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Identifying Misleading Advertising

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A procedure for identifying misleading advertising is presented, based solely on measured consumer beliefs. An advertisement is misleading if an exposed group holds more false beliefs than a comparison group. When ten allegedly misleading advertisements were tested, two were identified as incrementally misleading, and four others were shown to be exploitively misleading.

Determining whether an ad is misleading continues to prove difficult and controversial. Naturally, advertisers and consumer advocates rarely agree on whether a particular ad is misleading. More disappointing, however, is the failure of researchers to agree on a broadly applicable definition of misleadingness or a procedure for identifying it (Gardner 1975; Jacoby and Small 1975; Preston 1976). The problem is further complicated by the conflict between the behavioral paradigm of researchers and the jurisprudential view of regulatory organizations.

In this paper, we propose and test a procedure for identifying misleading advertising. Contrary to custom, the procedural problem is confronted first, and a definition of misleadingness follows. The procedure is empirically based, as it relies on the measurement of consumer beliefs.

Presumptions

We make certain presumptions when we speak of misleading advertising. First and most important is the discrepancy between the claims of an ad and the facts of actual product performance.[1] If such a discrepancy does not exist, no one can be misled. The second presumption is that consumers cannot by themselves correct all claim-fact discrepancies. Individual consumers cannot correct some claims because verification is technically impossible or prohibitively expensive. For example, how can the ordinary consumer determine whether Volvos are built better than Fords? Manufacturers themselves are generally unable or unwilling to provide consumers with substantiation for such claims (Corey and Patti 1979). The final presumption is that not all claim-fact discrepancies can be corrected by natural market mechanisms (Eighmey 1978). In some cases the market is self-correcting, as when a false claim is corrected by a competitor's advertising. And, of course, economic self-interest dictates the correction of any false impressions of one's own products that reduce sales. In spite of some self-correction, however, there are many instances where natural market mechanisms are inadequate. Clearly, claim-fact discrepancies do exist at market equilibrium, and misleading advertising does increase sales.

These presumptions impose two requirements on any solution to the problem of misleading advertising. There must be some extramarket, institutionalized system for detecting misleading advertising. Such a regulatory system may be public, private, or mixed (as we currently have in the United States). Second, whatever combination of public or private institutions regulates advertising, there should be some equitable, standard procedure to determine whether an ad is misleading. The focus of this paper is on such a procedure.

THREE APPROACHES TO UNJUST ADVERTISING

One may best understand our procedure in the context of three alternative views of unjust advertising: fraud, falsity, and misleadingness.[2] These views parallel the three

[1]A major assertion of this paper is that the focus of misleading advertising should shift from "an advertisement's claims" to "consumer beliefs." This change is discussed shortly. Until then, we continue to use the traditional term, claims.

[2]There is some confusion among the jurisprudential, scientific, and ordinary meanings of the terminology of misleading advertising. We use *unjust advertising* as a superordinate label, and *fraudulent, false,* and *misleading* as distinct subordinates. Not used are the two terms Congress

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components of an advertising communication: the advertiser, the message itself, and the resultant consumer beliefs about the advertised product.

Fraud

Fraud focuses on the advertiser and assumes a deliberate *intent* to create false beliefs about the product. We believe that fraud is neither a valid nor practical approach. It is invalid because the advertiser's intent may be irrelevant to the harm done to consumers. It is impractical because the requirement of proof of intent makes it difficult to take action against the ad, and thereby stop the harm it is doing to consumers.

For both reasons, fraud plays a declining role in current regulatory practice. The Federal Trade Commission has not been required to prove intent for over 30 years.[3] Similarly, the main industry regulator, the National Advertising Division (NAD) of the Better Business Bureau, does not need to prove fraud in order to find that an ad should be withdrawn (Ashmen, Hasenjaeger, Hunt, Katz, Miracle, Preston, and Schultz 1979, p. 57). Unfortunately, current statutes still require proof of fraud in some situations, such as the U.S. Postal Service's regulation of advertising through the mails.

Falsity

Falsity in advertising refers to the existence of a *claim-fact discrepancy*. Examples include price and availability claims, as when a vendor advertises a product at a reduced price. "Literal truthfulness" requires both that the item be sold at the advertised price and also that a reasonable number of such items be available for sale.

In order to demonstrate falsity in advertising, one must verify the existence of a discrepancy. For prices, this is a simple task, accomplished with numerical certainty. For availability, however, it becomes more complicated. What is the minimum number of advertised items a vendor must have available for purchase? To answer such questions, numerical certainty must give way to subjective judgment. The most common approach is the use of expert testimony; but, of course, experts do not always agree. Especially if the issue is important, experts can usually be found to support each opposing viewpoint.

Standardization of Meaning. The usefulness of the falsity approach is greatly enhanced if a regulatory institution has the power to standardize the meaning of critical words.

How else can one resolve the falsity of a claim like "nutritious"? There is some nutritional value in even the worst junk food, and experts do not agree on what constitutes a "nutritious" food. Standardization of meaning removes the ambiguity and potential misleadingness of such terms.

Standardization has become a widely used regulatory strategy. Many trade associations regulate the use of product descriptions, and governmental agencies standardize product labels. For example, the Department of Agriculture sets standards for grades of fruits, and even determines whether a product name, like peanut butter, can be used at all. As "unconscionable lies" have disappeared from advertising, the role of standardization of meaning has become increasingly important in demonstrating the falsity of an advertised claim.[4]

Insufficiency of Falsity. In spite of the efficacy of a demonstration of falsity, it is neither sufficient nor necessary to prove that an ad is misleading. What matters is what consumers believe. A false claim does not harm consumers unless it is believed, and a true claim can cause great harm if it generates a false belief.

Some false claims are clearly harmless. Fanciful cartoon characters, though literally false, can enhance the belief of a valid claim. Similarly, true claims can create false, harmful beliefs. Consider the following (hypothetical) audio commercial: "Aren't you tired of the sniffles and runny noses all winter? Tired of always feeling less than your best? Get through a whole winter without colds. Take Eradicold pills as directed" (Harris 1977; Harris and Monaco 1978). The ad's claim that Eradicold pills will prevent winter colds is not linguistically asserted, yet it is clearly implied. Preston (1975, p. 7) describes a television ad for toy racing cars that the FTC found to be deceptive. Through clever close-up photography, the impression was created that the cars were traveling faster than they actually could.

In short, we believe that falsity is the wrong criterion. What is claimed and what is believed can be quite different, and it is what is believed that harms consumers.

