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Almost 3 out of 5... (pgs. 3 & 4)
President's Message

“...nearly 2 out of 3”

The title of this message reflects the technical report topic in this newsletter as we discuss how numerical superiority and performance numbers are used to make powerful promotion claims.

Also, 2 out of 3 of our courses will be held this spring. Our annual Advertising Claims Support course, featuring insightful presentations from invited NAD staff and litigators, will be presented April 9-11 at The Greenbrier in West Virginia. On May 7-9, we will present a new course, Sensory and Consumer Testing in Quality Assurance and Product Development, at the Williamsburg Lodge in Colonial Williamsburg, Virginia. This new course is ideal for those just beginning their career, to product development and quality assurance staff, and also those who have experience in managing sensory programs. (Our third course, Symposia and Master Class, will take place in November - details to come!)

Best regards,

Daniel M. Ennis
President, The Institute for Perception

WHAT WE DO:

- Client Services: Provide full-service product and concept testing for product development, market research, and claims support
- Education: Conduct internal training, external courses, and online webinars on product testing, sensory science, and advertising claims support
- IFPrograms*: License proprietary software to provide access to new modeling tools
- Research: Conduct and publish basic research on human perception in the areas of methodology, measurement and modeling

WEBINAR CALENDAR:

MARCH 21, 2019 .................................................... 2:00 PM EST, 75 minutes

- Supporting Numerical Superiority Claims

COURSE CALENDAR:

APRIL 9 - 11, 2019 ............................... The Greenbrier, White Sulphur Springs, WV
- Advertising Claims Support: Case Histories and Principles

MAY 7- 9, 2019 ............. The Williamsburg Lodge, Colonial Williamsburg, VA
- Sensory and Consumer Testing in Quality Assurance and Product Development

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While reviewing basic sensory testing methodologies involving difference testing, ratings and hedonics, we will address two practical problems, an ingredient change and the development of a new product to appeal to a segment of consumers with an unmet need. The course is cast in the context of a cookie company with staff similar to the participants. This means that the learning will resonate immediately and can be easily incorporated into the participants' normal projects. This course will benefit:

- Beginners in the field
- Product development and quality assurance staff
- Those with experience managing sensory programs
- Academics and consumer insights staff who want to learn about alternative methods to address product mapping and segmentation

Register by March 29th for the EARLY BIRD RATE

Register ONLINE at www.ifpress.com/short-courses/may-course-2019
Making Count-Based Claims from Sample Data

Daniel M. Ennis and Benoît Rousseau

Background: Numerical superiority claims such as “2 out of 3” or “4 out of 5 people prefer...” are powerful and commonly used to promote products. The National Advertising Division (NAD®) is the advertising industry’s self-regulatory body that adjudicates advertising claims in the USA. Examples of numerical superiority claims that were challenged at the NAD include a claim by General Mills that “In a national taste test, nearly 2 out of 3 Americans agree that Yoplait® Greek tastes better than Chobani®”. Another example is the claim that “Four out of five consumers prefer LG Cinema 3D over ... Samsung Active 3D in head-to-head comparison.” These claims involved performance numbers based simply on the actual results of the experiments. These cases raise a number of issues in using sample data to support advertising claims. One issue is whether it is justified to report sample data results in a claim where clearly the advertiser does not wish to limit the message to the particular consumers tested on a particular occasion. Even if it is truthful to say that particular results were obtain in a particular experiment, the implication to a consumer is that he/she will experience the benefit at a similar level. In reality the advertiser wishes to communicate a benefit message that applies to a target population at large, rather than reporting what amounts to an interesting factoid about an experiment that they conducted. A second issue is whether there should be consistency in the application of statistical principles to superiority tests that are not numerical and those that are. In this report we consider these two issues using a scenario for illustration of the points we will make.

