Debunking Critics' Wine Words:
Can One Distinguish the Smell of Asphalt from the Taste of Cherries?
(No Accounting for Taste)

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Abstract

I report my tests of the hypothesis that wine consumers cannot match critics' descriptions of wines with the wines themselves. My results suggest that testers' ability to match the descriptions with the wines is no better than random. I report on more than two hundred observations of wine drinkers who engaged in the following experiment. The drinker faces 3 glasses of wine, two of which contain identical wines and the third contains a different wine. I record whether the drinker can distinguish wines—whether he can tell the singleton from the doubleton and, if the drinker can distinguish, which wine he prefers. I present the testers with descriptions of the two wines written by the same wine critic/reviewer. I find that 51 percent of the testers who can distinguish the wines correctly match the description of the wine with the wine itself. The percentage matching does not significantly differ from the expected-if-random half. I have recorded the sex of the testers and I can find that men can distinguish the wines better than random, but women cannot. The differences are so small, even though significant, however, that the Exact F test detects no significant difference between the ability of men and women in these experiments. The results span tests of wines from Bordeaux, Burgundy, the Rhone, Spain, Germany, and Australia; the tests use only still wines, all less than ten years old.

Dedication I dedicate this paper to Adrienne Lehrer, whose 1983 book, *Wine and Conversation,*[2] with a different experiment design, anticipated these results.

Introduction

The wine reviewer tastes the wines and records notes about their character and taste. The research reported here investigates whether the words the reviewer uses convey information

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[1] Also, V. Duane Rath Professor of Accounting, Graduate School of Business, University of Chicago, 1101 East 58th Street, Chicago IL 60637; 773.702.7261; fax 206.202.2114; roman.weil@gsb.uchicago.edu. I prepared this paper for the 11th Oenometrics Meeting of the Vineyard Data Quantification Society, Dijon, May 21-22, 2004. Some past attendees asked, "Why does an academic accountant do such work?" I respond as follows. First, note that accounting is an intellectual discipline even though you probably think of it as bookkeeping and tax reporting. Accounting records in aggregating numbers information about complex transactions. Then, it attempts to enable users of that information to deduce from the numbers the underlying reality and how to use the data in decision making. Similarly, wine reviews and ratings record in aggregating numbers useful information about complex sensory experience. This paper attempts to help the user decide how to use the reported data in making decisions. Natasha Tantsura assisted in the compilation of the data for this research and in the writing of this paper. Neither she nor I can distinguish better than random.

[2] A. Lehrer, *Wine and Conversation,* Bloomington: Indiana University Press, 1983. See also L. Osborne, *The Accidental Connoisseur,* New York: North Point Press/Farrar, Straus & Giroux, 2004.

useful to the reader, the subjects in my experiments.   Here, I report my tests of wine testers' ability to distinguish wines from reviews of them. My results show that:

- Half of my wine tester subjects can distinguish in blind testings the two wines in each of the tests, whereas only one-third could if the process were random, but
- of those who can distinguish, less than half can match the lists of wine words with the wine described by those words, whereas half could if the process were random.

Conclusion. Wine drinkers cannot match better than chance wines with their descriptions. Wine words used by critics to convey analogy to fruits, vegetables, minerals, and odors are worthless.

Methods

First, I located pairs of wines with the following characteristics: the testers could afford them [typically, but not always, $40 or less per], the pairs have similar features,[3] and the same writer/ critic wrote about these two wines with disjoint word sets.   That is, the reviewer used different words in describing the two wines.

To be clear, look at Exhibit 1, testing number 3, for a pair of French Bordeaux. The pair of wines reported here are both from the 2000 vintage—Talbot and Clos du Marquis, both costing around $50 and both reviewed in *The Wine Advocate*. The descriptions of these two wines use disjoint words:

Talbot--Admirable richness, layered texture, sweet tannin, abundant quatities of smoky cassis, licorice, herb, earth, and leather characteristics. Complex aromatics, blends power with elegance.

Clos du Marquis-- Dense, opaque purple-colored, with crème de cassis, vanilla, and cherry notes, medium to full body, an unctuous texture, low acidity.