Misleadingness

The third view, misleadingness, focuses exclusively on consumer beliefs. A demonstration of misleadingness requires the observation of false consumer beliefs in conjunction with exposure to the ad. Whereas falsity refers to a claim-fact discrepancy, misleadingness refers to a belief-fact discrepancy. During the last two decades, the FTC altered its approach to unjust advertising, so that the focus gradually shifted from the message itself to the resulting beliefs of consumers. In keeping with this change in focus, the percentage of FTC advertising cases using behavioral evidence has increased from four percent prior to 1954 to

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wrote into the FTC's mandate declaring "unfair or deceptive" advertising to be unlawful. *Unfair* has a special legal meaning (Cohen 1974), and *deception's* ordinary meaning, which connotes the intent to mislead, differs too widely from its legal meaning, misleadingness, whether intended or not. The terms *misrepresentation* and *misperception/miscomprehension* are avoided because they suggest the locus of blame, the advertiser and the consumer, respectively.

[3] For brief histories of the FTC's regulation of advertising, see Jentz (1968), Chapter 9 of Preston (1975), or the broader review of Aaker (1974).

[4] In spite of its general acceptance, some believe that this approach is bound to fail. They argue that advertisers are too clever and will always circumvent simple prohibitions on terminology.

54 percent in the early 1970s (Brandt and Preston 1977). A thorough legal analysis of the various definitions of unjust advertising, including the need to rely on consumers' beliefs or "expectations," is presented by Beales, Craswell, and Salop (1981).

RATIONALE OF THE PROCEDURE

The proposed procedure for identifying misleading advertising requires the assessment of consumer beliefs about a false claim. This means that consumer beliefs must be measured and then classified as correct or incorrect. The incorrect beliefs must be further partitioned into those that can harm consumers to the benefit of advertisers, and those that cannot harm consumers. Thus, the category of incorrect beliefs is divided into *misleadingly false* and *correctably false*. This coding scheme is most easily explained with an example.

Misleadingly False Versus Correctably False Beliefs

Consider a banana ad that claims "there's only 85 calories [in a banana]." This claim is false because an average banana contains 101 calories. There are *two* types of incorrect beliefs: an average banana contains fewer than 100 calories (100 is considered correct as a rounded encoding of 101), or it contains more than 101 calories. Although both inaccuracies are potentially harmful to the consumer, only the former serves the advertiser's goal of selling more of the product (except for those very few consumers seeking more calories). Any belief that calories exceed 101 can be presumed to be correctable by natural market mechanisms. That is, the advertiser has the incentive of increased sales to correct the impression that there are more than 101 calories in a banana. We call such beliefs *correctably false*. However, if consumers believe that calories number below 100, the advertiser benefits at the expense of the consumer. These *misleadingly false* beliefs are the ones that require extramarketplace regulation. Therefore, the proposed procedure for detecting misleading advertising focuses only on these beliefs. As the proposed procedure is best introduced through example, we describe the experiment that was performed.

EXPERIMENTAL EVIDENCE

Summary

Ten magazine ads were selected for testing. All had a verifiable claim-fact discrepancy, and were independently correctable. The latter phrase means that the ad can be altered to remove all of the misleadingness and none of the legitimate persuasiveness. The original and corrected versions, combined with a no-ad (control) treatment formed the three treatment conditions of the experiment.

One hundred consumers were recruited from city and suburban social organizations. They were instructed to read and evaluate the entire advertising message. They then answered questions designed to assess belief in the misleading claim and in an important legitimate claim. Responses to these questions form the evidence on which misleadingness is to be identified.

Two potentially confounding effects were evaluated and found to be absent. Beliefs were unaffected by the ads' construction, which was below professional quality. Different interest levels in purchasing a product did not affect the likelihood of a misleading belief.

Consumer Subjects

One hundred members of PTA, church and women's organizations were recruited as experimental subjects. All organizations were from Chicago area suburbs or city neighborhoods with middle rankings (median 110 out of 200) on the recent reports of socioeconomic status of Chicago area communities. Citing her husband's job in advertising, one person declined to participate, leaving a sample of 99. Subjects earned a flat rate of $4.00 for their participation, as well as a 10-cent bonus for correctly answering each of ten selected questions. Payment was credited to the subjects' organizations; no payments were made directly to individuals.

Based on self-reported sociodemographic data, the average participant was female, age 39, with slightly more than two years of college completed, and an annual household income of $25,000. (The 1978 estimated average Chicago household income *after* taxes was $21,679.) Consumers who are above average in income and education were probably overrepresented in our sample. Thus, the reported results may not generalize across the entire United States population. However, as subjects were partitioned into four groups as demographically balanced as possible, within the time schedule and location constraints of field testing, any atypicality was evenly balanced across treatment groups.

At the end of the experimental session, participants were asked whether they had trouble reading any of the 12 ads. As the ads contained large amounts of text, it is not surprising that 51 percent reported some trouble with at least one. The 17 subjects who reported some difficulty with four or more ads were dropped from the study. This left a total of 82 subjects distributed in groups of 19, 17, 26, and 20. We tested for differences in subject characteristics across these four groups, and found none. An analysis of variance revealed no significant ($p < 0.05$) differences for any of the measured sociodemographic characteristics: income, education, age, occupation, and number of younger (under six years) and older (six to 17 years) children living at home.

Task

Participating consumers were shown a series of ads. Their task was to read and comprehend the entire advertising message, and to evaluate the product. To assure that the entire message was perceived and understood, subjects

were asked a simple factual question immediately after seeing each ad, and were paid a ten-cent bonus for each correct answer. To simulate realistic viewing, subjects were also asked if the ad made it more or less likely that they would purchase the product or, if the product was one for which they had no use, recommend purchase to a friend. After all ads had been shown, a second group of questions was presented. One question was designed to assess misleadingness and the other to measure the effectiveness of some legitimate claim. In general, the subject's task was to process each ad completely in preparation for factual, evaluative, and substantive questions.

Advertisements Tested

Ten ads were chosen to satisfy several criteria. First, there had to be a verifiable claim-fact discrepancy. Because we had no special testing facilities to verify product claims, we had to rely on publicly available criteria or our own judgment. The public criteria were decisions of the NAD and a proposed FTC Trade Regulation Rule on the use of nutritional claims in food advertising (Federal Trade Commission 1974).