Scenario: You work for a major beverage company that markets pomegranate juice. A small competitor that wishes to establish its market position, claims that its product is preferred to yours by almost 3 out of 5 consumers. To support this claim they conducted a nationwide consumer test among users of the category. The test itself was competently conducted. It was double-blind, included demographic specifications and brand share that matched the target users, and was conducted in a central location setting. Two sets of codes were used and sample presentation order was balanced, sample volume and temperatures were carefully controlled. Data analysis involved the splitting of the “No preference” responses equally between the two brands, resulting in significant superiority of their product over yours. The results also showed that 58% of consumers preferred the advertiser’s product, based on a sample of 250 consumers. The advertiser conducted no further statistical testing on the data and naïvely reported the test results in their claim, “almost 3 out of 5 consumers prefer...”. 60% corresponds to a count-based measure of 3 out of 5. You gleaned this information when your company initiated an advertising claim challenge.

Superiority Testing: It is a well-established practice when making superiority claims that the data is subjected to statistical testing. This practice is based on the first issue mentioned in the background above – claim statements refer to a target population and are not strictly applicable to the sample of consumers tested. Assuming that the two products do not differ on the variable of interest (null hypothesis), it is typically necessary to show that this assumption does not hold with a reasonable level of confidence when applied to the population at large. Figure 1 shows the minimal preference percentage needed to reject the hypothesis of no preference for various sample sizes in a one-tailed test at the 95% level. It can be seen that for small sample sizes, large preference proportions in the sample are needed and that they become smaller as the sample size increases. The idea of statistical significance for preference, above the threshold of 50%, is well established and accepted, as few researchers would conclude that a product is superior to another simply because they obtain a ratio > 50/50 preference, such as 51/49, in their experiment.

Numerical claims such as “2 out of 3” or “3 out of 5” are simply alternative expressions of superiority which have been numerically specified and correspond to 67% and 60%, respectively. Similarly, a traditional superiority claim could be stated numerically as greater than “1 out of 2”. Count-based comparisons also may include metrics such as “1 out of 5 people meet their future spouses on-line” (which may or may not be true.) Figure 2 is similar to Figure 1 but with the minimal preference percentage needed at

![Figure 1](image_url)
various sample sizes to reject hypotheses that are less than the numerical claim requirements of 60%. For instance, to establish a “3 out of 5” (60%) claim it is necessary to reject all hypotheses that include less than three out of five people preferring the advertiser’s product (59%, 58%, 57%, etc.). Similarly, for simple superiority, we reject the 50% point, but also 49%, 48%, 47%, etc. The underlying reasoning is that we must show that our reported result is unlikely to occur if the true preference probability is 50% or less. It is clear from the established standard expressed in Figure 1 that the same principles should also apply to other statements of superiority as shown in Figure 2. These two figures illustrate principles needed to address the issues raised in the Background above: a) Merely reporting test results is not sufficient to establish a claim because it is necessary to reject non superiority hypotheses, and b) In the case of a numerical superiority claim, such as “3 out of 5”, the same principles should apply.

Challenging the Advertiser: The advertiser’s data showed that 58% of consumers preferred their product to yours. While they rightfully concluded that their product was significantly preferred over yours, they went beyond their statistical evidence and, without any statistical testing, the advertiser claimed that “almost 3 out of 5” people preferred the advertiser’s product. You submit two objections to this conclusion: 1) There is no statistical standard for “almost” which can be arbitrarily set, and 2) the advertiser has not considered that the test results may be consistent with possible preference outcomes that are less than three out of five. To establish a “3 out of 5” claim it will be necessary to reject these hypotheses just as a hypothesis of 50:50 or less is rejected in a non-numerical preference claim. Even if the experimental outcome had been exactly “3 out of 5”, or 60%, it would still be likely that the true preference was below “3 out of 5”. With such high odds for an incorrect conclusion, it is easy to see how the “3 out of 5” claim cannot be made. Since 58% is in fact even less than three out of five or 60%, the advertiser cannot reject the hypothesis of less than 60% with any reasonable confidence. The advertiser’s result is shown as a star in Figure 1 and Figure 2. You argue that the claim should be discontinued.