Second, I split the wine into four containers labeled A, B, C, and D, putting each of the wines into exactly two of the four containers. I gave each tester wines from three of the four contain-ers.[4]   I asked each tester to say which of the three wines differed from the other two. Then, which of these did you prefer, the singleton or the doubleton? And, which of two lists of words describes each of the two wines? A typical tester, say one testing from containers A, B, and D, would respond something like, "wine A differs from B/D, I prefer B/D, and list II goes with wines B/D."

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[3] Common features include grape type, color of wine, sweetness, and age. In some of the tests, the two wines come from different vintages.   In all cases the same reviewer wrote the reviews the two wines in a given test.

[4] In the testings with 20 or more individuals, I had two bottles of each wine/vintage. I did not mix those two bottles and then split them in half, but gave the two bottles separate labels.   I wonder if you'd prefer the experimenter to mix identical wines and then split into two containers, which controls somewhat for bottle variation but would not present wines the way individual buyers and drinkers face them.

I tallied how many of the testers correctly distinguished the wines and which they preferred, although we don't care which they say they prefer for these tests. I presented the testers with the two sets of words and asked them to match each set of word lists to the wine.

I have recorded data separately for men and women.

After the tally, I matched the wines to the letter labels and counted how many of the testers correctly distinguished between the two wines. I counted whether the tester could correctly match the words to the wines only if that tester correctly distinguished the wines. I announced the result. Refer, for example, to the testing of the Bordeaux wines in testing number 3. I announced, "Eighteen of us tested these two wines; eleven of us got the distinction right and of those eleven, eight correctly matched the word lists to the wines."

I announced the result of each pair-wise testing before going on to the next pair. Most testers tested more than a single pair of wines. Exhibit 1 shows the order in which the subjects tested the wines on each date.

Most of the testers were either MBA students at the Graduate School of Business of the University of Chicago or its alumni and their companions. They are primarily upper middleclass, experienced and enthusiastic wine drinkers, but not experts. All testers paid an entry fee for the testing, which fee covered full costs of the testing, and in the case of some of the alumni, more. How often do experimenters get their subjects to pay to participate?

Basic Results

Exhibit 1 reports the results. Each individual who tests a vintage pair has a one-third probability of correctly distinguishing the wines by chance: three glasses, one is different; one in three chance of guessing that glass. With n testers and random choices, the expected number of correct distinctions is $n/3$.

Overall Results. Look at the bottom of Exhibit 1, the totals. A total of 166 testers have tested 321 pairs of wines. One-third of 321 is 107, so we'd expect 107 correct distinctions if the process is random where the testers cannot distinguish the wines. The observed number is 162, just over half, 51 percent. This differs from the expected relative frequency of 33.3 percent by over 6 standard deviations.

Refer to the last pair of columns in Exhibits 1which reports the ability of those who correctly distinguished the wines to match the words to the wines. Of the 162 pairs where the tester could distinguish correctly, the tester matched the word lists to the wines in just under half [49.4% = 80/162] the pairs. The observed 49.4 percent differs from the expected-if-random 50 percent by an insignificant 0.2 of one standard deviation. So, even the testers who can distinguish the wines have only an even chance of matching words to wines.

Implications

What to do with these results?

I recommend that you not think that wines will taste or smell to you the way the words the critics use suggest the wines taste or smell to them.

I have not tested the following possibility. Consider two tastes, R and C. Imagine that every time a critic says a wine tastes like raspberries, it has taste R and every time the critic says a wine tastes like cassis, it has taste C. To you, taste R resembles apples, and taste C resembles bananas. If the critic is consistent in labeling wines with taste R as raspberries and wines with taste C as cassis, then you can deduce from the review what the wine will taste like to you. I have not assembled testings of wines to ascertain whether others can confirm the consistency of the tastes of the critics.

Some experienced wine drinkers have commented that one requires practice and guidance to identify wine tastes. William Wecker [who devised the taxonomy that distinguishes wine drinkers from wine fondlers] suggests one should drink the wines knowing which list goes with which wine, and use the distinction between the lists to tell you what to expect when tasting. Then, you can learn to align your evaluations with your sensations. He says use the distinction as a teaching guide.