The second selection criterion was correctability. An ad is correctable if the misleading claim can be removed without reducing its legitimate power to persuade. For example, the banana ad that falsely claims 85 calories for what people presume to be a banana of medium size can be corrected by substituting the true caloric value, 101 calories, for the false one. This does not change the central legitimate claim that a banana and a glass of milk is a superior "60-second breakfast."

The introduction of corrected versions of each tested ad restricted us to print sources. We did not have the facilities to duplicate and modify broadcast ads. Thus, the ten ads selected for testing were taken from popular magazines, including 1975–1978 issues of *Better Homes and Gardens, Good Housekeeping, Newsweek,* and *Redbook.*

The ads were also chosen to represent a wide variety of products. They included the following product categories: acne treatments (Mudd), automobiles (Chevrolet Nova), bananas (Dole), breakfast cereals (Cheerios and Kellogg's), breakfast drinks (Tang), cigarettes (Carlton), margarine (Diet Imperial and Fleischmann's), and snack foods (Granola Bars). Summaries of five of these ten ads are presented in Exhibit 1.

Preparation and Display. We prepared corrected versions of the ads by removing the misleading part of the message and substituting a revised portion. Some revisions were typed, so the appearance of the ad clearly showed that it had been altered. So that this "cut-and-paste" appearance did not differentially affect the corrected versions, cosmetic alterations were also made on the original versions. Thus, both sets of ads appeared equally altered.

To test whether this cosmetic alteration affected consumers' comprehension of an ad's message, four untouched original versions were shown. These untouched originals

were exact copies of the ads that appeared in the magazine. Note that there was no difference in content (pictures and text) between the untouched and altered versions. The latter merely substituted identical typewritten segments for what had been typeset in the untouched originals.[5] For both versions of each ad, we computed the proportion of consumers holding misleadingly incorrect beliefs. These proportions showed no significant differences ($p < 0.05$), either in aggregate or for the four ads tested individually.

After all ads had been prepared, they were photographed and printed as 2-inch × 2-inch slides. Subjects viewed these slides at a convenient viewing distance.

Experimental Design

The experimental design contained three homogeneous and one mixed-treatment condition. Each of these conditions contained one version of all ten experimental ads.

The first treatment condition contained the ten (cosmetically altered) original ads. The second contained the corrected ads. The third group contained no ads, which is to say that the same questions were asked of subjects, but without exposure to any version of the ad. A fourth treatment was mixed. It included the four untouched originals and variations of the six other ads.[6]

The four subject groups should not be confused with the four treatment groups. To counterbalance any subject differences, each subject group saw two or three ads from each treatment condition in an approximation of a Latin square design. That is, each subject group saw seven or eight of the ten ads once, but not in the same treatment condition. For example, a subject in the first group saw the original Tang ad, the corrected Chevy Nova ad, no version (the control treatment) of the Fleischmann's ad, and the unaltered Carlton ad. The results depend only on the differences across treatment conditions, not subject groups. It should be remembered that within the same treatment condition different ads were seen by different subjects. This will explain the differences in sample sizes within the same treatment condition.

Procedure

Consumer subjects participated in small groups (range of group size, four to 11) in a subject's home. After two practice ads and samples of the questions, subjects saw seven or eight of the ten experimental ads. (Recall that two or three ads occurred in the no-ad treatment.) In addition, two or three distractor ads were shown. The (cosmetically modified) distractors were included to reduce any suspicion that the ads were selected to be misleading. The exposure time

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[5]The four ads for which both untouched and cosmetically altered original versions were prepared are Carlton cigarettes, Diet Imperial margarine, Fleischmann's margarine, and Tang breakfast drink.

[6]These variations are not relevant to the results reported here. They are described in Russo et al. (1979).

EXHIBIT 1

MISLEADINGLY FALSE, LEGITIMATE, AND CORRECTED CLAIMS FOR SELECTED ADVERTISEMENTS

Advertised product and type of claim	Content of claim
Dole bananas	
Misleadingly false	"and there's [sic] only about 85 calories (in a banana)." This number is true only for small bananas. A typical medium-sized banana contains 101 calories.
Legitimate	The central theme of the ad is that a banana and a glass of milk are relatively healthful as a very fast breakfast. The headline reads "the 60-second breakfast from Dole."
Corrected	The corrected ad substituted 101 for 85 in the calorie claim.
Chevy Nova automobile	
Misleadingly false	The bottom of the ad prominently displays a picture of a Chevrolet Nova with a price. The car is shown with white striped tires, wheel covers, and body side molding. The price shown, $3,823, is not the price of the car shown. The actual price is $3,948, a value that can be obtained only by adding three additional prices (white striped tires $44; wheel covers $39; body side molding $42). These latter values are given in the text of the ad.
Legitimate	The ad's theme is that a Chevy Nova is inexpensive, yet rugged enough to be a police car.
Corrected	The boldly printed price at the bottom of the ad is changed from $3,823 to $3,948. Thus, the price shown becomes that of the car shown.
Nature Valley Granola bars	
Misleadingly false	"Nature Valley Granola bars [are] crunchy, wholesome, delicious." According to a proposed Trade Regulation Rule of the FTC the word "wholesome" may connote "nutritious" and cannot be used unless the product satisfies a minimum standard of nutrition (defined in terms of the percent U.S. RDA of the eight nutrients listed on the food label). Granola bars fall far short of the minimum standard.
Legitimate	The theme of the ad is that Granola bars are a "100 percent natural" snack. They contain "no additives [and] no preservatives." The headline is "Go Natural."
Corrected	The word "wholesome" was removed, eliminating the nutrition claim. This was judged to be an advertiser's likely response. The only alternative permitted by the FTC's proposed rule is the inclusion of a very unflattering table of percent of U.S. RDA.
Carlton cigarettes	
Misleadingly false	The ad includes a list of alternative "low tar" brands and their mg. of tar per cigarette. This list is shown in the left panel of Exhibit 2. The alternative brands listed are not those lowest in tar. The misleading implied claim is that no other "low tar" brands are nearly as low as Carlton; specifically, that even if one smokes the second lowest brand, one must inhale five times the tar of Carlton.
Legitimate	The ad truthfully claims that Carlton has less than all other brands. This claim is stated in the headline, "Carlton is lowest."
Corrected	The misleading panel is changed to contain the six brands lowest in mg. of tar, in order and without omissions, as shown on the right of Exhibit 2.
Diet Imperial margarine	
Misleadingly false	The ad states no restriction on the use of Diet Imperial, implying that it can be substituted for regular margarine in any situation. This implied claim is true when margarine is used as a spread, a use pictured in the ad; but it is not true when margarine is used in cooking. As Diet Imperial achieves its caloric reduction by diluting regular margarine with water, there is 50 percent less oil per tablespoon.
Legitimate	The central claim is that Diet Imperial has 50 instead of 100 calories per tablespoon. The headline reads, "Try delicious, new Diet Imperial. Still only half the calories of butter or margarine."
Corrected	A disclaimer is added, "Do not use in baking."