Losing a case such as this by the advertiser at the NAD may lead to a recommendation to modify the claim and remove the numerical component. If this is done, the advertiser may still claim superiority without using the “3 out of 5” form of the claim. With their test result of 145 choices in favor of their product out of 250, they can claim superiority at the 99.3% confidence level (although they should have had a simple superiority test in their protocol). This challenge, although successful in removing the original claim, may become a Pyrrhic victory for your company as your competitor can continue to advertise superiority. You decide to now focus on the reason that your new competitor makes a preferred product, irrespective of the degree of superiority.

Conclusion: It is not uncommon for advertisers to base their claims on actual test results without considering the need to establish a basis for the generalization that their claims imply. Numerical superiority claims are extremely attractive in marketing the benefits of consumer products. It is not surprising that these claims are sometimes exaggerated or even simply naïvely reported based on a single product test. Consumers may be misled to conclude that the reported results from this single experiment apply to them, when in fact, they may belong to a substantial group who may never experience the benefit claimed.

References
2. LG Electronics USA, Inc. (Cinema 3D Television and 3D Glasses), Report #5416, NAD/CARU Case Reports (January 2012). Challenger: Samsung Electronics America, Inc.

**Figure 2.** Minimum preference percentage needed to declare “3 out of 5 prefer” ($p=0.05$) depending on the experiment’s sample size.
Comparative advertising improves sales. How do you support your advertising claims and how do you address false claims or challenges made by your competitors? Claims support is a critical business focus for many companies in categories with aggressive competitors.

The purpose of this course is to present principles involved in testing product performance and surveys to access advertising messages. This knowledge base is necessary in order to provide solid evidentiary support needed in the event of a claims dispute.

The course speakers have decades of experience as instructors, scientific experts, jurors, and litigators in addressing claims with significant survey and product testing components. National Advertising Division® (NAD®) and litigated cases will be used to examine and reinforce the information discussed.

### Scientific Team:
- Dr. Daniel M. Ennis
- Dr. Benoît Rousseau
- Dr. John M. Ennis

### Legal Team:
- NAD

### TUESDAY (APRIL 9, 8am - 4pm)

**8:00 – 9:00 | Advertising Claims Support**
- Introduction and scope of the course
- Claims support in product/brand development
- Admissibility of expert testimony
- Surveys in false advertising and trademark cases
- Efficacy, perception, and materiality

**9:10 – 10:00 | Claims and False Advertising; Internal Counsel Perspective**
- Three ways an ad can be false
- A typical false advertising lawsuit
- To sue, challenge, or negotiate - an internal counsel’s perspective

**10:10 – 11:00 | Test Method, Design, Location, and Participants**
- Test options: Monadic, sequential, direct comparisons
- Test design issues: Within-subject, matched samples, position and sequential effects, replication
- Choosing a testing location and test subjects
  1. NAD Case #3506 and NARB Panel #101 (1999) Visa USA, Inc. (Visa Credit Card-Preferred Card Advertising)
  2. NAD Case #5425 (2012) Church & Dwight Co., Inc. (Arm & Hammer® Sensitive Skin Plus Scent)
  3. NAD Case #6041 (2016) Unilever United States, Inc. (Suave Essentials Body Wash)

**11:10 – Noon | ASTM Sensory Claims Guide**
- Choosing a target population, selection of markets
- Product issues: sampling, shelf age, handling
- Comparative vs sequential monadic designs
- How to handle no difference/preference
- Claims: Superiority, unsurpassed, equivalence, and their paradoxes

**Noon – 1:00 LUNCH**

**1:00 – 3:00 | NAD Mock Hearings; Overview of the NAD**
- NAD Mock Hearings: 3D TV and Yogurt
- NAD Case #5416 (2012) LG Electronics USA, Inc. (Cinema 3D TV & 3D Glasses)
- NAD Case #5715 (2014) General Mills Inc. (Yoplait Blended Greek Yogurt)
- Advertising self-regulation and the NAD process
- Preparing for an NAD hearing

