.

Stigler (1961) also observes that this measure is biased because the products are never homogeneous; the products can vary by the services the seller performs, by the range of products stocked, and (though Stigler explicitly avoids discussing it) the quality

of the products. In response to Stigler's heterogeneity concern, Nelson (1970, 1974) examined the role of quality and the difficulty of obtaining information about the performance characteristics of the product under various conditions of use. Nelson argues that the utility of quality would vary more than the utility of price because of the greater difficulty of obtaining information about quality and performance. Nelson further argues that one solution to this problem is that some buyers rely on their post-purchase *experience* with the product instead of searching for new information. Some products (especially those that combine goods and services or are primarily services) do not afford the opportunity to search in advance and determine which has the best quality. In these cases, the buyer may choose to use the product and assign a posterior utility to the purchase which in turn informs future decision making. Like prior knowledge that is used to judge message veracity in the detection of interpersonal deception, experience can inform the consumer about the veracity of promotional messages after the fact; thus the seller's recognition that buyers may ultimately discover the "truth" about a product might inhibit the producer or marketer from exercising seller control through misleading or false marketing communications.

Nelson's proposition is that experience is an alternative form of search that consumers use in order to obtain valid information when that information is more difficult or expensive to obtain. Coincident with the idea that some information is more difficult to obtain was recognition that sellers can distort information and willfully create uncertainty (Akerlof, 1970). Buyers may use market statistics (or reviews or brand information) to judge quality and, as Akerlof suggests, this reliance on reputation (i.e. indirect knowledge of the product's quality) is an incentive for sellers to market poorer

quality goods in order to increase profits. This is consistent with Bok's (1999) moral asymmetry in which lies are more likely to occur when the truth is seen as ineffective. Darby and Karni (1973) conceptualized this as "optimal fraud." But to explain the forces contributing to optimal fraud, they found it necessary to add a third class of properties, which they labeled *credence* qualities. Darby and Karni provide the following comparison:

> We distinguish then three types of qualities associated with a particular purchase: search qualities which are known before purchase, experience qualities which are known costlessly only after purchase, and credence qualities which are expensive to judge even after purchase. (p. 69)

By expensive, Darby and Karni mean that objective information is not readily available even after purchase and use of the product or service. The buyer is left to rely on the credibility or honesty of the seller in order to accept that he or she has received fair value for the price paid. In some cases, it may be possible to determine whether or not the product is as specified or the service was actually performed, but the cost to do so would not be warranted. In other cases, where information about the good or service is solely controlled by the seller, the buyer may never know with certainty the quality of the product.

Marketers, particularly those whose function is to create marketing messages, often trade in uncertainty. Advertising, public relations, sales promotions, and other forms of marketing communications are designed to present product qualities in such a way that they are valued favorably by the potential buyer in comparison to similar products from competing sellers. In order to do this marketers focus on qualities for

which their products have a competitive advantage and they ignore or diminish information about properties for which the seller's product lacks advantage. For the buyer attempting to make a fair comparison of product alternatives, the information available is often a patchwork of competing claims about different properties that do not line up neatly for evaluation. As Stigler (1961) indicated, it is already difficult for the buyer to know what the price is for various alternatives at a given point in time. When the buyer must also assess both knowable and unknowable qualities, the potential for uncertainty and the need to rely on incomplete or imperfect information is increased. Zeithaml (1981) points out additional difficulties in her discussion of how consumers evaluate goods and services differently. She notes that most goods have searchable qualities while services tend to be judged on the basis of experience and credence. The characteristics which help to define a service – intangibility, nonstandardization, and the inseparability of production and consumption – make services much more difficult to evaluate and, therefore, much more dependent upon experience (or credence) to supply evaluative information.

Both buyers and sellers, in general, realize that consumers often have to make choices without having complete information. Thus it may be the responsibility of the buyer, *caveat emptor*, to understand that marketing claims are created with the intent to persuade. But it is also incumbent upon sellers to promote their products ethically. However as Akerlof (1970) and Darby and Karni (1973) theorize, the greater the extent of uncertainty, the more likely the seller will have an incentive to cheat. Stigler (1961) focuses on price, which is the obvious example of the kind of factual information for which buyers can search; but there are other facts, attributes, and qualities that buyers

could know before purchasing. Nelson (1970) uses the example of canned tuna to distinguish experience qualities from search qualities. He suggests buyers can easily buy multiple brands of tuna in order to determine preference, and at the low cost of experience there is insufficient demand for establishments to sell tastes of various brands of tuna fish. Darby and Karni cite repair service as having credence qualities, noting that in many cases consumers will be unaware of the ability of the service to satisfy a given want, or lack the expertise to evaluate the service performance, and may only be able to evaluate the outcome, not the procedure. As these examples illustrate, search, experience, and credence product properties represent successively greater opportunities for uncertainty and increasingly greater potential for producer/marketer deception. Thus the consumer's perceived ability to search for information is likely to be inversely related to the perception of risk (Zeithaml, 1981) and manifest itself as greater uncertainty and increased suspicion (lack of trust).

In summary, the likelihood of marketing deception increases with the degree of uncertainty about the quality of the product. From an economic standpoint search is a cost of product acquisition (Stigler, 1961) and the consumer engages in certain trade-offs (e.g. time, shopping effort, reading or hearing advertising). The extent of this effort is related to the value of the purchase. Asymmetry between the information held by the seller and information obtained by the buyer could alter the outcome of the transaction (Akerlof, 1970), opening the door for cheating and mistrust. One important reason for this asymmetry is that not all product information can be known through search prior to purchase (Nelson, 1970, 1974). In some cases it is necessary to experience the product before one can know if the quality and characteristics match expectations, with those

expectations often based on the advertising and promotional messages associated with the product and a specific brand. Darby and Karni (1973) added a third condition, suggested that in some circumstances, even after purchase and use, the consumer is forced to rely on information from the provider regarding the quality or characteristics of the product; they referred to these as credence goods and services. The categorization of goods and services, or their attributes, as search, experience, or credence is an efficient way of ordering the degree of information asymmetry. The three SEC levels imply that prior to purchase the consumer is likely to be able to reduce uncertainty, but differentially so, depending on the type of product or attribute. It also implies an increasing opportunity for exposure to deceptive marketing communications as search gives way to reliance on experience and/or the truthfulness of others (credence).

The dissertation research addresses the topic of consumers' abilities to detect deception in marketing communication by applying truth-bias theory to marketing messages. This research provides a conceptual replication of the Levine, Kim, Park, & Hughes (2006) test of Park and Levine's (2001) probability model for veracity base rates. More critically, it generalizes their work on deception detection from interpersonal communication interactions to mediated marketing communication. This generalization is important for two reasons: (1) the majority of deception detection theory is limited by conditions associated with interpersonal communication. Because TBT is not limited by those conditions, this study provides a first test separating the message from the sender's behavior. (2) Marketing communication often involves persuasive arguments using incomplete information (emphasizing strengths and ignoring weaknesses), which is inherently deceptive (though the level of intent to deceive may vary). Consumers may

project persuasive motives to the sources of marketing messages (Campbell & Karmani, 2008; Levine et al., 2010) and their expectations for whether or not deception is occurring will be influenced by message factors such as branding and by the degree of asymmetry for the information found in marketing messages.

Hypotheses:

The first set of hypotheses is derived from the Levine et al. (2006) test of the Park-Levine probability model. This provides the conceptual replication and will be used to generalize the model to non-interpersonal marketing messages:

H1: Consumers are truth-biased. When presented with equal numbers of truths and lies, consumers will judge a greater proportion of the messages as truthful (base on Levine et al. H1).

H2: Truth accuracy will be greater than lie accuracy (Levine et al. H2).

H3: The accuracy of judging marketing truths and lies is a function of the message veracity base rate; as the ratio of truthful messages to total messages increases, accuracy will increase. (based on Levine et al. H4)

H4: The relationship between the ratio of truthful to total messages and detection accuracy is linear and positive (Levine et al. H5).

Levine et al. (2006) included a hypothesis that truth accuracy would be higher than 50% (equal chance of judging correctly or incorrectly) and lie accuracy would be lower than 50%. Specific levels of truth-bias are an implication of the veracity effect without factoring in the potential effects of projected motive or other contextual information that might alter the slope and intercept of the graph expressing the relationship between the ratio of truthful messages and detection accuracy; this will be

addressed by subsequent hypotheses. Failure to reject H1 through H4 should provide strong evidence that the Park-Levine model generalizes to marketing messages. While this study is concerned with establishing that truth accuracy is greater than lie accuracy (H2), the shape of the distribution is expected to be affected by brand and SEC moderators; therefore, a second set of hypotheses replaces the Levine et al. hypothesis for variation around the 50% accuracy level. Levine et al. included a total of nine conditions (including control) using large samples for each condition in order to increase the rigor of the test. This rigor was expressed as a series of hypotheses about the precision of the results. In order to examine moderators related to marketing deception, this research requires a substantial number of conditions and, by necessity, has smaller sample sizes. Therefore the hypotheses related to precision are not included.

Two moderators are of interest in this study: (1) the presence or absence of brand is believed to affect consumer trust, and (2) the three SEC levels that can be associated with a marketing claim may alter consumer expectations regarding the veracity of the message. The effects of both factors should be reflected by the degree of truth (or lie) bias and by the slope and intercept of the line describing the relationship between veracity base rates and detection accuracy. This leads to the following truth-bias hypotheses:

H5: Branding increases truth-bias; consumers will judge branded messages as truthful more often than unbranded messages.

H6: The ability to verify the marketing claim increases truth-bias; consumers will judge messages about search characteristics as truthful more often than messages about experience characteristics (H6a); consumers will judge

messages about experience characteristics as truthful more often than messages about credence characteristics (H6b), and by the logic of ordering consumers will judge messages about search characteristics as truthful more often than messages about credence characteristics (H6c).

H7: There will be an interaction between branding and SEC levels such that branded messages about search characteristics will be judged truthful at a rate significantly higher than unbranded messages about credence characteristics.

While truth-bias is positively associated with expectations about the trustworthiness of the message and source, accuracy is expected to be undermined by the effect of truth-bias. By varying the base rate of message veracity, we should observe a change in the slope and intercept of the line describing the relationship between veracity base rates and detection accuracy. When expectations of honesty are high, such as when consumers are presented with branded messages about search characteristics, a steep slope with a low intercept would reflect the tendency to judge truths accurately and lies inaccurately. In the branded search conditions dominated by truthful messages (which match well with expectations), accuracy should be high. In the branded search conditions dominated by dishonest messages (which violate expectations), accuracy should be low. At the other extreme, when consumers judge unbranded credence messages, they should have lower expectations for honesty. These expectations should result in judging more honest messages as lies and more dishonest messages as truthful. The effect across conditions will be a flattening of the line such that the slope is closer to zero than in the branded search conditions, or even negative. It is worth noting that a real difference in judgment accuracy would result in a translation of the line (same slope with a higher or

lower intercept); however, TBT would not predict this and this study does not offer any hypotheses about this effect. The hypotheses regarding accuracy are the following.

H8: Branding increases the expectation of honesty; as the number of truthful claims increases as a proportion of total claims, judgment accuracy will increase, and the increase for branded claims will have a steeper slope and lower intercept than for unbranded claims.

H9: The ability to verify the marketing claim increases the expectation of honesty; as the number of truthful claims increases as a proportion of total claims, judgment accuracy will increase. The increase for search claims will have a steeper slope and lower intercept than for experience claims (H9a); the increase for experience claims will have a steeper slope and lower intercept than for credence claims (H9b); and by the logic of ordering the increase for search claims will have a steeper slope and lower intercept than for credence claims (H9c).

H10: There will be a significant and positive interaction between branding and SEC levels such that the relationship between the ratio of truthful to total messages and detection accuracy will have a steeper slope and lower intercept for branded search messages than for unbranded credence messages.

Even though we expect consumers to be more skeptical or weary when receiving marketing messages than when they are engaging in interpersonal interaction, on average consumers should expect marketing messages to be truthful and will judge these messages to be truthful more often than they judge them to be false. This research does not include a test of marketing messages versus interpersonal messages. Nonetheless, it

will be interesting to see if the levels of truth-bias vary significantly from the Levine et al. (2006) results. This leads to the following research questions:

RQ1: Do consumers have less truth-bias toward marketing messages than they have toward interpersonal messages?

RQ2: Does the inherent deception (or awareness of persuasive intent) increase consumer skepticism to the level that consumers are lie-biased when judging the veracity of marketing messages?

CHAPTER 2: METHOD

This study tests the propositions that (1) the receivers of marketing messages will judge those messages according to their degree of truth-bias and (2) the accuracy of their veracity judgments is a function of the distribution of true and false claims, moderated by branding and by the search condition of the claim – that is, whether categorically the claim addresses a search, experience, or credence (SEC) characteristic. An experiment was conducted replicating the Levine et al. (2006) procedure. This experiment replaced the interpersonal truths and lies stimuli with a set of honest and dishonest marketing claims. Furthermore, the experiment was repeated for six groups; each group represented one combination of the branding and categorical SEC moderating conditions.

Main Experiment

Subjects. The sample for this marketing deception detection experiment consisted of 1,507 American adults (18 years of age or older) obtained using the Synovate *eNation* omnibus panel. The omnibus panel is a commercial survey research tool used for daily, multi-client studies. The studies are primarily consumer-oriented and the panel approximates a nationally representative sample (cf. Serota, Levine, & Boster, 2010 for a discussion of the strengths and limitations of this approach). The unweighted sample was 52.4% female and the mean age was 43.2 years, (*SD* = 15.29). Results are typically post-stratification weighted (Kish, 1965) in order to improve external validity. Key panel demographics (age, gender, income, and region) are matched to the U.S. Census Bureau's monthly *Current Population Survey (CPS)*. Synovate also uses weighting to adjust partially for the underrepresentation of Hispanics and other ethnic minorities in the sample. In addition to approximating the distribution of the U.S. adult population, the

panel approach uses random assignment of subjects to treatment groups in order to achieve comparable samples for each of the conditions in the research design. Subjects were included in a prize drawing as the incentive to participate.

Design. The design of this experiment was adapted from the Levine et al. (2006) test of the Park-Levine probability model of deception detection accuracy (Park & Levine, 2001). Levine et al. used a one-way design to show that a linear relationship exists between the number of truthful messages included in deception detection experiments and the accuracy of veracity judgments; each treatment was a systematic variation in the base rate of truths and lies. This study expanded upon that design and consisted of a three-factor independent groups design, *A* x *B* x *C*, and full random assignment of subjects for each of the treatment conditions.

The primary measurement in this study was judgment of eight marketing claims as truthful or not truthful. By comparing these judgments with the actual veracity of the statements, the dependent measures of accuracy (number of correct judgments as a proportion of total judgments) and truth-bias (number of honest judgments as a proportion of total judgments) were derived.