Note: A complete description of all ten ads can be found in Russo, Metcalf, and Stephens (1979).

for each ad ranged from 30 to 90 seconds, as determined by laboratory and field pretests. After viewing each ad, the subjects answered the factual question and rated the likelihood of purchase. After all ten ads had been seen, they completed a questionnaire that included the questions about misleading and legitimate beliefs, a seven-point rating scale of interest in the product category, reading difficulty, and various sociodemographic characteristics.[7]

PROCEDURES FOR DETECTION OF MISLEADINGNESS

The experiment just described provides the following evidence on which to base a judgment that an ad is misleading: false beliefs held by consumers who did and did not see an ad, and also by consumers who saw a corrected version of the same ad. Based on this evidence, how can a misleading ad be identified?

Criterion 1: Consumer Belief of a False Claim

Is it sufficient to demonstrate that a claim is false and that people believe the claim? This is a claim-fact discrepancy coupled with direct evidence that people believe the claim. Many researchers would answer yes to this question, with one qualification.[8] They would require that the percentage of misled consumers exceed some minimum (n percent) needed to declare an ad misleading (Gellhorn 1969; Jacoby and Small 1975). As has been argued elsewhere, the problem of finding the best value, or even several values, of n percent is insoluble (Russo 1976). For each ad the observed percentage of misled consumers must be judged against its own standard, not against some universally applicable cutoff.

As an example of the belief in a false claim, consider the ad for a Granola Bar (Exhibit 1). This product is claimed to be "wholesome" in the sense of nutritious. Consumers who saw the original ad were asked their belief about the nutrition in a Granola Bar. The average percent U.S. RDA

(Recommended Daily Allowance) for the eight "leader" nutrients was believed to be 32 percent. The true value is two percent. Eighty-two percent of consumers believed the average U.S. RDA exceeded five percent. These data indicate extensive belief of a false claim; 82 percent must surely exceed anyone's n percent cutoff. Nonetheless, the question remains whether this evidence of a false belief is sufficient to demonstrate that the Granola Bar ad is misleading. Phrased differently, does this evidence show that the false belief was caused by reading the ad?

Our answer is no. Consumer belief of a false claim is necessary to demonstrate misleadingness, but it is not sufficient. The problem is simple: this evidence does not exclude the possibility that consumers would hold the same false belief even if they had not seen the ad.

The design of our experiment permits a test of this alternative hypothesis. In the control treatment consumer subjects answered the same question about nutritional content without having viewed the ad. The control group's mean was 28 percent of the U.S. RDA, a value not reliably different from 32 percent. The proportion of people providing misleadingly false answers also showed no significant difference, 87 percent for no-ad versus 82 percent for the original ad. Thus, though a claim-fact discrepancy exists and a large percentage of consumers believe the claim, the evidence does not show that the ad is responsible.

The trouble with identifying misleadingness solely from false beliefs is that it uses an absolute criterion, n percent of consumers holding a misleadingly false belief. No matter how high this cutoff, the level of false belief could exceed it (and trigger the condemnation of the ad as misleading), even though the false beliefs were derived entirely from preexisting misconceptions.

Criterion 2: Increased Belief in a False Claim After Exposure to an Advertisement

A second approach rectifies the main flaw of the first one by requiring a causal demonstration of misleadingness. *An ad is identified as misleading whenever exposure to that ad increases the false belief held by consumers.* That is, the proportion of consumers holding a misleadingly false belief is greater for the group that views the ad than for the control group that does not view the ad. We call this incremental misleadingness. It is probably the clearest, least controversial form of misleadingness. The rationale for identifying incremental misleadingness is based on a standard before-after comparison in which the before group provides the criterion against which the level of false belief is compared. A comparison similar to this has been proposed by Armstrong, Gurol, and Russ (1978), although Jacoby, Hoyer, and Sheluga (1980) found this approach to be impractical.

To see how this procedure works, consider the Dole banana ad described in Exhibit 1. It claims 85 calories per banana, while the truth is 101. A misleadingly incorrect answer is anything less than 100 calories. (Recall that both 100 and 101 calories are considered correct because consumers are likely to encode 101 as "a hundred.") The

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[7]We tested for a possible relation between each consumer's level of product interest and the likelihood of a misleading belief. In order to maximize any effect of interest level, only extreme responses were included. The low-interest group qualified by a response of 1 or 2 on the seven-point scale; inclusion in the high-interest group required a 6 or 7. A total of 233 low-interest and 184 high-interest responses were available. The proportions misled were essentially identical, 0.67 for low-interest and 0.68 for high-interest subjects.

To test each advertisement individually, we increased the smaller sample size. Those responding 3 were added to the low-interest group; those responding 5 were added to the high-interest group. No difference was significant ($p < 0.05$), except for the Cheerios advertisement. We could find no reason for this exception, and concluded that it was probably a false alarm. (Whenever ten tests at $\alpha = 0.05$ are performed, at least one such false alarm will occur 40 percent of the time.)

[8]Some researchers would not qualify an affirmative answer at all. Gardner and Barbour (1980) measured price errors after exposure to four tire advertisements. Because the mean error is large, 26 percent, and "a sizable portion of the sample" held the erroneous belief, they conclude that the advertisements are misleading.

TABLE 1

PROPORTION OF MISLEADINGLY INCORRECT ANSWERS
AFTER VIEWING ORIGINAL AD

Product	Advertisement seen	
	Original	None (Control)
Carlton	.92 (25)[a]	.94 (18)
Cheerios	.68 (19)	.60 (20)
Chevy Nova	.65[b](20)	.00 (17)
Diet Imperial	1.00 (20)	.85 (26)
Dole	.92[b](26)	.44 (36)
Fleischmann's	.94 (17)	.88 (26)
Granola Bar	.82 (17)	.87 (15)
Kellogg's	.88 (17)	.60 (20)
Mudd	.82 (17)	.61 (46)
Tang	.40 (20)	.39 (18)
Mean	.80	.62

[a]Numbers in parentheses are sample sizes.
[b]$p < 0.05$.

proportion of misleadingly incorrect beliefs is 0.92 for the original group and 0.44 for the control group. This difference is both large and statistically significant ($p < 0.05$). We conclude that viewing the ad caused an increase in the level of false belief, and we find it incrementally misleading.

