Bordeaux 2016 Abstract Submission

Title
Opinion Versus Facts: A Bio-statistical Paradigm Shift in Oenological Research

I want to submit an abstract for:
Conference Presentation

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Keywords
Opinions; Facts; Biostatistics; Paradigm Shift; Reliability-Validity; Wine Tasters

Research Question
How can oenological researchers study judges’ knowledge about wine's binary characteristics (e.g., Oaked or not? Contains sulfites or not? Syrah or Grenache varietal?)

Methods
Statistics of the sensitivity-specificity model applied to oenological research; simulation methodology

Results
A high level of a wine taster's accuracy (90% or higher) can be associated with a wide range of accuracy on specific indices. This seeming paradox is examined and resolved.

Abstract
Opinions versus Facts: A Bio-statistical Paradigm Shift in Oenological Research

Enological research focuses heavily on the perceived quality of wines. This makes sense since every major country produces wine; as well as all 50 American states. The ratings given to wine are an important part of the efforts of the wine industry. Wines receiving the coveted score of 90 or above- especially at affordable prices- are the desideratum of many wine lovers. All of the resulting hyperbole is founded upon “expert opinion”, rather than upon fact. A wine characterized by a heavy fruit-up-front quality is much more likely to be applauded by Robert Parker and his enological disciples than by, say, Jancis Robinson or Clive Coates, who are both devotees of more balanced and nuanced wines. It’s all a matter of opinion or what the consumer prefers. Contrast this with factual and nominal-dichotomous characteristics of wine: oaked or not? sulfites or not? filtered or not? which grape varietal? Cabernet Sauvignon or Cabernet Franc? Syrah or Grenache? Pinot Noir or Gamay? These issues are examined within the broader context of the various measures of factual accuracy, as derived from bio-behavioral diagnostic research investigations: Overall Accuracy; Sensitivity, Specificity, Predicted Positive Accuracy and Predicted Negative Accuracy.
Introduction
The research wine literature has, as a major focus, how experts compare in their preferences for wines. In an attempt to capitalize financially upon this phenomenon, the wine industry has placed a premium on wine ratings of 90 and above. This score is considered the desideratum for wine consumers at all levels of expertise, especially when paired with affordable prices. This phenomenon emanates from application of the most well-known, and easiest to understand 50-100 point scale utilized by Robert Parker (RP), the Wine Spectator-in the person of James Suckling (JS)- and the Wine Enthusiast- as embodied by Steven Tanzer (ST). Other lesser well-known wine scales use a 12-20 point format as typified by the famous British oenologist, Jancis Robinson (JR). The difference between the two scales is more apparent than real, since they can be equated for research purposes by simply multiplying the JR score by a constant value of 5 points (e.g. Cicchetti & Cicchetti, 2009 and 2014). Viewed in a broader context, the emphasis upon wine preferences can be classified as opinion research, where no correct judgment is possible. This being the situation, the resulting focus has been on the extent to which wine judges agree with each other, without being able to classify one judge’s ratings as more valid or accurate than that of other judges rating the same wines. As with the evaluation of works of art, there is simply no accounting for taste. One person’s elixir is another’s bete noire (De gustibus, non est disputandum).
In addition to the easily explained paucity of research on oenophiles’ understanding in the factual realm, there is a second serious problem. This has been the absence of a defensible bio-statistical strategy to apply to this neglected realm of important oenological research. This second area of focus defines the main thrust of this report. The resulting approach can best be understood as it applies to the accuracy of assessing oenological facts as in the providing of answers to the following types of questions: Is a wine oaked or not? Does it contain sulfites or not? What is the grape varietal? (e.g. Cabernet Sauvignon or Cabernet Franc; Grenache or Syrah; Pinot Noir or Gamay?) The motivation for this research derives from several sources: participation in wine tasting studies focusing upon differentiating between different wine varietals at annual meetings of the New York and New World Wine Experiences; recent studies in the science of wine (Goode, 2014); and some of the recent research undertaken by the author (Cicchetti & Cicchetti (2009; 2014).
The next section will focus upon recommended bio-statistical methods for providing answers in the study of binary oenological variables.

Hypothetical Oenophiles Distinguish Between Oaked and Unoaked Wines

Consider that 10 apocryphal wine lovers consent to participate in a tasting whose objective is to differentiate between 100 Oaked and Unoaked wines of the same vintage year, from around the globe. How accurate are their judgments? Here we have a binary judgment to answer the research question: Are the wines classified as Oaked: Yes or No? Borrowing from the broader fields of biomedical science and physics and chemistry, the components of wine judgment would be: Overall Accuracy (OA); Sensitivity (Se); Specificity (Sp); Predicted Positive Accuracy (PPA); and Predicted Negative Accuracy (PNA).

Defining the Five Components of Judgmental Accuracy

Overall Accuracy (OA) refers to the total percentage of correct judgments. Applying the criteria of Cicchetti, Volkmar, Klin, & Showalter (1995):