The three between-subjects factors were (A) the independent measures of brand identification (real brand versus no brand identification), (B) the SEC category (search versus experience versus credence) for the claim, and (C) the message veracity base rate. Each subject completed the judgment task for eight messages; the messages were either branded or unbranded claims from one of the three SEC categories. The study included nine base rate conditions within each of the six branding x SEC categories and each base rate condition ranged from 0 to 8 honest marketing claims. Levine et al. (2006) used the

50% honest/50% dishonest condition as an offset control group. In this study, the 50/50 mix was not offset; however, the equal mix condition serves as a *de facto* control group for the base rate conditions within each of the six branding x SEC categories. Figure 1 provides a schematic view of the research design.

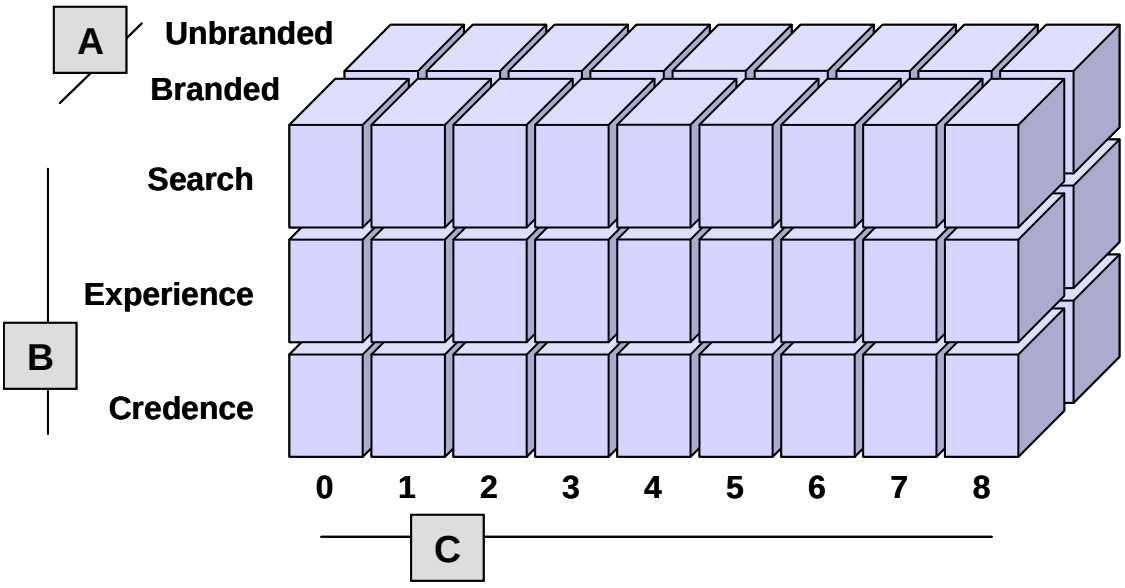

Figure 1. Three factor design with 54 independent groups; (A) branding by (B) SEC characteristics by (C) number of truthful claims (among 8 claims evaluated).

Procedures and Measures. Data for this study were collected using the Synovate *e-Nation* online omnibus data collection system. Subjects received an e-mail invitation asking them to participate in an omnibus survey on December 22 or December 27, 2010; the total sample of 1,507 was obtained between December 22 and 29, 2010. The invitation was directed to a specific member of the household identified by age and gender. The invitation instructed the specified individual to click on a link to the survey website; 1,238 subjects (82.1%) were the specified respondent while 269 surveys (17.9%) were completed by a different member of the household. On the website, subjects were provided with instructions, asked questions confirming participant identification, asked

omnibus survey questions for several unrelated topics including the deception detection questions, and asked a series of demographic questions. Subjects recruited for the December 22 survey answered questions (in order) about whiskey, truthfulness of claims, and software logos. For the December 27 survey subjects were asked about cameras, truthfulness of claims, software logos, deodorant, optical purchases, and hardware stores. Since nearly all members of the population were expected to be consumers and have experience with the consumer behaviors of information seeking and purchase decision making, no attempt was made to screen the subjects for consumer activity. The study procedures were IRB-approved.

Each subject evaluated eight messages. All messages were selected from one of the search, experience, and credence categories by random assignment. Each subject was randomly assigned to either the real brand group or the unbranded group. Subjects were also randomly assigned to a veracity base rate (number of truthful claims among the eight messages); the set of eight messages were presented in random order. After each message was presented the subject was asked whether the message was a truthful claim or not truthful. Appendix A provides the text of a typical questionnaire and Appendix B is the complete list of 96 messages used in the study.

Creation of the Marketing Claims Induction

This stimulus generation required two distinct steps. First, it was necessary to create a pool of brand and product characteristics that were reliably classified into the three SEC categories. Second, for each claim to be used as part of an experimental condition, four messages needed to be created. Initially two messages about the brand or product characteristic had to be created, one that was known to the message creator to be

truthful and one that was known to the message creator to be false. These messages were to include an established and potentially recognizable brand name. Then, a second set of two messages was created by taking the two branded messages and removing the brand name from each; the absence of a brand name assured that message would lack real, accrued brand equity.

Search/experience/credence classification. In order to obtain lists of products and product characteristics that fall distinctly into each of the three categorical conditions, student coders participated in a two-stage stimulus generation process in order to assign SEC categories to the characteristics of various goods and services. Although numerous lists have been generated as an outcome of the evolution of Stigler's (1961) economics of information theory, these lists have tended to reflect objectives associated with specific theoretical perspectives. Categories tend to be influenced by the researchers' academic orientation. Some of the studies and articles were economic in nature and dealt with the elasticity of demand given varying assumptions about information availability (Nelson, 1970, 1974; Darby & Karni, 1973; Laband, 1986). Others were marketing promotional in nature, which more often focuses on the inseparability of production and consumption (Shostack, 1977; Zeithaml, 1981; Ekelund, Mixon, & Ressler, 1995). In practical terms, this means that the economics-based lists most often focus on the products themselves while the marketing lists usually take into account the characteristics of the products and how they are consumed. The latter better recognizes that for a given product or brand, the product may have characteristics in all three categories. For example, a restaurant might advertise, "Eat at Joe's. For just $8.99, our diners get a delicious meal made with only the best ingredients!" In such a case, the price of the restaurant meal may be verified before

purchasing and is therefore searchable; the tastiness of the meal is subjective and requires the consumer's dining experience before the veracity of the statement can be confirmed; and the consumer is left to trust that the ingredients are the best or even what they are purported to be when the menu or server is consulted. While existing lists are constrained by the theoretical and empirical needs for which they were created, time and technology are also critical factors in the process of stimulus generation. Many new products and services did not exist 40-50 years ago when economic theories of information were first tested and, more importantly, the tools for information search have been greatly refined in the last two decades. The breadth of product availability and the ubiquitousness of the Internet reduce the cost of search to the point that the quality of many characteristics once thought of as experience or credence attributes can be known prior to purchase.

The ideation process took place in two stages. Initially, four student assistants participated in a group discussion of SEC products and characteristics moderated by the researcher. The students were enrolled in a strategic management course at a large Midwestern university and received extra credit as undergraduate research assistants. To start the discussion, they were presented with a short written explanation of the concepts of search, experience, and credence based on the theoretical material in the introduction to this study (Appendix C). The description defined each of the terms, explained that they might apply to entire products (goods, services, and ideas) or only to certain characteristics of products. A discussion followed in which the research assistants were allowed to ask questions and clarify their understanding of the terms. They were then asked to recommend entire products or characteristics associated with specific products for each category. Three separate lists were maintained during the brainstorming session;

the participants were encouraged to discuss, challenge, debate, and modify the recommended categorical assignments. The entire group discussion lasted approximately two hours. The result was an extensive list of products with their key characteristics or attributes assigned to the three search categories.

In the second phase of the ideation process, the lists from the group discussion were organized into a 100-item battery that was presented as a self-administered coding exercise (Appendix D). The coding exercise was completed by 18 volunteer coders recruited from students enrolled in a management strategy course at a large Midwestern university. The students received extra credit for assisting with the item coding. The list of products and product characteristics was coded online so that the items could be presented to the coders in random order. As in the initial phase of the process, the three SEC concepts were briefly explained. For each item on the list, coders were asked to indicate whether their knowledge of the product and their ability to evaluate the product could be enhanced by (1) searching, or if it required (2) first-hand experience with the product, or if it required them to (3) trust the information provided by the producer or seller because the product quality or characteristic could not be objectively verified. Each product or product characteristic was scored for consistency of response. In general, the response consistency is highest for search characteristics. Coders were somewhat less likely to agree on the assignment of experience characteristics, and much less likely to agree on the assignment of credence characteristics. The final list of 24 products and characteristics (eight each for the three SEC categories) was determined by removing inconsistent coders, re-calculating the consistency for each item, and selecting those items with the highest consistency within each of the three categories. Coder reliability

was assessed at several points in this process.

Initially, 57 items were most frequently coded as search, 35 items were most frequently coded as experience, and 8 items were most frequently coded as credence. The scores were assessed for inter-rater reliability using Fleiss' *kappa* for multiple raters of categorical data (Fleiss, 1971); the initial $k = .260$ indicated a need to review individual coder results. Across the 100 items, pairwise coder agreement for the 18 coders ranged from a high of 70% to a low of 29%. The overall mean agreement was 52.8% (*SD* = 7.09%); one coder had an average agreement of more than 2 *SD* below the mean and was removed. Three additional coders exhibited a pattern of bias against coding items as credence and were removed. Based on judgments by the remaining 14 coders, 41 items were classified as search, 19 were classified as experience, and 12 were classified as credence; 18 ties were removed from the list. This improved the Fleiss *k* to .411 with 14 coders and 72 items. In order to further refine the item list, all items for which there was a clear second choice assignment were eliminated; at this step Fleiss $k = .564$ with 14 coders and 42 items. The final step was to select the 24 most consistently judged items (eight for each SEC category); this increased the Fleiss *k* to an acceptable .594. The final eight search items had a coder agreement range of 93% to 100%. For experience items the range was 86% to 100%. Coders had some difficulty classifying items into the credence category; coder agreement ranged from 54% to 79%, with the lowest agreement item also judged to be a search item by 36%.

Final claim generation. In order for the induction messages to be of known veracity, it was necessary for the claims to be created with the explicit intent of being either truthful or not truthful. The process of creating and sending messages for

advertising, public relations, or other elements of the promotional mix typically involves multiple individuals. In order for a false or dishonest message to enter the marketing environment some or all of these individuals must be complicit in the deception. The dishonesty may reside in the facts of the strategic marketing or communication plan that is typically created within the firm that produces the goods or services being marketed. Or, dishonesty may be introduced in the creative brief, a document usually produced by the marketing agency's account management in order to translate the marketing plan into specific communication objectives that guide the creative process of message development. The facts of the creative brief may be altered by copywriters and art directors in order to create false but favorable brand or product impressions in the finished message. Though less likely to influence the content of the message, the final communication passes through a production and editorial process in which arbitrary alterations or errors, some of which may be misleading or falsifying, can be introduced.

Rather than relying on the many stages of the message creation process to produce a mix of true and false claims, a standard procedure was established. For each of the 24 messages, an initial abbreviated creative brief was developed using information believed by the researcher to be correct and accurate about a branded product. Actual brands were matched to the questions selected from the second phase of the ideation process. Brand and product websites, promotional messages, media reviews, rating services (e.g. Consumer Reports, Better Business Bureau), and government agency reports (e.g. US FDA filings) were culled for information that could be used to create the truthful and not truthful claims. Information in the brief was fact-checked using at least two sources each for the background and description.

The brief identified the product or service and the brand name; it included the question used to establish the product and characteristic SEC classification, and it included a short statement of facts relevant to the claim. Key sources were also noted. Four versions of the claim were added to the brief upon completion: the branded and unbranded truthful claims and the branded and unbranded false claims (see Appendix E for an example).Other elements that are typically part of a creative brief, such as communication objectives, a target audience profile, and guidance on the tonality of messages were excluded.

A brief was developed for each of the 24 products or product characteristics selected from the ideation phase of the stimulus generation process. In several instances the product category was slightly modified or a different product category with equal classification agreement was substituted; this was done to obtain sufficient information to assure the veracity of the truthful claim. For false claims, the messages incorporated a lie about a key detail or fact in order to create more favorable positioning vis-à-vis the competition and/or contradicted the factual information of the truthful claim so that the product or service would appear to be more favorable to the audience. The final step was to replace the brand name with the generic "we" or "our [product]" to create unbranded versions of both the truthful and not truthful claims. This provided a battery of 96 claims, four versions for each of the 24 products (eight in each of the three SEC categories). All claims were written by the researcher; some were original and some were adaptations of existing claims for the specific brand and product.

CHAPTER 3: RESULTS

The 1,507 subjects judged a total of 12,056 claims with each subject judging eight marketing claims. The number of truthful claims ranged from zero to eight. The total number of truthful claims judged was 6,083 or slightly more than half. Due to slight variation in sample sizes across the 54 cells in the study, if all judgments were made randomly, the expected percentage judged truthful would be 50.46%. Overall, more than half of the claims were judged to be truthful ($M = 4.49$, $SD = 2.09$) yielding an overall truth-bias of 56.4% with 95% CI = 55.1 – 57.7%. A one-sample *t*-test showed that the average number of truth judgments exceeded the expected value of 50.46%, $t\ (1506) = 8.82$, $p < .001$, $d = .228$.

Total accuracy across the 54 cells ranged from 24.5% to 72.5% with an overall average accuracy of 58.9% (95% CI = 57.8 – 60.0%). The one-sample *t*-test showed that the total judgment accuracy exceeded 50%, $t\ (1506) = 15.77$, $p < .001$, $d = .408$ and did not support RQ2, which asked if consumer skepticism leads to lie-bias. Truthful claims were judged correctly 65.1% of the time while 53.9% of the not truthful claims were judged correctly; non-overlapping confidence intervals indicate that the difference is significant (truthful 95% CI = 63.4 – 66.9%; not truthful 95% CI = 52.1 – 55.7%). A paired samples *t*-test (excluding those only truthful claims and those judging only not truthful claims) confirmed this difference, $t(1170) = 6.82$, $p < .001$, $r = -.307$, $dz = .199$. Correctly judged truthful and not truthful claims are both significantly greater than 50%.

Hypotheses 1 and 2: Assuming Equal Truthful and Not Truthful Claims

The Park-Levine probability model (2001) posits that deception detection accuracy is a function of message veracity base rate rather than people's ability to

distinguish truths from lies. Levine, Kim, Park, and Hughes (2006) support this prediction, showing that the slightly better than average accuracy observed in many deception detection studies (Bond & DePaulo, 2006) was partially due to the 50/50 mix of truths and lies used to control for stimulus effects in most experiments. Levine et al. (2006) obtained veracity judgments from an offset control group using the 50/50 stimulus mix. In order to provide a conceptual replication from outside the interpersonal realm, the first two hypotheses of this study address the data for cells with equal numbers of truthful and not truthful claims aggregated across moderator conditions. Hypotheses 3 and 4 are addressed by data obtained from the total sample. The remaining hypotheses address the brand and search moderators both separately and in combination.