Maybe so, but don't expect the tastes the wine critics' words bring to your mind to be there when you drink the wine.

Exhibit 1   **Raw Data, sorted by testing date and wine tested.**

WINE WORDS TESTS

Testing Date	Wines [In Order Tested]	Words Used	Price	Price Ratio First to Second // Word Source	Number of Testers	Getting Distinction Right Number %		Number Getting Distinction Right Who Correctly Matched Lists	%
May '03	1998 Fox Creek Shiraz / Cabernets; R Parker	Sumptuous nose of black fruits and spicy new oak …. Intense black cherry/cassis flavors…	$ 30	2.00 W	4	3	75%	0	0%
GSB Faculty & Students	2001 Marquis Philips Sarah's Blend; R Parker	Stunningly sweet bouquet of ground pepper, blackberry liqueur, and toasty oak.	15	Wine Advocate M	9	5	56%	2	40%
Jun '03	1999 Ch De Maligny, Carre de Cesar; Sam's Unsigned	Sleek and refined pear, green apple, slate, and racy acidity.	17	1.31 W	2	2	100%	2	100%
UChicago Faculty	2002 Omaka Springs Marlborough Sauvignon Blanc; Sam's Unsigned	Juicy; lively mouthful of lemon, citrus, pepper, and passion fruit flavors.	13	Sam's Web Site M	13	13	100%	6	46%
	1999 Dujac Morey St. Denis 1ER; Rovani	Nose shows candied cherries, spices. It offers tangy cherries, strawberries, raspberries; sweet, well-balanced.	75	1.50 W	2	2	100%	1	50%
	1999 Dujac Morey St Denis; Rovani	Nose is waxy, sweet cherries. Loads of red fruits.	50	Wine Advocate M	12	3	25%	1	33%
	2000 d'Arenberg "The Footbolt," Australian Shiraz, Jim Chanteloup.	Packed with dense blackberry fruit; notes of licorice, smoked meats and bittersweet chocolate. Silky texture. Fine balance and length.	15	1.51 W	2	1	50%	0	0%
	2000 Finca Sobreno Crianza, Toro, Anne Pickett & Rob't Parker	Wonderful sweet black cherry fruit intermixed with spice box, cedar, toasty oak, and excellent texture, plenty of berry fruit, supple hedonic finish.	10	K&L Wine Letter M	11	8	73%	2	25%

		Description		$								
3	Dec '03	AC 2002 Schloss Lieser Niederberg Helden Spatlese	Delicate and seemingly transparent in texture, framework for the peach, herb and mineral flavors and a creaminess from the midpalate to the fine, lingering, mouthwatering finish.,,, More defined flavors of rose petal, white and yellow peach, orange peel, sour plums and cherries. Very refined with a driving slate imprint that intensifies the already seething soil/fruit battle creating layer upon layer of flavor.	$	20	0.83 W	K&L Wines	12	5	42%	1	20%
3	Kansas City GSB Alums	BD 2002 Dr. F. Weins-Prum Erdener Pralat Spatlese	A touch of the tropical in the nose, like spiced pineapple and passio fruit with a dose of rich mineral character. Bright and lively with a sil texture and ripe round acid structure. Very Long		24		Catalog M	18	7	39%	4	57%
3		AB 1999 Bruno Clair Savigny Les Beaune La Dominode	Nose of blackberries and spices. Medium-bodied wine is crammed with dark fruits, hints of licorice, and flavors reminiscent of freshly laid asphalt. Powerful, foursquare, austere, long ripe tannin-filled finish.		55	1.10 W		10	4	40%	3	75%
3		CD 1999 Dujac Morey St Denis	Nose of candied cherries and spices. Light to medium-bodied and well-made; offers tangy cherries as well as strawberries and raspberries in its sweet well-balanced character.		50		Wine Advocate M	17	12	71%	10	83%
3	Dec '03	BC 2000 Cabrieres Chateuneuf du Pape la Lettre A Louis Arnaud	Deep ruby color includes purpose nuances. Closed aromatically, hints of crème de cassis and black cherries. Cuts broad swath across the palate with considerable depth and concentration. Tannic as well as broodingly backward….		50	1.67 W		11	6	55%	3	50%
3	Kansas City GSB Alums	AD 2000 Cabrieres Chateuneuf du Pape Cuvee Prestige Tete de Cru	Deep ruby/purple color; sumptuous perfume of figs, plums, prunes, and jammy black cherry fruit. Large, voluminous mouthfeel, unctuous texture, full body. Low acidity, sweet tannin and gobs of glycerin as well as fruit.		30		Wine Advocate M	19	12	63%	9	75%
3		CD 2000 Talbot	Admirable richness, layered texture, sweet tannin, abundant quatities of smoky cassis, licorice, herb, earth, and leather characteristics. Complex aromatics, blends power with elegance.		50	1.11 W		12	5	42%	5	100%
3		AB 2000 Clos du Marquis	Dense, opaque purple-colored, with crème de cassis, vanilla, and cherry notes, medium to full body, an unctuous texture, low acidity.		45		Wine Advocate M	16	6	38%	3	50%