The causal assertion of misleadingness can be strengthened by examining those answers that are "exactly misleading," in this case the 85 calories stated in the ad. If the ad is changing consumers' beliefs about caloric content, then more consumers in the original treatment than in the no-ad (control) treatment should answer exactly 85 calories. The proportions are 0.50 (13 of 26) for the original group and 0.03 (1 of 36) for the control group, again a significant difference.

This criterion for misleadingness was applied to all ten ads. That is, we tested for a higher level of misleadingly false beliefs in the original treatment than in the no-ad (control) treatment. Table 1 reports the two proportions and the results of a chi-square test for their equality.[9] Significant misleadingness was found in only two cases, the Dole banana and Chevy Nova ads.

What about the other eight supposedly misleading ads? Are they really not misleading at all, or only not incrementally misleading? There is at least one other form of misleadingness that Criterion 2 overlooks, exploitive misleadingness. The criterion of increased false belief after exposure to an ad is *sufficient* evidence of misleadingness, but it is not *necessary*. Specifically, it fails to detect non-incremental forms of misleadingness.

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[9]Unfortunately, the chi-square test is two-tailed, whereas our hypothesis is one-tailed. However, all nonsignificant p values exceeded 0.10. In one case (the Kellogg advertisement), all sample size requirements for a chi-square test were not met, and a Fisher's Exact test was used ($p = 0.07$).

Exploitive Misleadingness

All advertisers feel that changing people's beliefs is a very difficult task. It takes many exposures, usually to different ads, for a campaign to *change* beliefs. It is much easier to link a product to existing beliefs. Granola Bars are believed to be nutritious because Granola cereal has that image. Trying to raise the existing belief about nutritional content would be costly and unnecessary. Better to free-ride on this existing belief, reinforcing and utilizing it to sell the product. We call this *exploitive misleadingness*. The advertiser does not mislead by increasing false beliefs, but by exploiting those that already exist.

If this type of misleading advertising exists, how can it be detected? Obviously, the previous procedure will fail. By the very nature of exploitive misleadingness there is no increase in the level of false belief. At least two approaches are possible. The first is to show an increase in something other than the misleadingly false belief. The confidence in the belief and the importance of the belief to an overall product evaluation are secondary beliefs that may be increased by exposure to the ad. For example, Armstrong, Gurol, and Russ (1978) found that a Listerine mouthwash ad increased only the importance of a false belief. This approach retains from Criterion 2 the concept of an increase as a *causal* demonstration of the effect of the ad. However, it changes the focal observation from primary to secondary beliefs. The development of this approach is an important goal of future research.

Alternatively, one can continue to focus directly on the misleadingly false belief and search for a more sensitive comparison than the no-ad (control) treatment. The second approach, a more sensitive comparison, forms the basis of Criterion 3.

Criterion 3: Less Misleadingly False Beliefs for Corrected Than for Original Advertisements

We believe that a properly corrected ad provides the desired comparison. For each of the ten original ads a corrected version was designed to remove the original claim-fact discrepancy, and to affect no other aspects of the ads. For example, in the Granola Bar ad the word "wholesome" was eliminated. In the Carlton ad, the table of mg. of tar for selected brands was replaced by one containing the lowest brands, as shown in Exhibit 2.

If a significantly lower level of misleadingly false belief is produced by the corrected ad, we conclude that the product attribute involved in the false claim is perceived by consumers and exploited by the advertiser. For example, 92 percent of consumers exposed to the original Carlton ad believed that the brand second lowest in tar contained more than 1 mg. By comparison, only 40 percent of consumers who saw the corrected version held this false belief. The corresponding mean estimate of mg. of tar dropped from 4.5 to 1.9.

Using a corrected version to provide the standard of comparison comforms to a common scientific principle. A com-

EXHIBIT 2

PANELS OF TAR RATINGS FOR COMPETING BRANDS IN THE
CARLTON CIGARETTE ADVERTISEMENT

Original[a]		Corrected	
Winston Lights	12	Tempo	7
Vantage	11	Pall Mall	6
Salem Lights	11	True	5
Kent Golden Lights	8	Iceberg	3
Merit	8	Lucky	3
True	5	Now	1
Carlton Soft Pack	1	Carlton Soft Pack	1
Carlton Menthol	less than 1	Carlton Menthol	less than 1
Carlton Box	less than 1	Carlton Box	less than 1

[a]These panels occupied about 10 percent of the area of each advertisement.

TABLE 2

PROPORTION OF MISLEADINGLY INCORRECT ANSWERS
AFTER VIEWING CORRECTED AD

Product	Corrected advertisement	Reduction compared to original advertisement
Carlton	.40 (19)[a]	.52[b]
Cheerios	.69 (26)	−.01
Chevy Nova	.16 (19)	.49[b]
Diet Imperial	.24 (17)	.76[b]
Dole	.20 (20)	.72[b]
Fleischmann's	.95 (19)	−.01
Granola Bar	.56 (16)	.26[b]
Kellogg's	.92 (26)	−.04
Mudd	.74 (19)	.08
Tang	.12 (17)	.28[b]
Mean	.50	.30

[a]Numbers in parentheses are sample sizes.
[b]$p < 0.05$.

parison condition should alter only the variable of interest and hold constant everything else. Because the corrected ad changes only the misleading component, it is better able than the no-ad condition to sense whether consumers are perceiving, and being exploited by, this misleading component.[10] The use of a corrected ad as the standard of comparison was proposed by Jacoby and Small (1975).

This third criterion was applied to all ten ads. The reduction in the proportion of misleadingly false beliefs between the original and the corrected treatments is shown in Table 2, along with the results of a chi-square test for equality of two proportions. Based on this test, six of the ten ads are found to be misleading: Carlton, Chevy Nova, Diet Imperial, Dole, Granola Bar, and Tang.

What about the remaining four supposedly misleading ads? Does this mean that they are actually not misleading? Possibly, but there is at least one other explanation for the failure to find original-corrected differences in the proportion of false beliefs. Maybe the corrections were ineffective, either because they were not persuasive, or because consumers ignored them. For the two ads with nutritional claims, Cheerios and Kellogg's, evidence indicated that the

correction was ineffective.[11] In general, however, it is not possible to discriminate between a poor correction and the absence of exploitive misleadingness.