A total of 168 subjects judged 1,344 marketing claims across the six equal truthful/not truthful conditions. Each subject judged four truthful and four not truthful claims (the subjects did not know how many claims were truthful). The task for this group was conceptually equivalent to the Levine et al. (2006) control group. Hypothesis 1 predicted that consumers are truth-biased. When presented with equal numbers of truths and lies, consumers will judge a greater proportion of the messages as truthful. Overall the data were consistent with this prediction. Subjects judged 54.2% of the claims truthful (M = 4.32 claims, SD = 2.04). A one-sample t-test showed the observed proportion of truthful judgments to be greater than chance, $t(167) = 2.12$, $p < .05$, $d = .163$. However, consistent with RQ1, an independent groups t-test showed that truth-bias is significantly lower when evaluating truthful and untruthful marketing claims than the truth-bias Levine et al. observed when subjects judged interpersonal truths and lies (M = 66.1%, SD = 14.4%, N = 50), $t(216) = 3.16$, $p < .005$, $d = .576$.

Hypothesis 2 predicted that truth accuracy will be greater than lie accuracy. The 168 subjects in the six equal truthful/not truthful conditions had accuracy ranging from 44.5% to 71.9% with an average accuracy of 60.0% (M = 4.80 claims judged correctly, SD = 1.50) with a 95% CI = 57.2 – 62.9%. A one sample t-test indicates that this is significantly better than chance, $t(167) = 6.94$, $p < .001$, $d = .535$. Correct judgments were obtained for 64.0% of the truthful claims (95% CI = 59.2 – 68.7%) while correct judgments of not truthful claims were obtained 56.1% of the time (95% CI = 51.3 – 60.9%). Hypothesis 2 is supported by a paired sample test, $t(167) = 2.00$, $p < .05$, $dz = .155$. However, the overlapping confidence intervals indicate only that truth accuracy is directionally higher than lie accuracy; unequivocal evidence that truthful claims are judged accurately more often than not truthful claims was not obtained. Levine et al. (2006) predicted that interpersonal lie accuracy would be below 50%. While their hypothesis of below average accuracy was confirmed, consumer judgments of untruthful marketing claims were significantly better than chance, $t(167) = 2.47$, $p < .05$, $d = .191$.

Hypotheses 3 and 4: Overall Accuracy Predictions

Hypothesis 3 predicted that the accuracy of judging marketing truths and lies is a function of the veracity base rate (the number of truthful claims divided by total claims); as the ratio of truthful to total messages increases, accuracy will increase. This hypothesis was initially tested using the total sample data (N = 1,507), combining results across the moderator conditions. The 2 x 3 moderators used to define six conditions were measured with approximate equal proportion. There is no evidence that these exist in equal proportion in the population of marketing messages. In fact, it is reasonable to assume that most claims either are branded or are unbranded statements in the context of an

advertisement or other promotional message for which the brand is known. Based on the ideation phases of the stimulus generation process coders identified more than half of all claims as having search characteristics rather than experience or credence attributes.

The hypothesis that accuracy increases as the base rate for actual veracity increases was tested using a one-way ANOVA. The influence of proportion of truthful messages to total messages on accuracy was significant, $F(8, 1498) = 9.84$, $p < .001$; however, the effects size was relatively small, $\eta^2 = .05$, $\eta = .22$. The overall results are depicted in Figure 2.

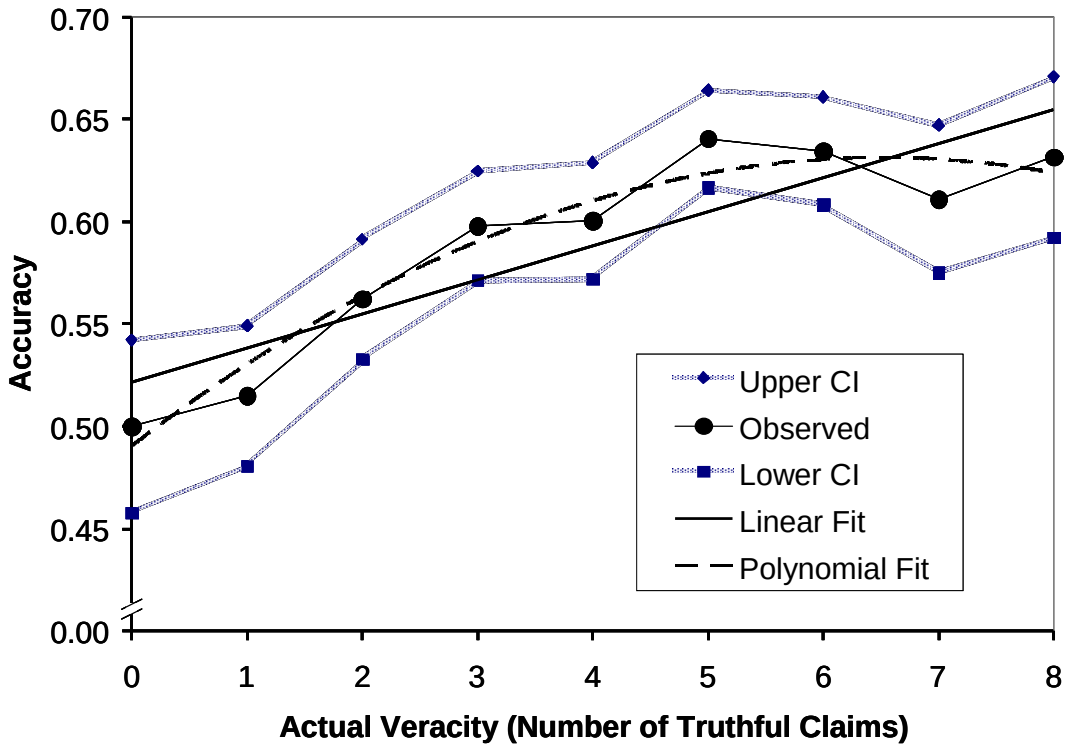

Figure 2. Observed accuracy as a function of actual veracity (number of truthful claims out of eight presented). The linear fit is $y = 0.0167x + 0.5213$, $R^2 = 0.78$; the curvilinear (polynomial) fit is $y = -0.0033x^2 + 0.0043x + 0.4903$, $R^2 = 0.94$.

Drawing upon the interpersonal results from Levine et al., Hypothesis 4 predicted the relationship between the ratio of truthful to total messages and detection accuracy is

linear and positive. As Figure 2 shows, accuracy means are linearly increasing from the 0 to 5 truthful claims; but from 5 to 8 truthful claims, there is little gain in accuracy (the somewhat lower mean for the 7 truthful claims condition is primarily the result of an inconsistently low score in the branded x search moderator set; with 54 unique cells in the experimental design and an average sample size of $n < 28$ it should be reasonable to find one or two cells with discrepant results). Both linear and curvilinear equations were fit to the data; the linear fit resulted in $R^2 = .78$ but the curvilinear equation yielded a substantially better $R^2 = .94$. Data in Table 1 show that Hypotheses 3 and 4 are only partial supported; above 62.5% (five truthful claims out of eight total claims), accuracy ceases to increase. Two of the values deviated significantly from a linear fit but, when the nonlinear fit was tested, none of the *t*-values was significant at $p < .05$.

Table 1

Observed and Expected Accuracy Rates by Number of Truthful Claims (Total Sample)

Truthful Claims		Linear				Nonlinear			
	Actual	Fit	Dev	*t*		Fit	Dev	*t*	95% CI
0	0.500	0.521	0.02	-0.99		0.490	-0.01	0.45	0.457 – 0.542
1	0.515	0.538	0.02	-1.33		0.530	0.02	-0.88	0.480 – 0.549
2	0.562	0.555	-0.01	0.50		0.564	0.00	-0.09	0.532 – 0.591
3	0.598	0.571	-0.03	1.95	*	0.590	-0.01	0.57	0.571 – 0.624
4	0.600	0.588	-0.01	0.85		0.610	0.01	-0.68	0.571 – 0.629
5	0.640	0.605	-0.04	2.95	**	0.624	-0.02	1.37	0.616 – 0.664
6	0.635	0.622	-0.01	0.97		0.631	0.00	0.28	0.608 – 0.660
7	0.611	0.638	0.03	-1.47		0.631	0.02	-1.08	0.574 – 0.647
8	0.632	0.655	0.02	-1.17		0.625	-0.01	0.35	0.592 – 0.671

Note: * $p < .10$, ** $p < .05$

Hypotheses 5-7: Moderator Influences on Truth-bias

Bok's veracity principle (1999) and Levine's projected motive model (Levine, Kim, & Blair, 2010) argue that lies occur for a reason and, in the absence of a reason or motive, those judging messages expect the messages to be truthful. With regard to claims made in marketing communications, two moderators have been hypothesized to influence the extent of truth-bias by consumers receiving marketing messages. First, the presence of a brand serves as a signal that the message can be trusted (Erdem & Swait, 1998), thus increasing the likelihood that the message will be judged truthful. Second, the perceived ability to verify information in the claim can lead to an inference of honesty. Derived from economic theories of information, search claims are those that can be verified before purchasing, experience claims can be verified through purchase and use, and credence claims require the consumer to trust the seller even after the product has been purchased and used. Hypotheses 5-7 predict that truth-bias increases when messages are branded and perceived to be verifiable before purchase.

Hypothesis 5 states that branding increases truth-bias and consumers will judge branded messages as truthful more often than unbranded messages. To test the validity of this hypothesis, half of the messages presented included a brand name while the other half were the same messages presented generically. Results for branded messages were aggregated across SEC conditions in order to compare them with results for unbranded messages, also aggregated across the SEC conditions. Truth-bias for branded claims was 59.7% (95% CI = 57.8 – 61.6%) while truth-bias for unbranded claims was 53.0% (95% CI = 51.3 – 54.8). In addition to non-overlapping confidence intervals, Hypothesis 5 was supported by an independent samples *t*-test, $t(1505) = -5.01$, $p < .001$, $d = .258$.

Hypothesis 6, which addresses SEC characteristics and truth-bias, states that the ability to verify marketing claim increases truth-bias. Consumers will judge messages about search characteristics as truthful more often than messages about experience characteristics (Hypothesis 6a). Consumers will judge messages about experience characteristics as truthful more often than messages about credence characteristics (Hypothesis 6b). By the transitive ordering logic, consumers will judge messages about search characteristics as truthful more often than messages about credence characteristics (Hypothesis 6c). In order to test the components of Hypothesis 6, data for each of the three SEC characteristics was aggregated across branded and unbranded conditions and compared pairwise using independent groups *t*-tests. Truth-bias for search claims was 63.8% (95 CI = 61.6 – 66.0%); truth-bias for experience claims was 51.7% (95% CI = 49.5 – 53.8%); and truth-bias for credence claims was 53.7% (95% CI =51.4 – 56.0%). Hypothesis 6a was confirmed, $t(1004) = 7.70$, $P < .001$, $d = .486$; truth-bias is significantly greater when judging search claims than when judging experience claims. Hypothesis 6b could not be confirmed, $t(998) = -1.26$, $p = .209$ (based on Levene's Test variances could not be assumed to be equal), $d = .079$; the mean truth-bias for experience claims was lower than the mean truth-bias for credence claims, with substantially overlapping confidence intervals. Despite the unexpected order transposition, Hypothesis 6c was confirmed, $t(1002) = 6.195$, $p < .001$, $d = .391$; truth-bias is significantly greater when judging search claims than when judging credence claims. Overall, there is substantially more truth-bias associated with the ability to verify information before purchasing than exists for claims that cannot be verified in advance, whether those claims involve experience or credence. Because Hypothesis 6b could not be supported by the

data, truth-bias results for experience and credence claims were combined, $M = 52.7\%$ ($SD = 25.8\%$; 95% CI = 51.1 – 54.3%). An independent groups t-test of search versus other claims shows that truth-bias for search claims is significantly different from the truth-bias observed when the inference of prior search is not part of the claim, $t(1505) = 7.97$, $p < .001$, $d = .438$.

Hypothesis 7 states there will be an interaction between branding and SEC levels such that branded messages with search characteristics will be judged as truthful at a rate significantly higher than unbranded messages about products with credence characteristics. In order to test this proposition, two analyses were performed, a simple significance test of the two extreme conditions in the experiment and a two-way ANOVA to test for main effects and interaction between the branding and SEC moderators. Table 2 shows the mean truth-bias, standard deviations, and confidence intervals for the six moderator conditions. In addition to having non-overlapping confidence intervals, an independent groups t-test shows that truth-bias for branded search claims is significantly higher than truth-bias for unbranded credence claims, $t(500) = 8.12$, $p < .001$, $d = .725$.

Table 2.

Average Truth-bias for Six Moderator Conditions, Branding by SEC Characteristic

Type of Claims		Mean	*SD*	95% CI	*n*
Search	Branded	68.4	25.6	65.3 - 71.5%	256
	Unbranded	59.0	23.5	56.1 - 61.9%	247
Experience	Branded	53.1	26.0	49.9 - 56.4%	247
	Unbranded	50.2	24.0	47.3 - 53.2%	256
Credence	Branded	57.3	27.3	54.0 - 60.7%	255
	Unbranded	49.9	25.4	46.7 - 53.1%	246
Total		56.4	26.1	55.1 - 57.7%	1507

This hypothesis was also evaluated using a two-way ANOVA to test for main effects of branding and SEC characteristics and interaction between the two moderator variables. The branding and SEC inductions significantly influenced truth-bias in the overall model, $F(5, 1501) = 19.18$, $p < .001$, with an effect size of partial $\eta^2 = .060$. Main effects on truth-bias were also significant; for branding, $F(1, 1506) = 25.29$, $p < .001$, partial $\eta^2 = .017$, and for SEC categories, $F(2, 1505) = 32.67$, $p < .001$, partial $\eta^2 = .042$. However, the interaction between branding and SEC categories did not significantly impact truth-bias.

Table 3.

Two-way ANOVA for Truth-bias with a Comparison of Branding versus SEC Categories as Measured and Branding versus SEC Categories Combined (S versus EC)

	df	*MS*	*F*-test	*p*	Partial η^2
Branding x SEC categories					
Main Effects					
A (Branding)	1	1.62	25.29	< 0.001	0.017
B (SEC)	2	2.10	32.67	< 0.001	0.042
Interaction					
AB	2	0.14	2.19	0.112	0.003
Branding x Search vs combined Experience and Credence					
Main Effects					
A (Branding)	1	0.34	7.34	0.007	0.005
B (S vs. EC)	2	0.95	20.20	< 0.001	0.013
Interaction					
AB	2	0.23	4.86	0.028	0.003

Since the tests of Hypothesis 6 showed no significant difference for truth-bias

across experience and credence categories, these categories were combined and the two-way ANOVA was repeated. Table 3 compares the results of the initial and revised models. Although collapsing experience and credence into a single category had the positive result of creating a significant interaction between branding and the reduced SEC factor, $F(3, 1504) = 4.86$, $p < .05$, partial $\eta^2 = .003$, the overall model and its individual components were substantially weakened.

Hypotheses 8-10: Moderator Influences on Judgment Accuracy

The final set of hypotheses addresses the moderating effects of branding and the perceived ability to verify claims (the SEC category induction) on the accuracy of judging claim veracity. Whereas truth-bias reflects a basic tendency toward truthfulness and the receiver expectation that messages will be truthful, judgment accuracy reflects the extent to which the individual's truth-bias conforms to the actual veracity of messages sent. Analyses of Hypotheses 5-7 examined the extent to which branding and SEC category influence, or moderate, truth-bias. Hypotheses 8-10 are propositions regarding how accuracy changes when truth-bias is affected by the moderating conditions.