**3:10 – 4:00 | Sensory and Hedonic Methods**
- Methods: Discrimination, descriptive, hedonic
- Data: Counts, ranking, rating scales
- “Better” and “Greater”, hedonic, sensory, and technical claims
- Attribute interdependencies
- NAD Case #5609 (2013) Starbucks Corp. (Verismo Single-Serve Coffee System)
- NAD Case #5782 (2014) MOM Brands Company (Malt-O-Meal Brand Cereals)
- NAD Case #5866 (2015) Kimberly-Clark Corp. (Huggies Natural Care Wipes)
- NAD Case #5874 (2015) and NARB Panel #207 (2016) Chatham, Inc. (Nasacort)
- NAD Case #5984 (2016) French’s Food Company (French’s Tomato Ketchup)

**WEDNESDAY (APRIL 10, 8am - 4pm)**

**8:00 – 9:00 | Consumer Relevance**
- Setting action standards for consumer-perceived differences
- Linking expert and consumer data
- Clinical vs. statistical significance
- NAD Case #5715
- Litigated Case: SC Johnson vs. Clorox – Goldfish in Bags, 241 F.3d 232 (2nd Cir. 2001)
- NAD Case #5819 (2015) Unilever US (Degree MotionSense and Degree Clinical Protection Antiperspirant)
- NAD Case #5974 (2010) Comcast Communications, Inc. (Xfinity Internet, Television & Telephone Services)
- NAD Case #6025 (2010) Bausch & Lomb, Inc. (PeroxiClear Contact Lens Peroxide Solution)

**9:10 – 10:00 | Perception Surveys**
- Purpose of conducting surveys: Events and behaviors, attitudes and beliefs, subjective experiences
- Design: Splitting open and closed-ended questions
- How respondents answer questions: Optimizing and satisfying
- Filters to avoid acquiescence and no opinion responses
- Survey questions: Biased, open-ended vs. closed-ended
- What is a control and when do you need one?
- Steps to improve survey questions
- All claims imply a benefit to some segment: Implications

**10:10 – 11:00 | Requirements for a Sound Methodology**
- The AAPOR report (American Association for Public Opinion Research) on non-probability sampling
- Psychometric properties of the survey items
- Reliability and validity:
  - Ecological, external, internal, face, construct
- Bias: Code, position
- Task instructions – importance and impact

**11:10 – Noon | Analysis - Interpretation and Communication**
- Hypothesis testing
- Common statistical analyses
- Determining statistical significance and confidence bounds
- Statistical inference in claims support
- Communicating claim requirements to the business side
1:00 – 3:00 | NAD Mock Hearing: Perception (Consumer Takeaway) Surveys

♦ NAD Mock Hearing: Weed and Feed
117) NAD Case #6033 (2016) Bayer CropScience US
(Bayer Advanced 3-in-1 Weed and Feed for Southern Lawns)

Consumer takeaway surveys: NAD perspective, critique of cases
18) NAD Case #5849 (2015) T-Mobile USA (More Data Capacity)
19) NAD Case #5926 (2016) Comcast Cable Communications (Xfinity Cable TV)
20) NAD Case #6009 (2016) Epson America, Inc. (Epson EcoTank Supertank Printers)

3:10 – 4:00 | Test Power

♦ The meaning of power
♦ Planning experiments and reducing cost
♦ Sample sizes for claims support tests
♦ Managing Risks: Advertiser claim, competitor challenge
21) NAD Case #3605 (1999) Church & Dwight, Co. (Brillo Steel Wool Soap Pads)

THURSDAY (APRIL 11, 8am - 3pm)

8:00 – 9:00 | What to do with No Difference/No Preference Responses

♦ No preference option analysis
♦ Power comparisons: Dropping, equal and proportional distribution
♦ Statistical models and psychological models
♦ ASTM recommendation
23) NAD Case #4270 (2004) Frito-Lay, Inc. (Lay’s Stax® Original Potato Crisps)
25) NAD Case #6037 (2016) Mizkan America, Inc. (RAGU Homestyle Traditional Sauce)