What is a Proper Correction?

Not every corrected ad can legitimately serve as a comparison to the original. For example, in the extreme it is possible to correct an ad by gutting it, that is by destroying its ability to communicate any product claims, misleading or otherwise. Such an alteration is obviously improper.

Two aspects of the correction are critical: independence, or whether reducing the misleading claim interferes with the persuasiveness of legitimate claims, and informativeness, or how much the correction depends on providing correcting information.

Independent Correction. The correction should reduce the misleading belief without affecting legitimate persuasiveness. This has not always been easy to achieve. At least two studies tested the FTC correction of Listerine ads and found attenuation of belief in claims other than the target of correction (Dyer and Kuehl 1978; Mazis and Adkinson 1976).[12]

Recall that the ten ads were selected partly on the basis of a clear separation between the misleading claim and an important legitimate claim. If the corrections were independent, consumer belief in these legitimate claims should be just as high for the corrected ads as for the original ones. The critical proportions are shown in Table 3.

The mean proportions show no difference between the

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[10]Cohen (1977) and Wright (1977) have each proposed a similar procedure for identifying misleadingness. Both proposals compare consumer beliefs after exposure to original and corrected ads. These proposals differed from ours mainly in the rationale for designing the corrected versions. The authors of these proposals work from an information provision strategy in which the corrected ad is limited to factual, truthful claims. In the context of the Food and Drug Administration's regulation of drug advertising, Wright's (1977) corrected ad is "an unadorned text that describes non-blacklisted conditions the product can alleviate, in the direct terms the FDA sanctions" (p. 14). Similarly, Cohen (1977, p. 15) favors "a true 'bare bones' version, closer in substance and mode of presentation to what is on the label." Both proposals differ from our strategy of making the corrected and original ads as similar as possible in all respects, except the misleading claim. The approach of Cohen and Wright seems to be motivated by a belief that many misleading claims are manifest throughout an ad, including its pictorial and verbal content. Cohen (1977, p. 15) states that the "use of a 'bare bones' base-line would, in my opinion, quite properly make the advertiser responsible for the entire ad." We are more optimistic that misleadingness can be removed without turning the ad into a label.

[11]The details of this analysis can be found in Russo et al. (1979).

[12]Note that we tested only one legitimate claim for each ad. To show that one claim is not infirmed is not to show that all were not. However, we did try to select a major thematic claim whenever possible, and it is fair to say that the present results could not be more supportive of the assertion that legitimate persuasiveness was preserved.

TABLE 3

PROPORTION OF CORRECT ANSWERS TO QUESTIONS
ASSESSING LEGITIMATE PERSUASIVENESS

| | Version of the advertisement | | |
Product	Corrected	Original	No advertisement
Carlton	.95 (20)[a]	.92 (26)	.28 (18)
Cheerios	.88 (26)	.95 (19)	.65 (20)
Chevy Nova	.79 (19)	.90 (20)	.35 (17)
Diet Imperial	.88 (17)	.90 (20)	.46 (26)
Dole	.90 (20)	.92 (26)	.89 (36)
Fleischmann's	.16 (19)	.06 (17)	.27 (26)
Granola Bar	.65 (20)	.69 (16)	.18 (17)
Kellogg's	.42 (26)	.53 (17)	.15 (20)
Mudd	1.00 (19)	1.00 (17)	.80 (46)
Tang	.65 (17)	.45 (20)	.39 (18)
Mean	.73	.73	.44

[a]Numbers in parentheses are sample sizes.

corrected and original treatment groups. Tests of individual ads also reveal no significant differences. To make clear that both versions were genuinely persuasive, the proportion of correct responses for the no-ad treatment is also shown in Table 3. The corrected and original treatments exhibit a much higher belief level than does the no-ad group: 0.73 versus 0.44 on the average. We conclude that the corrections were independent in that they did not reduce the considerable legitimate persuasiveness of the original ads.

Informativeness. There are two corrective strategies: provide nonmisleading information, or cease mentioning the misleading attribute. Because the misleading table of alternative brands in the Carlton ad was replaced, as shown in Exhibit 2, the correction was informative. If the misleading table had been removed without being replaced, the correction would have been uninformative. The Granola Bar ad was uninformatively corrected by dropping the nutritional claim, "wholesome." In contrast, it could have been informatively corrected by adding a table of percent of U.S. RDA (Russo et al. 1979).

An uninformative correction is not always possible. If the misleading belief is not explicitly activated by some component of the original ad, there is nothing to remove. The only way to correct such an ad is to add information. The Diet Imperial margarine advertisement provides such an example (Exhibit 1). To correct the false belief that Diet Imperial can be used in cooking (which it cannot because it is 50 percent water), an informative disclaimer had to be added.

Both the informative and uninformative corrections provide valuable evidence about the level of exploitive misleadingness. The uninformative does less correcting, and will almost certainly be the choice of advertisers. It also provides the more conservative test. We expect a smaller

original-corrected difference in misleading belief when the correction is uninformative. Not saying anything ought not to reduce a false belief as much as telling people the truth.

Forced Education. Advertisers may claim that by comparing an ad to its corrected version they are being held to an unreasonable standard. They are being required to educate the public. Not only might such a requirement violate their freedom of speech, but it would be impossible for an ad to provide enough factual information to correct every existing false belief.

This argument is groundless. A regulatory organization is often justified in requiring that the advertiser explicitly provide information in order to decrease some existing false belief (Beales et al. 1981). A warning on the use of a drug is a common example. The disclaimer that Diet Imperial margarine should not be used in cooking is another example. The question of whether to reduce misleadingness by requiring additional information in an ad really involves the severity of harm. This, in turn, is a question of utility and action selection. Although it is essential in any regulatory context, we would like to keep it separate as long as possible from the more scientific question of the existence of misleadingness. We return to this topic later.

Summary of Recommended Procedure

The prerequisite to our recommended procedure for identifying misleading advertising is empirical evidence of consumer belief. Specifically, we require the proportions of a representative group of potential purchasers that hold a misleadingly false belief after exposure to: the original ad, one or more corrected versions, and no ad at all.

Given this evidence, the identification of incremental misleadingness is straightforward. If the level of misleading belief is (statistically significantly) higher for the original group than for the no-ad (control) group, then the ad is found to be incrementally misleading. Exposure to the ad increases the level of false belief.