Hypothesis 8 states that branding increases the expectation of honesty; as the number of truthful claims increases as a proportion of total claims, judgment accuracy will increase, and the increase for branded claims will have a steeper slope and lower intercept than for unbranded claims. This hypothesis was tested using a two-way ANOVA to examine the relationship between branding, base rate, and accuracy. Results for the overall model, $F(17, 1489) = 6.04$, $p < .001$, partial $\eta^2 = .065$, show that branding and number of truthful messages in the set of eight messages evaluated significantly influenced the accuracy of respondent judgments. Main effects of branding on accuracy

and number of truthful claims on accuracy were both significant as was the effect of the interaction between branding and number of truthful claims on accuracy. Table 3 summarizes the results of this analysis.

Table 4.

Two-way ANOVA for Accuracy with Branding versus Number of Truthful Claims

	df	*MS*	*F*-test	*p*	Partial η^2
Branding x Number of Truthful Claims					
Model	17	0.27	6.04	< 0.001	0.065
Main Effects					
A (Branding)	1	0.23	5.08	0.024	0.003
C (N-Truthful)	8	0.43	9.63	< 0.001	0.049
Interaction					
AC	8	0.10	2.32	0.018	0.012

A *t*-test of simple slopes (Aiken & West, 1991) for branded versus unbranded accuracy (with number of truths centered) yields $t(1503) = 3.29$, $p < .001$, supporting Hypothesis 8 but a *t*-test of the intercept (number of truthful claims = 0) did not support the hypothesis, $t(164) = -1.27$, $p = .21$. Visual comparison of the accuracy trends for branded and unbranded claims provides further support for Hypothesis 8 but it also raises questions about the strength of this hypothesis. Figure 3 depicts the results for all branded claims. The linear trend line has a good fit with the observed data resulting in $R^2 = .94$. Figure 4 depicts the results for all unbranded claims. The linear trend line for unbranded claims, with one exception, falls within or at the confidence interval for the observed data; however, the fit results in a relatively weak $R^2 = .31$. Using a polynomial curve fit improves the fit of predicted to observed results, $R^2 = .81$.

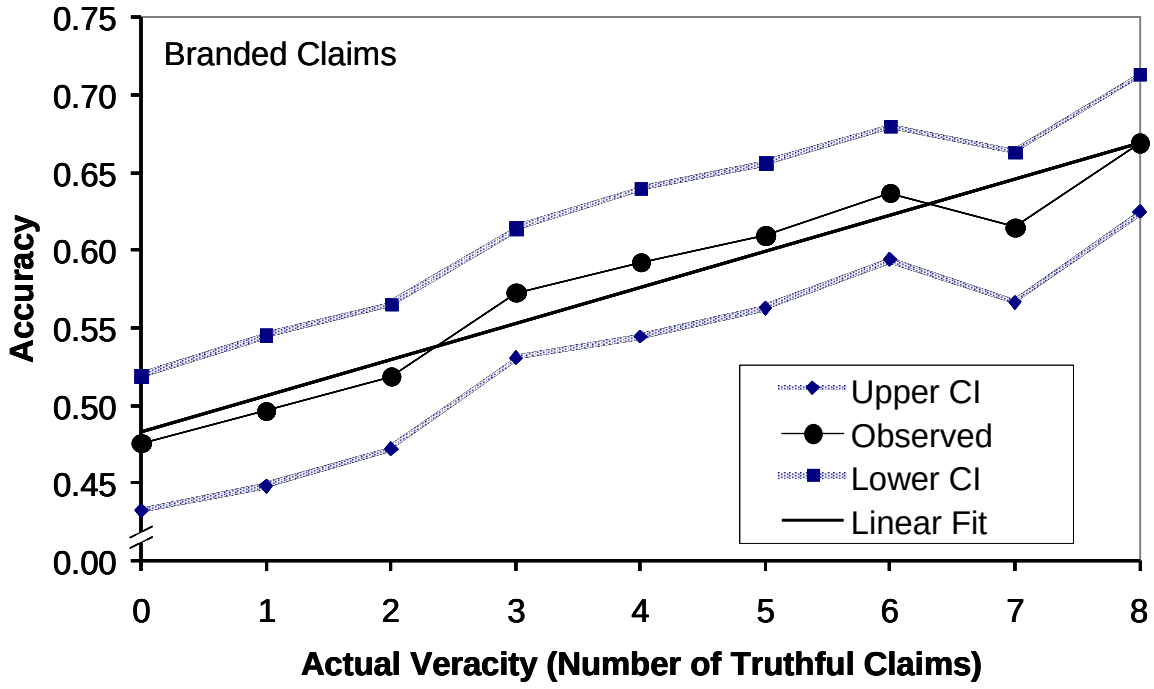

Figure 3. Observed accuracy as a function of actual veracity (number of truthful claims out of eight presented). The linear fit is y = .0234x + .4827, R^2 = 0.94.

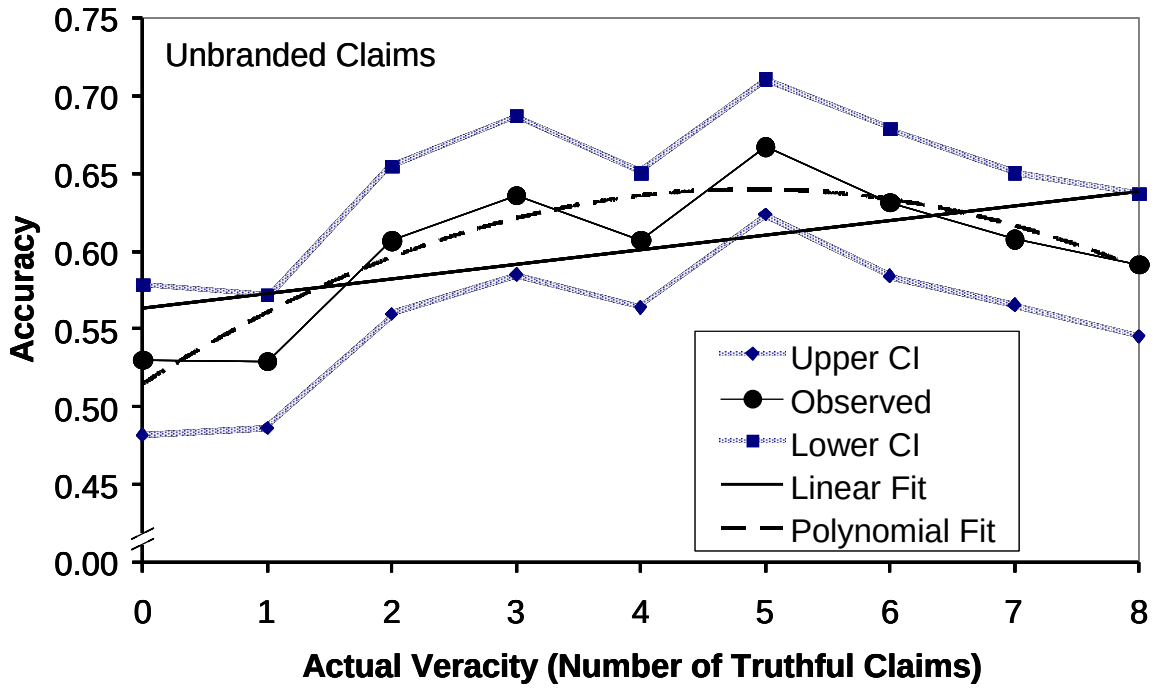

Figure 4. Observed accuracy as a function of actual veracity (number of truthful claims out of eight presented). The linear fit is y = .0093x + .5636, R^2 = 0.31; the curvilinear (polynomial) fit is y = -.0052x^2 + .0513x + .5147, R^2 = 0.81.

Hypothesis 9 states that the ability to verify the marketing claim increases the expectation of honesty and as the number of truthful claims increases as a proportion of total claims, judgment accuracy will increase. The increase for search claims will have a steeper slope and lower intercept than for experience claims (H9a); the increase for experience claims will have a steeper slope and lower intercept than for credence claims (H9b); and by the logic of ordering the increase for search claims will have a steeper slope and lower intercept than for credence claims (H9c). This hypothesis was first tested using a two-way ANOVA to examine the overall relationship between SEC category, base rate, and accuracy. Results for the overall model, $F(26, 1480) = 10.34$, $p < .001$, partial $\eta^2 = .154$, show that SEC category and number of truthful messages in the set of eight messages evaluated significantly influenced the accuracy of respondents' veracity judgments. As Table 5 shows, the main effects as well as the interaction between the number of truthful claims and SEC categories were significant.

Table 5.

Two-way ANOVA for Accuracy with SEC Category versus Number of Truthful Claims

	df	*MS*	*F*-test	*p*	Partial η^2
SEC Category x Number of Truthful Claims					
Model	26	0.42	10.34	< 0.001	0.154
Main Effects					
B (SEC Category)	2	1.55	37.83	< 0.001	0.049
C (N-Truthful)	8	0.48	11.73	< 0.001	0.060
Interaction					
BC	16	0.28	6.88	< 0.001	0.069

Pair-wise *t*-tests of the simple slopes were used to compare SEC results. The test of search versus experience slopes supported Hypothesis 9a, showing that search claims

yield a steeper slope than experience claims, $t(1002) = 7.62$, $p < .001$. A t-test of the intercepts (number of truths = 0) also supported this hypothesis, showing that the observed search intercept was significantly lower than the observed experience intercept, $t(113) = -5.77$, $p < .001$. The test of experience versus credence slopes did not supported Hypothesis 9b, showing that credence claims yield a steeper slope than that of experience claims, $t(1000) = -2.21$, $p < .05$; this result was significant but in the opposite direction of the prediction. In addition, a t-test of the intercepts, $t(112) = -.44$, $p = .661$, was not significant. Hypothesis 9c which predicted that search claims would produce a steeper slope than credence claims was supported, $t(1000) = 5.62$, $p < .001$. The test of intercepts showed the search intercept was significantly lower than the credence intercept, with $t(101) = -6.74$, $p < .001$. Figures 5, 6, and 7 depict the observed results.

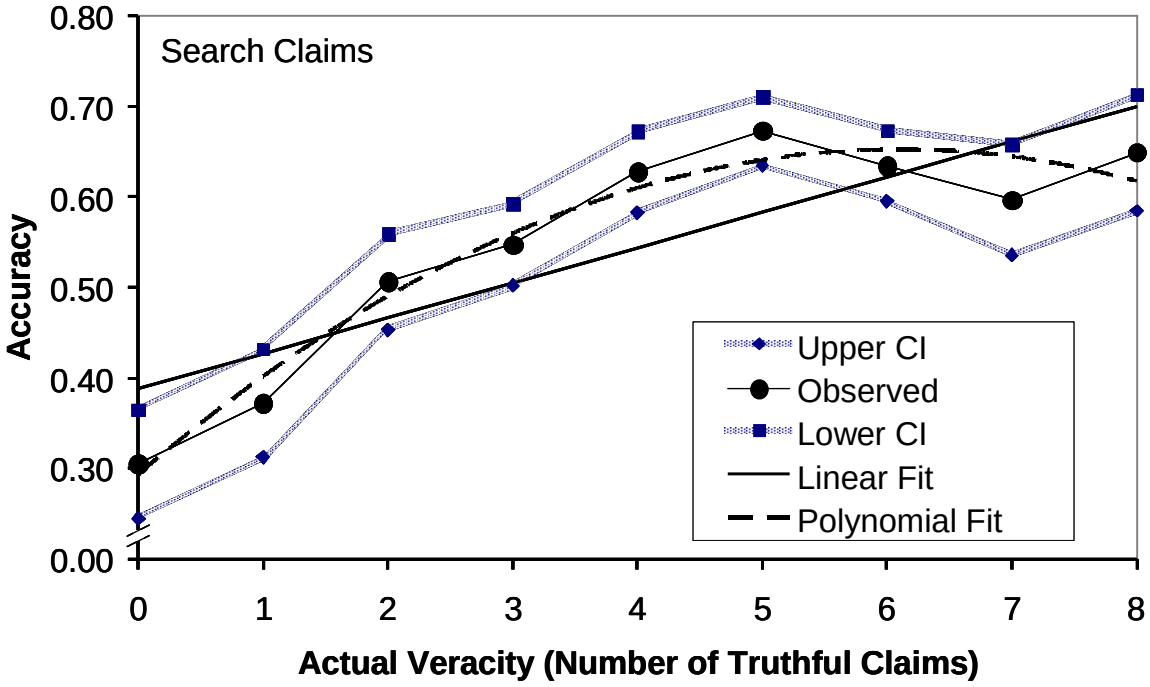

Figure 5. Observed accuracy as a function of actual veracity (number of truthful claims out of eight presented). The linear fit is $y = .405x + .389$, $R^2 = 0.74$; the curvilinear (polynomial) fit is $y = -.00972x^2 + .1177x + .298$, $R^2 = 0.95$.

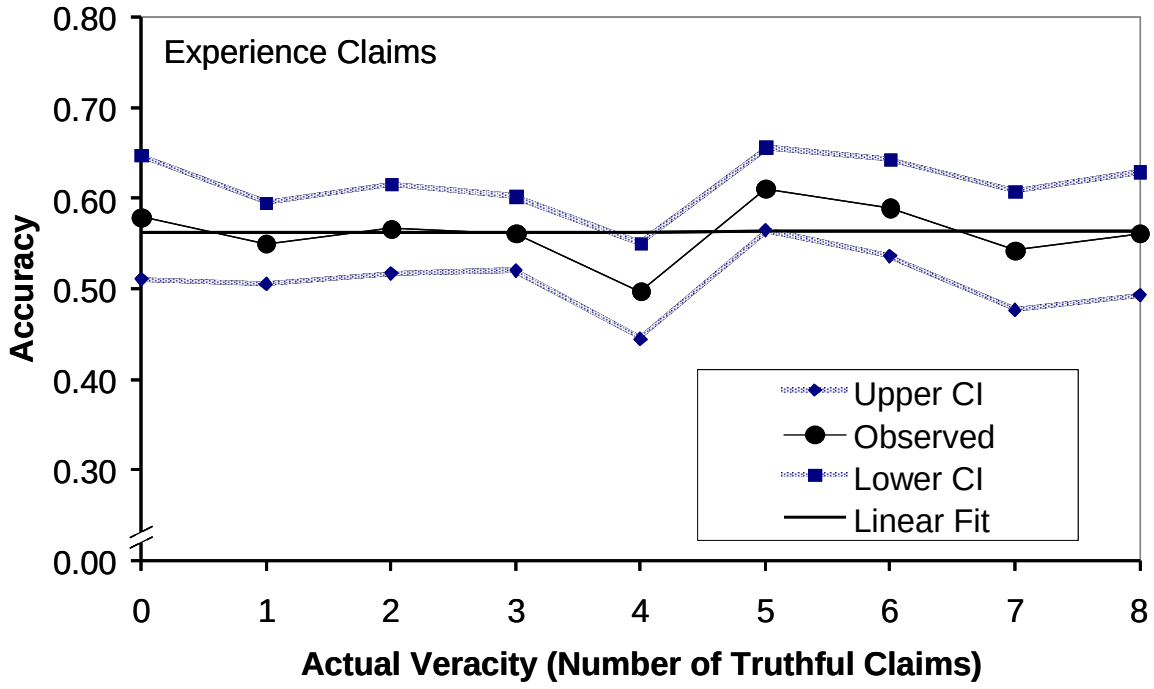

Figure 6. Observed accuracy as a function of actual veracity (number of truthful claims out of eight presented). The linear fit is y = .00002x + .562, R^2 = 0.00.