9:10 – 10:00 | Testing for Equivalence and Unsurpassed Claims

♦ How the equivalence hypothesis differs from difference testing
♦ ASTM requirements for an unsurpassed claim
♦ The paradox of finding support for superiority, unsurpassed, and equivalence; the need for a minimum standard for superiority
♦ FDA method for qualifying generic drugs: The TOST
♦ Improved methods over TOST for testing equivalence
26) NAD Case #5822 (2015) Kimberly-Clark Global Sales, LLC (Huggies® Little Snugglers Diapers)
27) NAD Case #5829 and NARB Panel #202 (2015) Bayer HealthCare, LLC
(Claritin and Claritin-D)

10:10 – 11:00 | Ratio, Multiplicative, and Count-Based Claims

♦ The difference between ratio and multiplicative claims; Examples
♦ Why ratio claims are often exaggerated
♦ Count-based claims (e.g., “9 out of 10 women found our product reduces wrinkles”)
28) NAD Case #5107 (2009) Ciba Vision Corp. (Dailies Aqua Comfort Plus)
29) NAD Case #5484 (2012) Reynolds Consumer Products (Hefty® Slider Bags)
30) NAD Case #5934 (2016) Rust-Oleum Corp. (Painter’s Touch Ultra Cover 2X Spray Paint)

11:10 – Noon | “Up To” Claims

♦ Definition and support for an “up to” claim
♦ FTC opinion on windows marketers
♦ Analysis of an “up to” claim scenario
♦ Issues in applying the FTC rule
31) NAD Case #5707 (2014) Mars Petcare US (Pedigree® Dentastix® Chews)
32) NAD Case #5876 (2013) The Procter & Gamble Co. (Duracell Coppertop & Duracell Quantum Alkaline Batteries)

noon – 1:00 lunch

1:00 – 3:00 | Applying Course Principles and Concepts

♦ Group Exercise: Develop support strategy for an advertising claim to include: engagement of all stakeholders, wording of the claim, design and execution of a national product test, product procurement, analysis, and report

Course Registration

April 9–11, 2019 (3 days).... $1,975*

*A 20% discount will be applied to each additional registration when registered at the same time, from the same company.

*The Institute for Perception offers reduced or waived course fees to non-profit entities, students, judges, government employees, and others. Please contact us for more information.

Note: Approximately 12 credits will be sought for registrants in jurisdictions with CLE requirements. This program also qualifies for Certified Food Scientist contact hours (CH). CFS Certificants may claim 15 CH for their attendance.

Register online at www.ifpress.com/short-courses where payment can be made by credit card. If you qualify for a fee discount, or would like information about payment by invoice, please contact Susan Longest at mail@ifpress.com or call 804-675-2980 before registering.

Fee includes food/beverage break refreshments, lunches, group dinners, course manual, and a copy of our latest books:

♦ Readings in Advertising Claims Substantiation
♦ Tools and Applications of Sensory and Consumer Science
♦ Thurstonian Models: Categorical Decision Making in the Presence of Noise

lodging: Lodging is not included in the course fee and participants must make their own hotel reservations. A block of rooms is being held at The Greenbrier at a special rate of $205 (plus resort fees & taxes). To make a reservation, please call 1-877-661-0839 and mention you are attending the Institute for Perception course (note: the special rate is not available through online reservations.) To learn more about The Greenbrier, visit their website at www.greenbrier.com.

Transportation: The Greenbrier Valley Airport (LWB) in Lewisburg is only a 15 min. shuttle ride from the hotel. Direct flights to LWB are available on United Airlines from Chicago O’Hare (ORD) and Washington Dulles (IAD). Other airports include Roanoke, VA (ROA, 1 hr. 15 min.), Charleston, WV (CRW, 2 hrs.), and Charlottesville, VA (CHO, 2 hrs. 15 min.).