Exploitive misleadingness occurs when the ad does not increase, but free-rides on, an existing level of misleading belief. If the level of misleading belief is (statistically significantly) higher for the original ad than for the corrected version, the ad is found to be exploitively misleading. The selection of a corrected version is critical. The most conservative correction is both independent and uninformative. This provides the most conservative test.

THEORETICAL ISSUES

The *n* Percent Problem

The inadequacy of Criterion 1 is essentially a statement about the insolubility of the *n* percent problem. The difficulty with establishing a single standard of *n* percent (or even a sliding standard) is that this task confounds two concepts, the existence of misleadingness and its importance. Criterion 2, for identifying incremental misleading-

ness, succeeds precisely because it separates existence from importance. It accomplishes this in the same way that classical statistical hypothesis testing separates statistical significance from practical importance. When statistical techniques show that there is significantly more misleading belief in the original group than in the no-ad (control) group, all we have demonstrated is that misleadingness exists. There is no judgment about the importance of that misleadingness, in terms of the seriousness of the potential harm to consumers.[13]

The judgment of seriousness depends on the nature of the advertised claim. In our procedure it remains, as it must remain, the prerogative of the regulator. It is worth noting that as n percent increases, both the existence and seriousness of misleadingness increase. This partly explains why these separate issues have been confused in the past.

Remedial Action and Utility

If an ad is misleading, what remedial action, if any, should be taken? The problem of action selection is, of course, one of judging the severity of harm to consumers. In principle, the existence and severity of misleadingness are separate issues. In practice this distinction cannot always be achieved.

Consider an (hypothetical) ad for Efficax, a new powerful nonprescription pain reliever. Efficax has only one qualification, it relieves all but one common pain, say, angina of effort. (This is the temporary pain caused by too little blood to a working muscle.) As consumers' past experiences are only with drugs that relieve all common pain, it is likely that an initial advertising campaign will find a linkage between the legitimate belief of the relief of most pain and the misleading belief of angina relief. The more effectively an ad persuades consumers of Efficax's power, the more it is apt to increase the level of false belief, even with a clear disclaimer that angina is excluded. Such an effective ad might, according to Criterion 2, be identified as incrementally misleading. However, the net benefit to society could still be positive, because the benefit of the legitimate belief might outweigh the damage of the misleadingly false belief.

This example illustrates a situation that affects the applicability of Criterion 3 for detecting exploitive misleading-

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[13]A remaining problem is determining the appropriate sample size of the test of misleadingness. A close analysis will reveal that the issue of sample size reintroduces the judgment of seriousness of harm, but in a less damaging way. Ideally, the appropriate sample size is partially determined by the utilities of the two statistical errors (Hamburg 1970). The more harmful a given level of misleadingness, the more important is its detection and the larger should be the sample size. The appropriate sample size is a decision that should be jointly made by researchers and policy makers. Although it is an untidy remnant of the n percent problem, it should affect only a few marginal determinations of misleadingness. These cases will occur when relatively few people are misled, but the potential damage is great, such as a misleading drug ad to physicians.

ness. The legitimate and misleading beliefs may be interdependent. The promoting of Efficax as powerful increases both the legitimate and misleading claims. These beliefs are similar and naturally linked.

For the ten ads that we corrected and tested, legitimate persuasiveness was undiminished. In each case the legitimate and misleading beliefs were independent. In general, however, we cannot expect independence among beliefs. And once the legitimate and misleading claims are linked, correction comes only at the expense of legitimate persuasiveness. Because some correction can always be attained (if necessary, by turning the ad into an informative label), the use of the corrected ad as a comparison loses its validity. Thus, we stop short of applying Criterion 3 to the case of a link between the misleading and legitimate beliefs.

This is not to say that regulators cannot honestly find an ad misleading in the face of such a linkage. But to do so they must consider severity of damage, or disutility. For example, if a correction lowered the legitimate belief by one percent and the misleading belief by 40 percent, the regulating agency might well find the ad misleading or, more properly, *unnecessarily* misleading. Note that this judgment implicitly involves the relative utilities of a one percent decrease in the legitimate belief versus a 40 percent decrease in the misleading beliefs. Normally one would opt for the 40 percent and sacrifice the one percent, but not always. The decision must depend on the specific utilities (Beales et al. 1981).

Although we restrict our procedure to the independent case, we suggest that one topic of future research is the formal extension of the procedure to *action selection*. Such an extension would incorporate utility judgments, possibly the marginal utilities of the various decreases in the legitimate and misleading belief levels caused by different corrections.

A Definition of Misleadingness

The conventional strategy for measuring misleadingness starts with a definition of misleading advertising and develops a measurement procedure by operationalizing that definition (Jacoby and Small 1975; Olson and Dover 1978). We have reversed that process, first constructing a procedure and now defining misleadingness:

> An advertisement is misleading if it creates, increases, or exploits a false belief about expected product performance.

The key words in this definition are "belief" and "false." We focus on what consumers believe as a result of reading an ad, regardless of what the ad claims or what the advertiser intended it to claim. We also require that resulting beliefs not be false, i.e., that the expectation of product benefits be justified. This definition is compatible with several other "behavioral" definitions of misleadingness, especially those of Gardner (1976) and Olson and Dover (1978).

Other Measures of Misleadingness: Percent Misled Versus Amount Misled

The only evidence used by the proposed procedure is the percentage of misled consumers. A measure of the amount of misleadingness would provide more information from the same number of consumer subjects. For example, the size of the misleadingness in the Carlton ad could be measured by how far above 1 mg. each consumer believed the second lowest brand to be. That is, instead of scoring responses of 2 and 10 mg. as identically incorrect, the greater error reflected by the 10 mg. belief could be preserved by measuring the size of these two errors as 1 and 9 mg., respectively.

Although numerical measures of misleadingness would increase the efficiency of the test procedure, they have their disadvantages. The proportion of misled consumers is more intuitively understandable than a corresponding numerical measure. Also, across ads the proportion remains comparable, whereas different numerical measures would be required, such as mg. of tar for one, percent of U.S. RDA for another, and so forth. Nonetheless, the use of numerical measures should not be excluded, but rather explored. Their advantages may be essential in some situations.