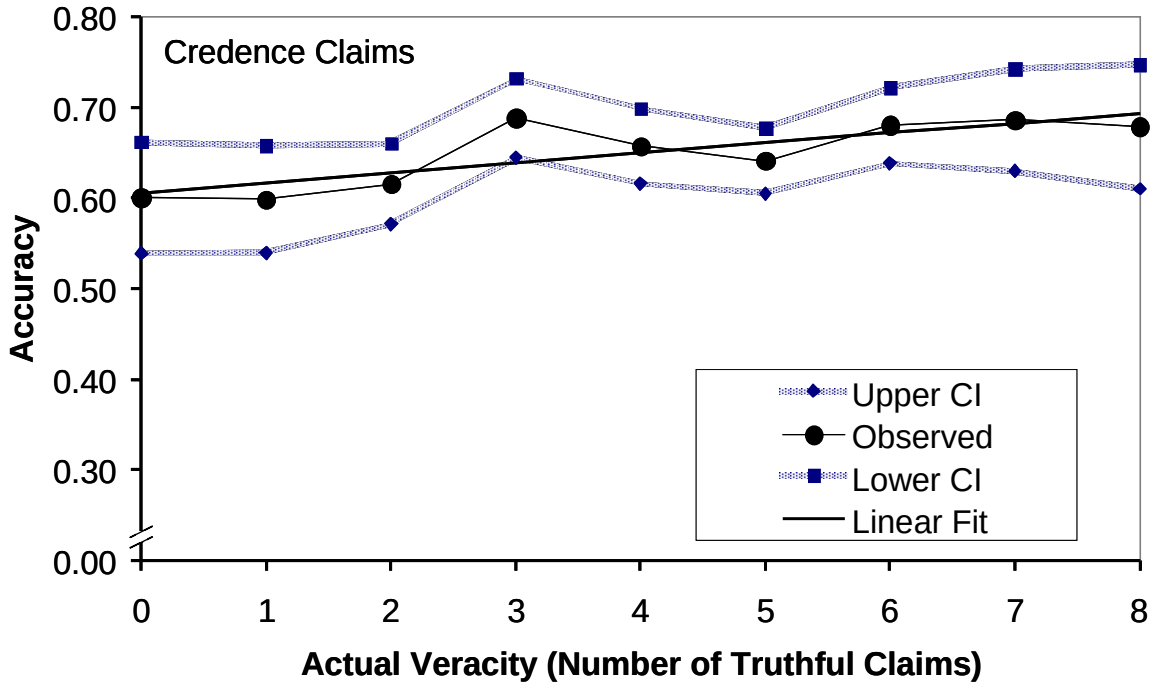

Figure 7. Observed accuracy as a function of actual veracity (number of truthful claims out of eight presented). The linear fit is y = .011x + .6059, R^2 = 0.66.

Hypothesis 10 states there will be a significant and positive interaction between branding and SEC levels such that the relationship between the ratio of truthful to total messages and detection accuracy will have a steeper slope and lower intercept for branded search messages than for unbranded credence messages. This hypothesis was first tested using a three-way ANOVA to examine the overall relationship between accuracy, number of truthful claims (out of eight claims evaluated), and the moderators of branding and search category. Results of the three-way ANOVA indicate that the overall model has a significant affect on judgment accuracy, $F(53, 1454) = 6.74$, $p < .001$, partial $\eta^2 = .197$. As Table 6 shows, the main effects for branding, SEC category, and number of truthful claims as well as all two-way interaction effects and the three-way interaction effect significant impacted accuracy at or beyond $p < .01$.

Table 6.

Three-way ANOVA for Accuracy with Branding versus SEC Category versus Number of Truthful Claims

	df	*MS*	*F*-test	*p*	Partial η^2
SEC Category x Number of Truthful Claims					
Model	53	0.27	6.74	< 0.001	0.197
Main Effects					
A (Branding)	1	0.30	7.67	0.006	0.005
B (SEC Category)	2	1.47	37.06	< 0.001	0.049
C (N-Truthful)	8	0.46	11.48	< 0.001	0.059
Interactions					
AB	2	0.28	7.04	0.001	0.010
AC	8	0.11	2.86	0.004	0.016
BC	16	0.29	7.42	< 0.001	0.076
ABC	16	0.09	2.15	0.005	0.023

In addition, the simple slopes and intercepts of the six moderator conditions were compared (with particular attention to the extreme conditions of branded search claims and unbranded credence claims). Table 7 shows the six linear equations predicting accuracy from number of truthful claims for the six combinations of moderators and the predicted and actual intercepts (mean accuracy) when 0 truthful claims are evaluated. In order to support Hypothesis 10, the slopes of the linear equations should decrease from branded to unbranded conditions within SEC category and from search to credence claims within branded and unbranded categories. Similarly, the observed intercepts (at 0/8 truthful claims) should be increasing. While the intercepts match the expected pattern, the slopes do so from branded to unbranded conditions but not across SEC categories. The slopes for branded and unbranded search are steepest but the slopes for branded and unbranded credence are higher than those for branded and unbranded experience.

Table 7.

Regression Equations and Observed Intercepts for the Relationship between Accuracy and Number of Truthful Claims by the Six Combinations of Moderator Variables

	Regression Equation *	Accuracy at Truthful Claims = 0		
		Predicted	Observed	Observed +/- Predicted
Branded Search	$\hat{Y} = .054x + .515$	0.299	0.245	-0.054
Unbranded Search	$\hat{Y} = .024x + .575$	0.479	0.369	-0.110
Branded Experience	$\hat{Y} = .001x + .542$	0.538	0.563	0.025
Unbranded Experience	$\hat{Y} = -.001x + .583$	0.587	0.602	0.015
Branded Credence	$\hat{Y} = .017x + .663$	0.595	0.571	-0.024
Unbranded Credence	$\hat{Y} = .004x + .636$	0.620	0.643	0.023

Note: * Number of truthful claims centered; predicted accuracy at truthful claims = 0 corresponds to the intercept for uncentered truthful claims.

Table 8.

Pair-wise Comparison of Simple Slopes and Intercepts for all Moderator Combinations

	Simple Slope			Observed Intercept *		
	t	*df*	*p*	*t*	*df*	*p*
Branded Search vs.						
Unbranded Search	4.27	499	<.001	-2.23	50	< .05
Branded Experience	7.49	499	<.001	-5.02	60	<.001
Unbranded Experience	7.63	508	<.001	-4.97	51	<.001
Branded Credence	5.28	507	<.001	-5.35	54	<.001
Unbranded Credence	7.16	498	<.001	-6.44	45	<.001
Unbranded Search vs.						
Branded Experience	3.26	490	< .05	-3.14	60	< .05
Unbranded Experience	3.54	499	<.001	-3.32	51	< .05
Branded Credence	1.02	498	ns	-3.41	54	< .05
Unbranded Credence	2.93	493	< .05	-4.55	45	<.001
Branded Experience vs.						
Unbranded Experience	0.28	499	ns	-0.55	61	ns
Branded Credence	-2.41	498	< .05	-0.13	64	ns
Unbranded Credence	-0.57	493	ns	-1.20	55	ns
Unbranded Experience vs.						
Branded Credence	-2.55	507	< .05	0.44	55	ns
Unbranded Credence	-0.71	498	ns	-0.54	46	ns
Branded Credence vs.						
Unbranded Credence	1.91	497	ns	-1.14	49	ns

Note: * Mean accuracy at 0 truthful claims (out of each claims judged).

To more rigorously test these observations, Table 8 shows the 15 pair-wise *t*-tests of the simple slopes and intercepts for the six moderator combinations. For this comparison, the number of truthful statements was centered (with the equal number of truthful and untruthful claims = 0; range = -4 to +4). Positive *t* values for the slopes

indicate that the slope in the first moderator condition is steeper than that of the second moderator condition. Similarly, higher *t* values for the observed intercepts indicate a higher intercept for the first condition when compared to the second condition. Hypothesis 10 is partially supported by these data. For the simple slope and observed intercept of accuracy across number of truthful claims the *t* values are significantly higher for branded search claims than for claims in the other five conditions, including unbranded search claims. When the messages evaluated consist of unbranded search claims, *t* values are significantly higher in all cases, with the exception of the noted comparison with branded search claims, and with the slope of branded credence claims. The remaining *t*-tests for slopes and intercepts were not significant, with two exceptions; the slope for branded experience claims was significantly less steep than that of branded credence claims (in the opposition direction of the prediction) and the slope for unbranded experience claims was significantly less steep than that of branded credence claims. Given the interaction between branding and SEC category, the slope of branded credence claims was expected to exceed only that of unbranded credence claims.

The most extreme comparison is for branded search claims and unbranded credence claims. The simple regression for branded search is $\hat{Y} = .054x + .515$ and has a significantly steeper slope than the simple regression for unbranded credence, $\hat{Y} = .004x + .636$, with $t(498) = 7.16$, $p < .001$. The intercepts for the simple regression are centered; with the number of truthful claims = 0 the predicted accuracy for branded search claims is .299 and the observed value is .245 while unbranded credence claims had predicted accuracy of .620 and the observed value is .643. For the observed intercepts $t(45) = -6.44$, $p < .001$. The results for this extreme comparison support the hypothesis that marketing

deception detection accuracy is influenced by the interaction of branding, perceived ability to search and verify claims prior to purchase, and the number of truthful claims (as a proportion of total claims) being evaluated.

CHAPTER 4: DISCUSSION

The goals of this study were to provide a conceptual replication of the Levine et al. (2006) test of the Park-Levine probability model (2001) and to extend the model to show that moderators of truth-bias will alter the relationship between veracity base rates and deception detection accuracy. The research was conducted using written product claims such as those found in advertising and other promotional messages. The objectives of this message choice were twofold. First, a successful replication would show that a theory of deception detection based on the receiver's truth-bias can be generalized beyond interpersonal communication; without substantive adaptation, prior theories of deception detection cannot be generalized to non-interpersonal situations. Second, a successful test would demonstrate that truth-bias plays an important role in consumer decision making. Products messages with search, experience, and credence characteristics were created. Thus, each message implied one of the three levels of consumer ability to verify the message content. Each of the messages was also varied by being presented with or without a brand, and for each message within each of the six SEC by branding conditions a truthful and not truthful version was generated. For each of the six moderator conditions, the base rate, or number of truthful messages was experimentally varied. The truthfulness of eight messages was judged, truth-bias and accuracy were calculated, and the results were compared to predicted patterns.

Overall, the study shows that the interpersonal model of detection accuracy replicates when the test is applied to non-interpersonal marketing messages and that the probability model is generally supported when truth-bias is high. Furthermore, the study shows that under different circumstances truth-bias will vary; that is, truth-bias toward

marketing messages is influenced by the presence or absence of a specific brand name and whether or not the receiver is presented with claims about product qualities that can be verified prior to purchase. The study also confirms the expectation, based on the Park-Levine model, that when truth-bias has been altered, detection accuracy across base rates will change.

Conceptual Replication

The Park-Levine model rests on several critical assumptions. Levine at al. (1999) showed that receivers of interpersonal messages are most often truth-biased and, because people make truth judgments more often than lie judgments, they are more likely to make correct judgments when judging truths than lies (the veracity effect). A correct judgment occurs when a truthful statement is judged true or an untruthful statement is judged not true; in other terms, accuracy is the hit rate of correct judgments. By implication, the overall hit rate for detection accuracy is contingent upon the ratio of lies to the total number of statements being evaluated and slightly better than chance. Accuracy will be higher when judging a set of statements with more truths than lies and, because of the veracity effect, it will be lower when judging a set that contains more lies that truths.

The current study included several hypotheses derived from the Levine et al. (2006) test of the Park-Levine model. Results of this experiment supported the propositions that consumers are truth-biased and provided further evidence for the veracity effect, finding truth accuracy to be greater than lie accuracy. The veracity effect occurs because new information is by default deemed truthful (Gilbert, 1991; Gilbert, Krull, & Malone, 1990) and because truth-bias reflects the typically low frequency of lies and lying in everyday life (Anderson, Ansfield, & DePaulo, 1997; Serota, et al., 2010).

Replication of the Park-Levine test without interpersonal messages adds support for the theoretical model across a broader range of communication phenomena and provides a strong argument for generalizing the Park-Levine model.

The original test of the Park-Levine model showed that detection accuracy is a linear and positive function of base rate. The current study provides evidence that accuracy is a function of base rate and that in the most common, everyday circumstances the function is linear and positive. However, the data do raise questions about whether or not this proposition holds in all situations. Despite the ANOVA results, visual inspection (see Figure 2) and curve fitting suggest that there may be a threshold for accuracy as the proportion of truthful messages increases. While the data did not provide any evidence that consumer skepticism leads to lie-bias, it does suggest that consumers are less truth-biased when it comes to marketing communication than they are when evaluating messages that occur interpersonally. The Park-Levine test included a hypothesis that lie accuracy would be less than 50%. Due to the nature of marketing messages as well as the possibility that variation across moderator conditions might confound the results (branded and unbranded messages did produce distinctly different patterns), this hypothesis was not part of the assessment of marketing truths and lies. Had it been, it would have been rejected; claims that were not truthful were still judged correctly more than half the time. All together this suggests that when people take on the role of consumer they may not become lie-biased but they are more skeptical of marketers than of people they interact with interpersonally in their day-to-day experience.

Moderation of Marketing Claims

The study replicated and validated key elements of the test of the Park-Levine

model by demonstrating that consumers are truth-biased and that this affects accuracy when judging the veracity of claims about products and their attributes. In addition, the study examined whether or not truth-bias could be moderated so that the accuracy of consumer judgments would be altered. Park and Levine (2001) noted that many researchers have tried to find factors that can affect detection accuracy, such as training, familiarity, and receiver suspicion. In most instances, the studies cited (cf. Park & Levine, 2001) were designed to examine direct influences on judgment accuracy. However, it seems more likely, in light of direct testing of the probability model and subsequent research on the antecedents of detection accuracy (e.g. Levine et al., in press) that most factors moderate truth-bias directly but influence the outcome indirectly as the resulting degree of truth-bias interacts with the base rate in order to determine the veracity judgment accuracy. The results of the current study support the proposition that truth-bias can be moderated, and that when base rate effects are combined with the moderated levels of truth-bias accuracy will increase or decrease.