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	Date / Group	Wine	Description	Price	Source	N	M	%		%
	Feb '04									
4		2000 Cabrieres Chateuneuf du Pape la Lettre A Louis Arnaud	Deep ruby color includes purpose nuances. Closed aromatically, hints of crème de cassis and black cherries. Cuts broad swath across the palate with considerable depth and concentration. Tannic as well as broodingly backward….	50	1.67 W	19	7	37%	2	29%
4	San Francisco GSB Alums	2000 Cabrieres Chateuneuf du Pape Cuvee Prestige Tete de Cru	Deep ruby/purple color; sumptuous perfume of figs, plums, prunes, and jammy black cherry fruit. Large, voluminous mouthfeel, unctuous texture, full body. Low acidity, sweet tannin and gobs of glycerin as well as fruit.	30	Wine Advocate M	37	20	54%	8	40%
	Mar '04									
5		2001 Rasteau Cuvee Prestige Dom. La Soumade	Sweet with lush mouth feel… tremendous Framboise flavors and length on the palate.Tannins are round and very ripe.	20	0.69 W	5	2	40%	1	50%
5	Stanford Faculty	2001 Rasteau Cuvee Confiance Dom. La Sou-made [80/10/10]	… wealth of red fruits with raspberry scents. It is a dense wine with violet undertones and dark red and black fruits.	29	K&L Wines Catalog M	9	4	44%	3	75%
	Apr '04									
6		2001 Rasteau Cuvee Prestige Dom. La Soumade	Sweet with lush mouth feel… tremendous Framboise flavors and length on the palate.Tannins are round and very ripe.	20	0.69 W	17	5		1	20%
6	Chicago MBA Students	2001 Rasteau Cuvee Confiance Dom. La Sou-made [80/10/10]	… wealth of red fruits with raspberry scents. It is a dense wine with violet undertones and dark red and black fruits.	29	K&L Wines Catalog M	23	10		5	50%
	Apr '04									
6		1990 Michel-Schlumberger Cabernet Sauvignon Reserve	Rich with layers of berries and spice. [Producer] Deep toasty oak is complimented by blackberries and herbs. Supple and opulaent fruit carries through with cigar box and vanilla fragrnaces. [Wine Enthusiast]	120	5.45 W	17	8		4	50%
6	Chicago MBA Students	1990 Michel-Schlumberger Cabernet Sauvignon	Cherry, cassis, and blackberry; smoky cumin and cedar. [Producer] Aromas of cherry, currant, chocolate, vanilla, mint and spice [Underground Wine Journal]	22	M	24	12		4	33%
	Totals ……					321 =N	162 =M		80	

Expected Frequency if Process is Random ……………………………………………… 33.3%   50.0%
Observed Relative Frequency ……………………………………………………………… 50.5%   49.4%
Standard Deviation of Relative Frequency if Process is Random …………………… 2.63% [a]   3.93% [b]
Z Score: (Observed - Expected) Divided by Standard Deviation ……………………… 6.5   -0.2

Note a: Square Root (1/3 x 2/3 x 1/N)
Note b: Square Root (1/2 x 1/2 x 1/M)