APPLICATION OF THE PROCEDURE

Puffery

The proposed procedure applies to all advertising claims, including puffs. These are transparent exaggerations, often in the form of superlatives ("the finest beer you can buy") or hyperbole ("pain relief so effective you'll think you're 20 again"). The law considers the falsity of such claims so transparent as to render them harmless. Consumers are assumed to see through the exaggeration, and to place no credence in puffed claims (Preston 1975; Rotfeld 1979). Essentially, the law embodies two extreme assumptions about the beliefs of consumers: fact-based claims are credible to all, while puffs are credible to none.[14]

The procedure proposed here makes no distinction between puffs and other claims. More generally, the increasing use of behavioral evidence should reduce, and eventually eliminate, the distinction between puffed and fact-based claims (Oliver 1979).

This is not to say that the problem of puffery in advertising is now solved, because the elusiveness of puffed advertising reappears in a different form. Recall that besides demonstrating belief in the claim, our procedure requires that the claim be verifiably false. To identify a puffed claim as misleading, one must be able to demonstrate that the

corresponding belief is false. How do we decide whether Giordano's really makes "the best pizza in Chicago," or that some hair transplant "will restore your sense of manhood"? Depending on the regulatory criteria for verifying such falsity, this demonstration can be more or less difficult. Nonetheless, by abandoning the presumption that no one ever believes puffery, and substituting a test for misleadingness based on measured consumer beliefs, we can begin to deal with the real impact of puffed claims on consumers' beliefs and purchases.

Limitations

Verifiability. The proposed procedure requires that the allegedly misleading claim/belief be verifiably true or false. This becomes problematical when the beliefs are evaluative and subjective rather than factual. Is a cigarette ad's implicit claim that the smoker will appear more sophisticated obviously false? A simple yes or no answer is not possible. Although many people would agree that the primary outcome of cigarette smoking is the risk of lung cancer, many teenage girls see cigarettes as genuinely conferring a sophisticated status.[15]

A task of future research is the development of methods for verifying claims that are essentially evaluative/subjective. One hopeful factor is that a misleading claim, such as enhanced sophistication, may engender many subclaims. Misleadingness can be demonstrated with any one of these. Thus, if misleadingness is genuinely present, the problem of verifiability may be overcome by finding *any* verifiable subclaim.

Creating the Correction. For some ads a correction may be possible in theory only. Consider a TV ad for a health-related, but not medical, product such as a breakfast cereal without chemical additives. The advertiser might misleadingly imply a medical claim by dressing the spokesperson in a white lab coat or setting the testimonial in a hospital. Correction of such an ad is straightforward, exchange the lab coat and hospital setting for typical nonmedical counterparts. But, what if the spokesperson is an actor who is closely identified with his role as a physician in a movie or TV series? It may not be possible to find a "corrected" actor, one with no false medical image, but with equal appeal and legitimate credibility.

Devising a proper corrected ad requires cleverness and effort. Like its reflection, the control group in experimental science, the corrected ad may pose practical difficulties, but at least the goal is clear.

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[14]Unfortunately, this dichotomy has been necessary. Regulatory judgment of fact-based claims, like those tested in our experiment, is difficult enough. The additional burden of puffed claims would have strained the existing jurisprudential system past endurance.

[15]A psychologically deep issue underlies this phenomenon. Expectations can influence reality, especially social reality. Your chance of appearing to others as sophisticated (or sexy or friendly) increases if you *believe* that you are sophisticated (or sexy or friendly). The communication by ads of such "social psychological representations" has been examined by Shimp (1979).

Naturalistic Measurement

For a valid assessment of consumer belief, the ad must first be presented as naturalistically as possible. This might mean embedding a print ad in editorial material and a broadcast ad in regular programming (Collins and Jacobson 1978). It might also require multiple exposures ("Multiple Exposure Test Needed to Evaluate Commercials" 1979) or testing on split-sample cable TV to obtain matched groups of viewers (Mizerski, Allison, and Calvert 1980). In general, the goal is to create a natural exposure context, often with so-called "low involvement" by the consumer (Mitchell 1979; Mitchell, Russo, and Gardner 1981). Advertisers have developed many techniques for naturalistic presentation and, within cost constraints, we recommend their use.

Even with naturalistic presentation, however, one must still measure beliefs nonreactively. A nonreactive measurement technique is one that does *not* change the behavior it is trying to measure (Webb, Campbell, Schwartz, and Sechrest 1966). Suppose that we want to know how advertising affects the beliefs of potential purchasers of state lottery tickets about their chances of winning. They are exposed to a persuasive ad that emphasizes the wonderful ways of spending one million dollars. If we now ask, "What do you think your chances are of winning the million-dollar grand prize?" most would correctly respond that their chances are small. But this response probably reflects the effect of the question, not what it was supposed to measure, the effect of the message. Answering the question activates a rational consideration of the probability of winning that would not otherwise occur. Such questions would never be asked under normal conditions of exposure to an ad. If we were then to measure purchase intention, we would almost certainly find it lower than that of an exposed group not asked the misleading question.

The problem of reactivity to the measurement procedure is worse for questions about misleadingness. Because such beliefs are false, deliberation about them is more apt to reverse them. Simple solutions to the problem of nonreactive measurement do not exist. Each case requires a different creative approach to posing a question subtly enough that people respond without reacting.

Use By Advertisers

If a standardized procedure for identifying misleadingness were established, advertisers could pretest to avoid regulatory action. If they knew the evidence that the NAD or FTC would use to judge misleadingness, they could collect that evidence prior to public exposure of the ad. There would be no need to second guess regulators' judgments.

Besides helping to avoid costly regulatory action, a pretest may reveal that the misleading claim is not essential to selling the product. One of the striking findings of our experiment is that the main thrust of the ads was not attenuated by removal of the misleading claim. Consumers still believed that Carlton is lowest in tar or that a Chevy Nova is good enough to be a police car. Our procedure enables advertisers to evaluate the contribution of any specific claim (not only a possibly misleading claim) to a major thematic belief about the product.

Use By Regulators

Standardized procedures reduce both the cost and the uncertainty of regulatory action. Beyond these advantages, the use of our procedure over time poses some interesting possibilities. The cumulative body of empirical evidence would constitute a partial census of misleading advertising. Types of claims that are particularly troublesome could be exposed. One could also map the various values of n percent of consumers who hold false beliefs. It would be interesting to know for which product category advertising is the most misleading, and for which the level of false belief is highest.

This type of census can be used to help establish long-range priorities for the regulatory agency, such as those that exist in the field of consumer satisfaction/dissatisfaction (Hunt 1977). A census of dissatisfaction across product categories reveals where dissatisfaction is highest and remedial action most needed.[16]

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[16]The highest dissatisfaction is uniformly found for automobile repairs; see, for example, Andreasen and Best 1977.

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