Marketing messages have many characteristics, some that are part of the communication process and others that are associated with the product or the marketing exchange. Factors such as message strength, elemental aspects of the message (verbal and visual components, length, type face, arrangement), form of a persuasive argument, source credibility (when a presenter is used or an authority is cited), channel features (print versus radio or television or Internet and whether or not the message is synchronous or asynchronous), noise, and receiver comprehension might influence how the message is received and interpreted. Other elements such as product category, brand equity, consumer knowledge and/or experience, and the consumer's likelihood of acting

upon the message due to motivation, resources, or ability also constitute interpretive influences. Among these, the study focused on branding (in its simplest form, presence or absence) and the economic cost/benefit trade-off associated with information search prior to purchase. Brand is both a signal (Erdem & Swait, 1998) and, in this research, a proxy for many kinds of information a consumer might obtain about a product from reading ads or watching commercials or receiving other kinds of promotional messages. The SEC categorization captures a critical aspect of the consumer decision-making process by representing levels of difficulty in the information search phase; although marketing messages may be targeted to any phase of the decision process (for example, to build awareness or enhance customer post-purchase satisfaction), during information search the consumer may be most proactive with regard to processing marketing communications. Thus, branding and SEC categories were selected to test for moderating effects.

Moderation of truth-bias. The study provides clear evidence that truth-bias is significantly higher when evaluating branded messages than when evaluating the same claims without the brand. In many ways, branding serves the same kind of trust-building function that McCornack and Parks (1986) noted in their review of familiarity as an influence in relational deception detection. Brands convey information about the product and the company. Those brands that are familiar, strong, favorably evaluated, have unique associations, and are accessible in memory have high brand equity (Keller, 1993); brand equity is a predictor of consumer trust. Even at the most basic level, the mere presence of a brand affords the opportunity to convey brand equity while the absence of a brand does not. Though some brands may convey negative equity, most consumers treat branding as a heuristic inferring that the presence of the brand is at a minimum an effort

to obtain the consumer's trust. Even though different brands are likely to convey different degrees of trust (e.g. Fidelity Investments versus Madoff Investment Securities), the presence of the brand, even when not well known, may be taken as a sign that the product can be trusted (e.g. Madoff Investment Securities prior to the scandal). The study results suggest that branding engenders a willingness to trust, and that truth-lie judgments will be more truth-biased in the presence of a brand.

Results of the study show that the ability to search before purchasing leads to more truth- bias than when the consumer must rely on post-purchase experience or credence. However, the subordinate proposition that claims with experience qualities lead to more truth-bias than claims with credence qualities was not supported. There are several ways that the three types of claims are differentiated including association with product types and differing degrees of difficulty in product evaluation. Whether or not a consumer actually engages in search behaviors, the knowledge that one has the ability to verify the information presented in a marketing claim appears to be sufficient to induce trust as demonstrated by higher levels of truth-bias. However, the failure to find different levels of truth-bias when judging experience and credence claims suggests that the pre-purchase versus post-purchase distinction is a more critical feature of SEC claims than either the difficulty of evaluation, which is central to Zeithaml's (1981) view or the basic cost-benefit proposition of Darby and Karni's original (1973) classification.

Similarly, the study found mixed support for the interaction between branding and SEC. A simple comparison of the extreme conditions, claims that are branded and can be searched prior to purchase versus claims that are unbranded and rely on the credence or perceived veracity of the seller, yields significantly different levels of truth-bias. But an

ANOVA of the 2 x 3 moderator conditions supports only the main effects. When experience and credence claims are combined in order to test the pre-purchase versus post-purchase conceptualization of search in conjunction with branding, both main effects and the interaction are supported. When consumers are presented with a brand and have the ability to verify the information given in the message they are significantly more likely to manifest truth-bias than if they only know the brand or only know that the information is verifiable prior to purchase.

Effect on accuracy. The study inductions demonstrated that the level of truth-bias can be increased or decreased through the influence of branding and SEC categories (albeit the later influence might better be described as the ability to engage in pre-purchase versus post-purchase verification). The Park-Levine model allows for the possibility of different levels of truth-bias but notes that accuracy is a function of the correct identification of both truths and lies. As truth-bias increases, by definition the judgment of lies will become less accurate. Total accuracy is an additive function of both truth and lies judgments, $P(T \cap H) + P(\sim T \cap \sim H)$; total accuracy equals the probability of a true statement being judged as honest plus the probability of a not true statement being judged as not honest. Unless the two probabilities are equal, the total accuracy will vary with the proportion of lies to total messages. As the probability that the message being judged is a lie increases, accuracy will decline. To understand the overall effects of the moderators on truth-bias it was necessary to examine accuracy as well as truth-bias across the moderator conditions. This was done be systematically varying the base rate and examining the slopes and intercepts for accuracy plotted against base rates.

The original test of the Park-Levine model required subjects to judge eight

videotaped interviews in which the respondent was either lying or telling the truth. In order to test the propositions of the study, the number of lies were varied from 8, P (T) = 0.0 to 0, P (T) = 1.0. Critical measures of the outcome of the study were the slope and intercept, which described the relationship of total judgment accuracy to the base rate. In order to test the effects of moderators on the marketing messages, this design was replicated for each of the six moderator conditions and the slopes and intercepts were compared across conditions.

Branding and the perceived ability to verify the information presented influence accuracy when the base rate is varied. As expected, two-way ANOVA results for branding and base rate, two-way ANOVA for SEC categories and base rate, and the three-way ANOVA for branding, SEC categories, and base rate all had significant main effects and interactions with accuracy as the dependent measure. The nature of these effects, when examined as slopes and intercepts, is more complicated. The slopes and intercepts need to be examined separately from the analysis of variance.

Comparing branded conditions to unbranded conditions, as predicted the slope of accuracy scores across base rates is much steeper when the messages are branded. The higher the truth-bias, the steeper the slope of accuracy will be across base rates. Since branding promotes an increase in truth-bias, accuracy for conditions that consist mostly of untruthful statements will have low accuracy and conditions in which the statements are mostly truthful claims will have high accuracy. In practical terms this means that branding encourages consumers to expect the truth. To most consumers a brand is supposed to stand for something positive and it is a violation of normative expectations for the owners of a brand to lie in their promotional communications. Sellers also

understand that the consumer has the power to sanction the brand by not purchasing, by not re-purchasing, by giving it low customer satisfaction ratings, or by attacking the reputation of the brand through negative word-of-mouth. The data show that the absence of a brand does not lead to lie-bias but the strength of the truth-bias is less than when the brand is present. Therefore, the base rate conditions that are dominated by lies are severe, non-normative trust violations and judgment accuracy is correspondingly low. It is worth noting that this is also strong evidence that consumers cannot tell the truth from a lie.

Accuracy patterns for the three SEC categories are consistent with the results for moderator influences on truth-bias. The slope of accuracy scores over base rates in the search condition was significantly steeper than the slopes in the experience and credence conditions. However, when the slopes for experience claims and credence claims were compared, the results were not in the predicted direction. As with the truth-bias results, accuracy results lead toward the conclusion that the pre-purchase ability to verify information increases truth-bias and that conditions dominated by lies will have low accuracy while conditions dominated by truthful statements will have high accuracy. Akerlof (1970) argued that asymmetry of information leads to a greater likelihood of cheating by sellers. The ability to search before buying should be considered by consumers as an opportunity to achieve symmetry. Knowing that search reduces uncertainty, consumer are likely to anticipate a higher level of seller truthfulness and will be inclined toward truth-bias.

In addition to examining the slopes, this study looked at the intercepts; these represent the accuracy for base rate conditions in which the subjects were presented with only lies. It was presumed that the steepness of the slopes would result in lower intercepts

corresponding to high truth-bias and higher intercepts corresponding to low truth-bias. Follow the logical development of the Park-Levine model, the hypotheses of this study did not account for the possibility that truth-bias might vary across base rate conditions. Support for the intercept component of the hypotheses was mixed.

The current study anticipated that truth-bias is independent of base rate. As expected, the slopes of truth-bias plotted against base rates were nearly zero (flat) when consumers were faced with the pre-purchase verification ability suggested by search claims. But in the post-purchase verification situations associated with experience and credence claims, truth-bias was shown to increase as the base rate changes from mostly lies to mostly truths. In these conditions, accuracy remains nearly stable (flat) across the base rates. This pattern suggests an unmeasured influence on truth-bias. The effect is that consumers are more likely to distinguish truths from lies. One possibility is familiarity with the brand. Kardes, Posavac, and Cronley (2004) suggest that a brand name heuristic involving reputation can be a source of product inference, especially in low motivation evaluation situations (Mahewswaran, Mackie, & Chaiken, 1992). The current study used claims involving real brands that vary along geographic lines (local to national), prominence (extent to which the product comes for a leader brand), and time in the market (new brands versus established brands). Although Park and Levine (2001) note that factors such as familiarity, suspicion, and probing are often not general across truth and lie accuracy, these influences might account for variation in the difference between truth accuracy and lie accuracy. Further, when consumers evaluate a mix of better-known and lesser-known brands under conditions of higher uncertainty (inability to verify the information prior to purchase) the results may cancel out, creating a pattern of constant

truth-bias across base rates. Given the limitations of the current study, this may be fruitful ground for future investigation.

When both branding and SEC category moderators are measured in conjunction with a base rate induction, the interaction is expected to be significant (it was), and the slopes and intercepts for accuracy across base rates should indicate that truth-bias has more influence on accuracy when the consumer is relying on branding and when the benefit of verifying the claim is high relative to the search costs (they do). However, even though the three-way ANOVA shows significance for all main effects, all two-way interactions, and the three-way interaction there remains an important caveat. The data show that SEC category is an influential moderator because of the pre-purchase versus post-purchase evaluative quality of search claims versus both experience and credence claims. But the differences between effects of experience claims and credence claims are not consistent with the hypotheses. When consumers feel that they can only verify claims after purchase (experience and credence claims), they are less likely, on average, to be truth-biased and their accuracy is more likely to be uniform across base rates. A higher degree of truth-bias, as noted in the branded and search claim conditions will be associated with greater variability in accuracy. This variability will be consistent with the Park-Levine mode.

Limitations

The current study has several limitations that may affect the observed results. First, the claims used and the way in which they were presented may have both methodological and conceptual implications for the results. The claims were created using an ideation process to assign products and product qualities to the three SEC

categories. Each claim was paired with a specific brand and a truthful claim was written. The claim was then adapted to create a not truthful version and finally, two generic versions were created by removing the brand identification from both the truthful and not truthful claims. Since the three categories are a continuum representing the difficulty of information acquisition and evaluation, and this continuum is believed to be correlated with factors that distinguish between goods and services, the categories included distinctly different product sets (cf. Zeithaml, Parasuraman, & Berry, 1985 for a review of the distinguishing factors). In the current study there was no attempt to assure that the products or brands were a representative cross-section within each category. Instead, products were selected because they were the highest scoring on coder agreement for assignment across categories.

In addition, the possible lack of representativeness may be exacerbated by the imbalance of products across categories. The ideation process generated many search products; therefore the high scoring and most consistently items may not representative the range of products that fall into this category. Conversely, the number of credence products was small and all of the products that met a minimum agreement criterion were selected. Tests of the data involving SEC categories were the most likely to be unsupported, but this could be the result of a weak operationalization rather than weak theory.

It should also be noted that currently there is no research providing an objective measure of the distribution across SEC categories of products available in the marketplace. This raises concerns about ecological validity. Results based on aggregated moderator conditions may be skewed to the extent that the equal distributions used in the

study deviate from the real-world. A related question is the validity of interpreting results for SEC categories and unbranded claims. Logically, the product category and qualities that are part of each claim should imply the extent to which consumers might expect to search and verify the claim. However, without an identified brand, consumers might not factor searchability into their veracity judgment. If the analysis of SEC category effects had been limited to only data from the branded conditions, the results of the study would not have changed but the evidence might be consider stronger.

Another issue is the randomization of claims assigned to the base rate inductions. The assignment of product claims to truthful and not truthful positions within each base rate cell was random. However, all subjects evaluating a cell read the same set of eight claims (the order of presentation was randomized across subjects). Ideally each subject would have received a unique mix of truthful and not truthful claims (e.g. Subject 1 in the 3/8 not truthful base rate condition would have read a truthful claim for Arcadia bottled water while Subject 2 would have read the not truthful claim for the same product). Because of the product and brand assignment concern already noted, the fixed set of claims may introduce an unmeasured bias. For reasons associated with cost and feasibility (subject control within the online panel) the study did not include an induction check. This is a serious shortcoming. Research to validate the finds of the present study should include additional measures to confirm that subjects perceive the claims fit into the categories to which they were assigned.

Concern about the item distribution also raises a conceptual issue. Studies of brands and products obtain evaluations across many dimensions. Products are differentiated along the goods and services continuum, with services distinguished by a

higher degree of intangibility, non-standardization, and the inseparability of production and consumption. Goods may also be durable or consumable. Brands are differentiated by familiarity, brand equity, and the components of brand equity such as brand strength of associations, brand loyalty, perceived quality, and brand value. Brands may also be distinguished by their owners' brand architecture; the brand may be a master brand or a sub-brand, it may represent a house of brands or a branded house. Any of these may be a confounding factor that affects the consumer's truth-bias. For example, consumers may use different schema for Ford (the company) and Ford (the car division), and the brand's contribution to truth-bias may differ depending on which of these the consumer associates with a specific marketing claim.

Implications

Validation of the Park-Levine model. This study validates the Levine et al. (2006) test of the Park-Levine probability model using marketing messages instead of interpersonal interviews. It shows that consumers cannot readily distinguish the truth or falseness of marketing claims. And consistent with the Park-Levine probability model, and theory developed in the context of interpersonal communication, truth-bias interacts with the base rate of actual message veracity so that the accuracy of veracity judgments is low when the messages are predominantly not truthful and high when the messages are predominantly truthful. This is an important generalization for theories of deception detection. It shows that truth-bias theory is supported beyond interpersonal messaging. The psychophysical model used by Ekman, the trait model developed by Zuckerman, DePaulo, and Rosenthal, and, especially, the IDT model proposed by Buller and Burgoon are dependent upon the abilities of receivers to decode the cues and signals of a human

sender. As this study shows, Levine's truth-bias theory, which is in part predicated on the Park-Levine probability model, can be used to examine and explain messages that are mediated, interposed, and asymmetrical; in short, the theory works with non-interpersonal as well as interpersonal messages.

Extending the Park-Levine model to include moderators. This study provides ample evidence that truth-bias is moderated by external influences. This extends the Park-Levine model in a complex but useful way. As Park and Levine (2001) note, there have been many efforts to find factors that affect detection accuracy (cf. Park & Levine, and Levine et al., 2006 for discussion). However, in nearly every instance the research has attempted to show a direct effect of these factors on accuracy. Park and Levine show that accuracy is a function of truth-bias, that truth and lie accuracy must be addressed separately, and that truth-bias has an interaction with veracity base rate(s). Philosophically (Bok, 1999) and empirically (DePaulo et al., 1996; Serota et al., 2010), real-life interactions and messaging are inherently more honest than not; far more so than is represented by the typical 50% truths and 50% lies present in most deception detection studies (Bond & DePaulo, 2006). Thus, most efforts to identify the factors affecting detection accuracy fail because those models try to predict overall accuracy without accounting for the conditional nature of truth and lie accuracies. The current study shows that certain factors have clear moderating effects on truth-bias, which in turn are reflected in varying degrees of accuracy across base rates.