Cancellation policy: Registrants who have not cancelled two working days prior to the course will be charged the entire fee. Substitutions are allowed for any reason.
Dr. Daniel M. Ennis - President, The Institute for Perception. Danny has more than 35 years of experience working on product testing theory and applications for consumer products. He has doctorates in food science and mathematical & statistical psychology and is a Professional Statistician accredited by the American Statistical Association. He has published extensively on mathematical models for human decision-making and was the first to show that humans possess a transducer in the chemical senses. In 2001, he solved the degeneracy problem in multidimensional unfolding. Danny is a recipient of the Sensory and Consumer Sciences Achievement Award from IFT and also the ASTM David R. Peryam Award in recognition of “outstanding contributions to the field of basic and applied sensory science.” Danny consults globally and has served as an expert witness in a wide variety of advertising cases.

Dr. Benoit Rousseau - Senior Vice President, The Institute for Perception. Benoit received his food engineering degree from AgroParisTech in Paris, France and holds a PhD in sensory science and psychophysics from the University of California, Davis. He has 25 years of experience in managing projects in the field of sensory and consumer science, actively working with clients in the US, Asia, Latin America, and Europe. His theoretical and experimental research has led to numerous journal articles as well as several book chapters. Benoit is well known for his advanced presentation skills, where his use of sophisticated visual tools greatly contribute to the success of The Institute for Perception communications, short courses, and webinars. Dr. Rousseau has recently been appointed as a visiting professor at Chuo University in Japan.

Dr. John M. Ennis - Vice President of Research Operations, The Institute for Perception. John received his PhD in mathematics and conducted his post-doctoral research in neurobiologically motivated machine learning models at the University of California, Santa Barbara. He is the winner of the Food Quality and Preference Award for “Contributions by a Young Researcher.” John has published in statistics, mathematics, psychology, algorithmics, and sensory science. He has a strong interest in the widespread adoption of best practices throughout sensory science, serves on the editorial boards of the Journal of Sensory Studies and Food Quality and Preference, and is chair of the ASTM subcommittee E18.04.

Annie Ugurlayan - Assistant Director of Communications, joined the NAD in 2003. Annie regularly speaks at conferences nationwide and abroad, with a particular focus on cosmetics and personal care cases. Annie is a published author, is actively involved in many bar associations, and also serves on the Board of the New York Women’s Bar Association Foundation.

Hal Hodes - Senior Staff Attorney, joined the NAD in 2012. Prior to joining the NAD, Hal worked in private practice where he represented hospitals and other health care practitioners in malpractice litigation. Hal has also served as an attorney at the New York City Human Resources Administration representing social services programs.

Robyn Lewis - Staff Attorney, joined the NAD in 2016. Robyn’s prior experience includes working at the Electronic Retailing Self-Regulation Program (ERSP) and as a litigator at Weil, Gotshal & Manges. She has also served as an attorney at Bronx Defenders where she represented indigent defendants accused of misdemeanor offenses.

Lauren Aronson - Counsel, Crowell & Moring in Washington, DC. Lauren advises clients regarding the development, substantiation, approval, and defense of advertising claims. She was formerly a counsel in the Advertising, Marketing & Media division at Manatt, Phelps & Phillips.

Christopher A. Cole - Partner, Crowell & Moring in Washington, DC. Chris practices complex commercial litigation and advises the development, substantiation, and approval of advertising and labeling claims. He has represented leading consumer products and services companies and appeared many times before the NAD.

Alexander Kaplan - Partner, Proskauer Rose in NYC. Alex represents and advises a range of consumer product, food and beverage, pharmaceutical, and medical device companies before the NAD and federal courts. He also frequently counsels clients concerning advertising and marketing claim substantiation and review.

Cynthia E. Kinser - Former Deputy and Attorney of the Consumer Protection and Advocate Division of the Tennessee Attorney General’s Office. Cynthia, now retired, worked to protect consumers and businesses from unfair and deceptive trade practices, enforced state and federal antitrust laws, and enforced the Unauthorized Practice of Law statutes.

David G. Mallen - Partner, Loeb & Loeb in NYC. David’s focus is in the areas of advertising and consumer protection law. He co-chairs the firm’s Advertising Disputes practice and represents clients in disputes and investigations before the FTC and state agencies. As former NAD Deputy Director, he has worked with advertisers to both defend and challenge claims.