Future research. These results suggest many opportunities for additional research, two of which have the most immediacy. First, the evidence to support branding and SEC category effects suggests that other variables related to the veracity and believability of

marketing claims need to be investigated. These include the measures of brand equity that capture dimensions of the brand such as strength and value. They might also include measures of how information is processed when making these judgments. For example, Kardes, Posavac, and Cronley (2004) categorized consumer inferences according to a 2 x 2 x 2 model consisting of induction versus deduction, stimulus-based versus memory-based, and singular versus comparative judgments. While Kardes et al. (2004) focus on inferences about product qualities leading to a purchase decision, these approaches could equally well be applied to assessing the veracity of the information on which that decision is based. Second, success of the current study invites reconsideration of influences on interpersonal veracity judgments. For example, familiarity and suspicion have been shown to have some effect on accuracy, but if it can be demonstrated that they have differential effects on the interaction between truth-bias and base rate, these variables may turn out to be more powerful predictors than original believed.

Marketing applications. Much attention in the marketing literature on deception has been given to the risks associated with false information. Some of this has focused on fairness to the competition; more recently, concern for the welfare of consumers has been conjoined to concerns for the enterprise. Boush et al. (2009) suggest that too much attention is given to deception research in support of legal remedies and government regulation to provide consumer protection. Akin to Ekman's view that people can be better lie detectors if they learn to read the nonverbal cues, Boush et al. argue that consumer self-protection should be the goal of research on marketing deception. The current study suggests this goal may be misdirected. The data make a case that consumers need to be more self-aware, especially of the human tendency toward truth-bias. But that

does not mean the consumers can be better lie detectors. Simply being more skeptical would shift the odds in favor of the consumer when marketing lies are pervasive. But it would also make consumers less accurate in situations where marketing messages are basically truthful. Government regulation and legal enforcement may be good solutions if, as study results suggest, consumers are not good lie detectors. Akerlof's economic theory of asymmetrical information argues that sellers act in their own self-interest. Sellers who understand truth-bias and consumer fallibility are more likely to engage in deception as strategy when the market offers no effective sanctions. Given the results of this study, regulation is likely to be a more effective safeguard than trying to promote self-protection by trying to make consumers better deception detectors.

Park, Levine, McCornack, Morrison, & Ferrara (2002) provide evidence that detection needs to focus more on contextual features, such as *a priori* knowledge, third party information, and overt challenges to elicit truthful information in interpersonal communication. Similarly, future research on marketing deception might include more work on contextual influences, like the SEC characteristics. It would also be useful to determine the actual prevalence of marketing deception. Finally, it would be valuable to examine the relationship between base rates for marketing lies and the availability of norm-enforcing influences such as industry self-regulation, government regulation, and the reputational influences of third-party product evaluations, consumer blogs, and word-of-mouth.

Conclusion

This study provides a validation of the Park-Levine probability model. The results were obtained by evaluating truthful and not-truthful marketing claims. These claims

were moderated by the presence or absence of a brand and the perceived ability to verify the claim (operationalized by assignment of claims to three categories derived from the economics of information – search, experience, and credence). Results show that the moderators influence consumer truth-bias and, as a consequence, the pattern of accuracy across veracity base rates was altered. This outcome is important because it demonstrates the generalizability of the Park-Levine model beyond its application to interpersonal interactions; competing theories are inherently limited to interpersonal communication or the observation of human nonverbal behavior. The successful addition of moderator variables adds explanatory power to this theoretical extension into marketing communication, and it invites a reassessment of previously-considered influences on interpersonal deception detection.

APPENDICES

Appendix A: Questionnaire

Appendix A illustrates the basic form of the study questionnaire. The survey was presented as a single page on the Synovate *e-Nation* omnibus survey website (other pages on the website included instructions, other omnibus client questions, demographics, and the closing redirection to a sweepstakes site for survey participants. Subjects read the introductory statement and then, for each of eight claims, indicated whether or not they believed the marketing claim statement was truthful or not truthful. The number of actual truthful and not truthful statements varied by treatment group; the order of statement presentation was randomized for each subject. A sample of one questionnaire from the branded search cell is shown:

The following list includes eight statements that you might find in an advertisement or commercial or on a company or store website. Read each statement and tell us whether or not you think the statement is truthful. Even if you are not sure, please tell us if you think the statement is truthful or not. Check one box for each statement:

Only the Samsung Galaxy's DLNA output lets you stream content effortlessly from your phone to other devices like your TV.	[ ] Truthful [ ] Not truthful
Gain expertise in energy management. Begin or finish your energy management degree at Walsh College.	[ ] Truthful [ ] Not truthful
See Morocco now. Delta flies you direct to Casablanca via Royal Air Moroc.	[ ] Truthful [ ] Not truthful
Welcome to Circle Cross Ranch. This inviting new neighborhood is close to local shopping malls.	[ ] Truthful [ ] Not truthful
Flatbush Gardens apartment complex is home to an eclectic community of families, young professionals, and seniors.	[ ] Truthful [ ] Not truthful
Jobe's Organics All-Purpose Fertilizer Spikes give gardeners an environmentally friendly option for healthy plants.	[ ] Truthful [ ] Not truthful
Colony Bank's Albany branch is open to service your banking needs on Saturday.	[ ] Truthful [ ] Not truthful
Carfax estimates a used car's average annual miles driven based on the last odometer reading reported to Carfax.	[ ] Truthful [ ] Not truthful

Appendix B: Claims

Appendix B lists the statements used in the study. Separate sets of statements were used for each of the three search conditions and these were further divided by creating branded and unbranded versions. A total of 96 statements were created, 16 for each of the six moderator conditions (two branding conditions x three search conditions). Each set of 16 statements consisted of truthful and not truthful versions of eight claims. For each claim, a subject only saw one version, either the truthful or not truthful claim. The veracity base rate was determined by the number of truthful claims presented among the eight claims judged; the base rate ranged from 0% (0/8 claims) to 100% (8/8 claims).

The 96 claims, by moderator condition, are:

Branded Search – Not Truthful

110	Only the Samsung Galaxy's DLNA output lets you stream content effortlessly from your phone to other devices like your TV.
120	Gain expertise in energy management. Begin or finish your energy management degree at Walsh College.
130	See Morocco now. Delta flies you direct to Casablanca.
140	Welcome to Circle Cross Ranch. This inviting new neighborhood is close to local shopping malls.
150	Flatbush Gardens apartment complex is home to an eclectic community of families, young professionals, and seniors.
160	Jobe's Organics All-Purpose Fertilizer Spikes give gardeners an environmentally friendly, safe-to-handle option for healthy plants.
170	Colony Bank's Albany branch is open to service your banking needs on Saturday.
180	Carfax obtains up-to-date mileage reports for every vehicle registered in the United States and Canada.

Branded Search – Truthful

111	The Samsung Galaxy's DLNA output lets you stream content effortlessly from your phone to other devices like your TV.
121	Gain expertise in management. Begin or finish your management degree at Walsh College.

131	See Morocco now. Delta flies you direct to Casablanca via Royal Air Moroc.
141	Welcome to Circle Cross Ranch. This inviting new neighborhood is only 12 miles from local shopping malls.
151	Flatbush Gardens apartment complex is home to a predominantly homogeneous community of Black, West Indian, and working class families.
161	Jobe's Organics All-Purpose Fertilizer Spikes give gardeners an environmentally friendly option for healthy plants.
171	Colony Bank's Albany branch is open for drive-thru and ATM service on Saturday.
181	Carfax estimates a used car's average annual miles driven based on the last odometer reading reported to Carfax.

Unbranded Search – Not Truthful

210	Only our DLNA output lets you stream content effortlessly from your phone to other devices like your TV.
220	Gain expertise in energy management. Begin or finish your energy management degree at our college of business.
230	See Morocco now. We fly you direct to Casablanca.
240	Welcome. This inviting new neighborhood is close to local shopping malls.
250	This apartment complex is home to an eclectic community of families, young professionals, and seniors.
260	Our fertilizer spikes give gardeners an environmentally friendly, safe-to-handle option for healthy plants.
270	We are open to service your banking needs on Saturday.
280	We obtain up-to-date mileage reports for every vehicle registered in the United States and Canada.

Unbranded Search - Truthful

211	Our DLNA output lets you stream content effortlessly from your phone to other devices like your TV.
221	Gain expertise in management. Begin or finish your management degree at our college of business.
231	See Morocco now. We fly you direct to Casablanca via our code-sharing partner.
241	Welcome. This inviting new neighborhood is only 12 miles from local shopping malls.
251	This apartment complex is home to a predominantly homogeneous community of Black, West Indian, and working class families.
261	Our fertilizer spikes give gardeners an environmentally friendly option for healthy plants.

271	We are open for drive-thru and ATM service on Saturday.
281	We estimate a used car's average annual miles driven based on the last odometer reading reported to us.

Branded Experience – Not Truthful

310	Alice Huang's massage therapy is guaranteed to successfully treat patients for back pain.
320	Patagonia Capilene active briefs are the only choice for serious hiking and trekking.
330	Enjoy new Pepsi Blue, the fusion of berry and cola that tastes like real blueberries with something extra.
340	Notox Hangover Treatment is an all natural herbal supplement that helps combat the effects of alcohol consumption.
350	Prego Traditional Italian Sauce brings you the taste of authentic Italian home cooking.
360	Mina's Salon offers unparalleled service.
370	You will love the fragrance of Chanel No. 5, the best-selling perfume of all time.
380	Bounty paper towels have the absorbency and cloth-like durability that works for every cleaning job.

Branded Experience - Truthful

311	Alice Huang has used massage therapy to successfully treat patients for back pain.
321	Patagonia Capilene active briefs provide quick-drying comfort for serious hiking and trekking.
331	Enjoy new Pepsi Blue, the fusion of berry and cola that tastes unlike anything else on the market.
341	Notox Hangover Treatment is an all natural herbal supplement that rarely produces side effects.
351	Prego Traditional Italian Sauce brings you the taste of sweet tomatoes and savory Italian herbs.
361	Mina's Studio has been voted the best salon in the Hearld-Sun Reader's Choice Awards.
371	Be one of the women who love the fragrance of Chanel No. 5. Try the best-selling perfume of all time.
381	Bounty paper towels have the absorbency and cloth-like durability that you would expect from a leading brand.

Unbranded Experience – Not Truthful

410	Our massage therapy is guaranteed to successfully treat patients for back pain.
420	Our synthetic active briefs are the only choice for serious hiking and trekking.
430	Enjoy the fusion of berry and cola that tastes like real blueberries with something extra.
440	This hangover treatment is an all natural herbal supplement that helps combat the effects of alcohol consumption.
450	Our traditional Italian sauce brings you the taste of authentic Italian home cooking.
460	Our salon offers unparalleled service.
470	You will love the fragrance of this best-selling perfume of all time.
480	This paper toweling has the absorbency and cloth-like durability that works for every cleaning job.

Unbranded Experience - Truthful

411	We have used massage therapy to successfully treat patients for back pain.
421	Our synthetic active briefs provide quick-drying comfort for serious hiking and trekking.
431	Enjoy the fusion of berry and cola that tastes unlike anything else on the market.
441	This hangover treatment is an all natural herbal supplement that rarely produces side effects.
451	Our traditional Italian sauce brings you the taste of sweet tomatoes and savory Italian herbs..
461	Our salon has been voted the best salon in the local paper's readers' poll.
471	Be one of the women who love the fragrance. Try the best-selling perfume of all time.
481	This paper toweling has the absorbency and cloth-like durability that you would expect from a leading brand.

Branded Credence – Not Truthful

510	Try Arcadia bottled natural water – 100% pure.
520	Lafayette Auto Repair technicians will always provide the correct diagnosis for your car repair.
530	Eating 1.5 ounces of Diamond walnuts each day can reduce the risk of heart disease.
540	If your transmission needs to be replaced, an AAMCO expert technician rebuilds it with better than original parts.
550	At Jackson Hewitt we know the ins and outs of tax preparation, so you can feel

	confident we'll find all the deductions and credits you're entitled to.
560	La Prairie Cellular Luxe Lip Colour hydrates and makes the lips shine to prolong a youthful appearance.
570	CofmanTownsley Injury Lawyers – when others leave you suffering, we have the Power to win the compensation you deserve.
580	Enrolling in the engineering program at Kansas State University will open the door to an assured career in engineering.

Branded Credence - Truthful

511	Try Arcadia bottled natural water - filtered and treated for purity.
521	Lafayette Auto Repair technicians can efficiently diagnose your car repair.
531	Diamond walnuts are high in unsaturated fat. Unsaturated fat has been shown to contribute to the reduction of bad cholesterol.
541	If your transmission needs to be replaced, an AAMCO expert technician rebuilds it with new OEM-quality or better parts.
551	At Jackson Hewitt, preparing tax returns is what we do. And that could mean more money in your pocket.
561	La Prairie Cellular Luxe Lip Colour hydrates and makes the lips shine for a beautiful appearance.
571	CofmanTownsley Injury Lawyers – when others leave you suffering, we stand up for your rights to ensure you get the money you need to cover costs.
581	Enrolling in the engineering program at Kansas State University can open the door to professional careers in engineering.

Unbranded Credence – Not Truthful

610	Try our bottled natural water – 100% pure.
620	Our auto repair technicians will always provide the correct diagnosis for your car repair.
630	Eating 1.5 ounces of walnuts each day can reduce the risk of heart disease.
640	If your transmission needs to be replaced, our expert technicians completely rebuild it with better than original parts.
650	We know the ins and outs of tax preparation, so you can feel confident we'll find all the deductions and credits you're entitled to.
660	This lipstick hydrates and makes the lips shine to prolong a youthful appearance.
670	When others leave you suffering, our personal injury lawyers have the Power to win the compensation you deserve.
680	Enrolling in the engineering program will open the door to an assured career in engineering.

Unbranded Credence - Truthful

611	Try our bottled natural water - filtered and treated for purity.
621	Our auto repair technicians can efficiently diagnose your car repair.
631	Walnuts are high in unsaturated fat. Unsaturated fat has been shown to contribute to the reduction of bad cholesterol.
641	If your transmission needs to be replaced, our expert technicians rebuild it with new OEM-quality or better parts.
651	Preparing tax returns is what we do. And that could mean more money in your pocket.
661	This lipstick hydrates and makes the lips shine for a beautiful appearance.
671	When others leave you suffering, our personal injury lawyers stand up for your rights to ensure you get the money you need to cover costs.
681	Enrolling in the engineering program can open the door to professional careers in engineering.

Appendix C: Ideation Stage 1 - Stimulus Paper

Appendix C is a short paper provided to the undergraduate research assistants who participated in the first stage of the claim generation process. The research assistants were asked to read the paper, which explains the economic concepts of search, experience, and credence. The research assistants were given the opportunity to ask questions and clarify their understanding of the concepts. This was followed by a brainstorming session to generate examples of each of the three types of products and/or product characteristics. The full text of the paper follows:

[Paper begins.]

Search, Experience, and Credence in Consumer Behavior: An Explanation

In 1961, George J. Stigler's paper, The Economics of Information, was published in *The Journal of Political Economy*. Stigler proposed that the search for information is an important aspect of economic activity and that the nature and availability of information is critical to the determination (ascertainment) of market price. In 2001 Stigler shared the Nobel Prize in Economics with A. Michael Spence and George A. Akerlof for this work, which collectively became know as the analysis of markets with asymmetrical information.

In a sentence, asymmetrical information means that buyers and sellers do not have equal information when they enter into a transaction and the extent to which that information is unequal will affect the outcomes of the transaction. In general, the seller has more control over information about the product and the exercise of this control will influence the economic power of both parties. *Seller control* means that the seller may

provide full disclosure of information, withhold some information, withhold all information, or create false information.

Market price is the price the buyer ultimately pays for the product. Stigler proposes that prices vary frequently and, with few exceptions, no one can know all the prices that sellers of a given product are quoting at a given time. Therefore, to ascertain the most favorable price, buyers must **search** to find various price quotes. Stigler goes on to assess the cost of search against its value in reducing the price to the buyer. If the prospect of significantly reducing the price is high, more searches are warranted; if the prospect is low, the value of the search activity is also low and the buyer will engage in limited search activity.

Stigler focuses primarily on the price of goods, noting that the dispersion of prices is a measure of ignorance in the market. He also observes that this measure is biased because the products are never homogeneous; the products can vary by the services the seller performs, by the range of products stocked, and (though Stigler explicitly avoids it) the quality of the products. Responding to Stigler's concern, Nelson (1970, 1974) examined the role of quality and the difficulty of obtaining information about the performance characteristics of the product under various conditions of use. He argues that the utility of quality would vary more than the utility of price because of the difficulty of obtaining information about quality and performance. Nelson further argues that one solution to this problem is that buyers rely on their post-purchase **experience** with the product. Some products (perhaps many) do not afford the opportunity to search and determine which has the best quality. In these cases, the buyer may choose to use the

product and assign a posterior utility to the purchase which in turn informs future decision making.

Coincident with the development of Nelson's proposition that experience offers an alternative to search in order to obtain more difficult information was recognition that sellers can distort information and willfully create uncertainty (Akerlof, 1970). Buyers may use market statistics (or reviews or brand information) to judge quality and, as Akerlof suggests, this reliance on reputation is an incentive for sellers to market poorer quality goods in order to increase profits. Darby and Karni (1973) conceptualized this as "optimal fraud" and sought to explain the contributing forces. In order to do so, they found it necessary to add a third of class of properties which they labeled as **credence** qualities. Darby and Karni provide the following comparison:

> We distinguish then three types of qualities associated with a particular purchase: search qualities which are known before purchase, experience qualities which are known costlessly only after purchase, and credence qualities which are expensive to judge even after purchase. (p. 69)

By expensive, Darby and Karni mean that objective information is not readily available even after purchase and use of the product or service. The buyer is left to rely on the credibility or honesty of the seller in order to accept that he or she has received fair value for the price paid. In some cases, it may be possible to determine whether or not the product is as specified or the service was actually performed, but the cost to do so would not be warranted. In other cases, where information about the good or service is solely controlled by the seller, the buyer may never know with certainty the quality of the product.

Marketers, particularly those whose function is to create marketing messages, often trade in uncertainty. Advertising, public relations, sales promotions, and other forms of marketing communications are designed to present product qualities in such a way that they are valued favorably by the potential buyer in comparison to similar products from competing sellers. In order to do this marketers focus on qualities for which their products have a competitive advantage and they ignore or diminish information about properties for which the seller's product lacks advantage. For the buyer attempting to make a fair comparison of product alternatives, the information available is often a patchwork of competing claims about different properties that do not line up neatly for evaluation. As Stigler (1961) indicated, it is already difficult for the buyer to know what the price is for various alternatives at a given point in time. When the buyer must also assess both knowable and unknowable qualities, the potential for uncertainty and the need to rely on incomplete information is increased.

Both buyers and sellers, in general, realize that this is the case. Thus it is the responsibility of the buyer, *caveat emptor*, to understand that marketing claims are created with the intent to persuade. It is also incumbent upon sellers to promote their products ethically. However as Akerlof (1970) and Darby and Karni (1973) theorize, the greater the extent of uncertainty, the more likely the seller will have an incentive to cheat. Stigler (1961) focuses on price, providing the obvious example of the kind of factual information for which buyers can search; but there are other facts that buyers can know before purchasing. Nelson (1970) uses the example of canned tuna to illustrate experience. He suggests buyers can easily buy multiple brands of tuna in order to determine preference, and at the low cost of experience there is insufficient demand for

establishments to sell tastes of various brands of tuna fish. Darby and Karni cite repair service as having the credence quality, noting that in many cases consumers will be unaware of the ability of the service to satisfy a given want and may only be able to evaluate the outcome, not the procedure. As these examples illustrate, search, experience, and credence product properties represent successively greater opportunities for uncertainty.

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[Paper ends.]

Appendix D: Ideation Stage 2 - Coding

Appendix D shows the second phase of the claim generation process. This includes the explanation of the task to the student coders, a brief description of search, experience, and credence product characteristics, and the list of items that were categorically judged. The item order was randomized for each coder.

Task Explanation

[Explanation begins.]

Thank you for assisting with this project. By completing the task and entering your name at the end, you will receive 2 points of extra credit in MGT 435. Your name will only be used for awarding extra credit. Your individual answers are strictly confidential and will be used as part of a statistical analysis of the task.

The task involves reading statements (questions) and assigning them to one of three categories. This task is designed to help develop stimulus material for a research study. The purpose of the task is to identify those questions that can be clearly assigned to one category versus those that are difficult to put into a single category. Therefore, we are looking for consistent assignment by multiple coders.

It is important that you read the Introduction, then read each question and make your best guess about the category in which it belongs. Note that randomly assigning questions to categories will not help complete the task. In addition, the statistical analysis used to establish the reliability of the coding will also indicate which coders are making random assignments.

There are 100 items to be coded into the three categories. Do not spend a lot of time deliberating about individual items; work quickly and record your first impression.

The entire task should take approximately 15 minutes to complete.

[Explanation ends.]

Introduction and Coding Instructions

[Introduction and instructions begin.]

The following is a list of questions someone might ask when purchasing, or considering the purchase of, various goods and services. The goal of this coding task does not require you to answer the question. Rather, you should read the question and determine how a consumer might obtain the answer to the question.

There are three main ways that consumers answer these kinds of questions:

- The first approach is ***search***. This means that the question can be answered before purchasing the goods or service by searching for information or shopping around.
- The second approach is ***experience***. This means that the question can be answered, but typically only after purchasing and using the goods or services. This does not mean that the answer could not be found before purchasing; however, the cost (in time, money, or effort) would be so great that it is less costly to buy the product and try it than to search for the answer before purchasing.
- The third approach is ***credence***. This means that the question cannot be answered with certainty before purchasing, and even after purchasing the consumer will usually trust the credibility or honesty of the seller with regard to knowing the answer to the question.

Read each question and for that question, indicate how you think a typical

consumer would obtain the answer. Is the answer to the question most likely to be obtained by *search*, *experience*, or *credence*? If the wording of the question refers to a "specific brand" or "this make and model" assume that the consumer would be asking the question about one brand such as "Budweiser," "Nikon CoolPix," "Chevrolet," or "Beaumont Hospital." If you think the answer might be obtained in more than one way, indicate the one way you feel describes best how a consumer would get the answer to this question.

[Introduction and instructions end.]

Item List

The following list contains statements categorized by coders in the second phase of the ideation process. The 24 items selected as best representing product characteristics in the category are identified as (S) search, (E) experience, and (C) credence. During the claims generation several of these items were modified to fit with an existing product and known qualities or substituted with another item having equal coder agreement.

1	What is the % alcohol content of a specific brand of bottled beer?	
2	Is this woman's makeup product a liquid or a solid?	
3	Is the fragrance of this perfume one that you like?	E
4	Is the fragrance of this perfume one that your friends will like on you?	
5	How many sheets are on the role of this brand of paper toweling?	
6	Does cotton underwear fabric feel comfortable?	E
7	What is the texture of the fabric used to make a specific brand of sports shirt?	
8	What are the specifications for this make and model of digital camera?	
9	Which make and model car has the styling you most prefer?	
10	How many miles are on the used car you are considering?	S
11	Does the car you want to buy come with the features you want?	
12	What is the square footage of the model home in a new subdivision development?	
13	How far is the apartment you are considering renting from the place where you work?	

14	Is the apartment you are considering close to where you work?	S
15	Is the available unit in that apartment building a rental unit or a condo for sale?	
16	What are the demographics of the neighborhood you are planning to move to?	S
17	Are the neighbors in the subdivision where you are considering buying friendly?	
18	Will the works in the gallery show satisfy my aesthetic needs?	
19	Will the works on display in the art gallery fit with other artwork I own?	
20	What majors are offered by the college?	S
21	Does this airline offer flights to my destination?	S
22	Does that soft drink taste good?	E
23	Will drinking this brand of beer give me a hangover?	E
24	Is this skim milk or 2% milk?	
25	Does your dog prefer wet food or dry food?	
26	What does this ethnic food mix taste like?	E
27	Is this cosmetic hypo-allergenic?	
28	Will this lipstick make me look more attractive to other people?	C
29	Will this brand of paper toweling absorb more water than other brands?	
30	Will sheets of this brand of paper toweling last long enough for my clean up jobs?	E
31	Will this fertilizer formula help me grow bigger tomatoes?	
32	Does this medical device really work for my condition?	
33	Does that bar and restaurant have the best Friday-night entertainment?	
34	I fell on a broken sidewalk; will this attorney get me a big settlement?	C
35	How easy is it to use this model of digital camera?	
36	How long should I expect the batteries to last in this model of video camera?	
37	Will this cell phone camera work with my computer?	S
38	If my cable television goes out will the cable company fix it quickly?	
39	Does your brand of cellular phone service provide better sound quality than the other brands?	
40	How long should I expect this car to last?	
41	How safe is this SUV when compared to other SUVs?	
42	Does this car have good handling?	
43	Was this home built with craftsmanship?	
44	Is that the real price or just the advertised price of that new refrigerator?	
45	Is this university a good choice for my needs?	
46	The credit counselor says I should stop paying my credit card; should I really do that?	
47	Does this university really have one of the top 10 programs in my major?	
48	Does this university provide the atmosphere and lifestyle I want?	
49	How does the quality of professors at my university compare to the quality at similar universities?	

50	How is the quality of service at that hair salon?	E
51	Should I believe the stories I hear on this television station's local newscast?	
52	Are the reporters for this television network unbiased?	
53	Are the cows that produced this milk organically fed?	
54	Is this brand of dog food nutritional for my dog?	
55	Is bottle of water really pure?	C
56	Does the water in this bottle come from a natural spring?	
57	How much performance enhancement should I expect from this energy drink?	
58	How well do these vitamins work?	
59	Is the vitamin content exactly as stated on the label?	C
60	Will this sunblock provide effective protection for my skin?	
61	Is the celebrity endorsing this charity being paid for producing this commercial?	
62	How much protection does SPF 50 sunblock provide for my skin?	
63	How were those organic paper napkins produced?	
64	Does this fertilizer contain only organic material?	S
65	How effective is this drug for treating my illness?	
66	What side effects does this drug have?	
67	Will these new running shoes with the rocker soles strengthen my leg muscles?	
68	Will the design of these tennis shoes help me improve my tennis game?	
69	Do these sunglasses block out UV rays?	
70	Has this used car ever been in an accident?	
71	Is this make and model likely to have mechanical problems?	
72	Will this car keep me safe from injury in the event of an accident?	
73	Does the contractor have the proper training to do this job?	
74	How skilled is the contractor I am considering for this job?	
75	I just had my jewelry appraised; are these fair replacement values?	
76	Is this art deco painting authentic?	
77	If I major in this subject will I be able to get a job in my field?	C
78	Should I believe it when the mechanic says I need a valve job?	C
79	Was this transmission repair done the way it was explained to me?	C
80	Will going through psychotherapy make me a happier person?	
81	Doctor, should I have a C-section or a natural delivery?	
82	Can this mortgage broker get me the lowest rate available?	
83	The attorney says you should always sue in this situation; is that true?	
84	Can the accountant assure me that I will pay the least amount of income tax?	C
85	Is this a legitimate tax deduction?	
86	Will this insurance policy protect my home in case of a natural disaster?	
87	Will this massage therapy give me relief from the pain in my back?	E
88	Is this tour really all-inclusive?	
89	Will buying these gold coins help protect me against inflation?	

90 Is the jeweler paying me a good premium for my old jewelry?

91 Will I save more on this phone if I pay a higher price but get a mail-in rebate coupon?
92 Does this cell phone have the very latest technology?
93 The price of this DVD set is really inexpensive; is this a bootlegged copy?
94 What is the hourly rate the gym's personal trainers charge?
95 Does the bank have Saturday hours? S
96 Will I be able to get my money out of these investments when I need it?
97 If I use this diet, will I be able to maintain my weight loss?
98 Can my professor really catch me if I cheat on this assignment?
99 How quickly will I get attention if I go to this hospital's emergency room?
100 Does the new, more efficient cereal package give me better value for my money?

Appendix E: Example Creative Brief

Appendix E provides an example of the creative brief for this project:

SEC Category and Stimulus Number: Credence 35

Question: Can the accountant assure me that I will pay the least amount of income tax?

Brand/Product: Jackson Hewitt Tax Service, tax preparation

Background/Description: Jackson Hewitt is a tax preparation firm; they employ many preparers who are not accredited or certified public accounts. They compete with H&R Block as well as independent CPA firms. Aside from some scattered comments by customers on online bulletin boards, reviews about the Jackson Hewitt tax preparation chain are almost uniformly negative. In 2007, the U.S. Dept. of Justice field lawsuits claiming fraud at 125 Jackson Hewitt locations.

Branded Truthful Claim (3511): *At Jackson Hewitt, preparing tax returns is what we do. And that could mean more money in your pocket.*

Branded False Claim (3501): *At Jackson Hewitt we know the ins and outs of tax preparation, so you can feel confident we'll find all the deductions and credits you're entitled to.* [from the Jackson Hewitt website; the claim is contrary to consumer opinion and federal litigation]

Unbranded Truthful Claim (3510): *Preparing tax returns is what we do. And that could mean more money in your pocket.*

Unbranded False Claim (3500): *We know the ins and outs of tax preparation, so you can feel confident we'll find all the deductions and credits you're entitled to.*

Source(s) and/or Support:
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http://www.jacksonhewitt.com/Prepare-Your-Taxes/In-Office-Products-Services/In-Office-Products-and-Services/
http://www.consumersearch.com/tax-preparation-services/jackson-hewitt
http://www.consumeraffairs.com/finance/jackson_hewitt.html

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