

Textmining in R

Robert Parker's Comments on Bordeaux Red Wine

Kazue Ishida¹

Motohiro Ishida²

¹ Center for General Education, Tokushima 770-8502, JAPAN.

E-mail: ishida.kazue@gmail.com

² Faculty of Integrated Arts and Sciences, Tokushima University, Tokushima 770-8502, JAPAN.

E-mail: ishida-m@ias.tokushima-u.ac.jp

Keywords: Text Mining, R, the tm Package, Correspondence Analysis

1 Introduction

1.1 Robert Parker and his Influence

Nobody would deny that Robert M. Parker, Jr. is one of the most influential wine critics in the world. His work as a professional has been focused on comparative tastings of peer wines from the same vintage that are produced in the same viticultural area. He gives each wine a rating on a 50-100 scale and a tasting note which accompanies it. These appear in his bimonthly periodical, *The Wine Advocate* (Parker(2001, 2003b)). The book entitled *Bordeaux: A consumer's Guide to the World's Finest Wines* (Parker(2003a)) was a compilation of ratings and comments that had been given to Bordeaux wines from 1978 to April 2003. Parker's evaluation of wines has a direct influence on their market prices. Especially those awarded 100, a perfect score, see their prices rise disproportionately high, compared to the other loftily rated wines that fall only slightly short of the height of perfection. The fact is that 100 casts a spell on a wine and bestows on it a certain dignity that demands some extra charge on the price. Take three most prestigious chateaux (wine-producers) from the Medoc, Latour, Lafite Rothschild, and Margaux, for example. In the last millennium vintage 2000, all three chateaux boasted monumentally high ratings, Latour 98+, and both Lafite and Margaux 100. Their prices have skyrocketed since they were first released. In the race of the price rising, Latour seems to lag behind the other two peers. This can be largely attributed to the fact that only Latour has not been honored with a perfection award. The only-two-point difference in Parker's rating system, if brought by 100 and 98, means a great deal in the market price. When the wine's quality, not the price, is taken into consideration, however, what difference is it that really exists between 100 and 98? If there is any actually, is the difference big enough to correspond to that in the price?

1.2 Parker's Rating System and its Seeming Deficiency

In Parker's rating system, wines are given scores on a 50-100 scale. With 50 as the starting point of the scale, firstly, up to 5 points are added for "the wine's general color and appearance" (1), secondly, up to 15 added for the "aroma and bouquet" (2), thirdly, up to 20 added for "the flavor and finish" (3), and lastly, up to 10 added for "the overall quality level or potential" (4).

These four items for examination and the points allocated to each item are stated by Parker himself. All the scores by him must be given in conformity with the outlined criteria above. He asserts that he strongly believes "in a scoring system backed up by intelligent tasting notes." When judged objectively, however, his "intelligent tasting notes" do not necessarily account for and justify the scores he gives. He does not care at all to itemize the four examination items and their respective subscores which readers would be probably curious to know, nor does he cover all these four check-up points in his notes. Lengths of his notes and topics mainly dealt with in them vary from wine to wine, so that one almost feels that they lack a systematic order. The problem is that his tasting notes do not explain the difference between 98 or other really lofty ratings and 100. It is true that they can let us sense a big difference in scale and in quality, if we compare notes on 90 to those on 100. But they do not clarify what element in which examination item 98 (or 97 or 96)-scored wines lack for attaining the height of perfection. Parker may be consistent throughout in his evaluating and scoring wines, but his tasting note is not a clear reflection of the precise way he settles on a score.

1.3 The Aim of this Paper

Reading Parker’s tasting notes only superficially does not tell us where the two-point difference actually lies between 98 and 100. But his tasting notes are the only given grounds for his scores. If Parker really scores wines based on the consistent criteria, applying the method of textmining to his tasting notes should reveal what attributes of wines are most related to extremely high scores. This paper is especially designed to detect determinant factors for 100

2 Analysis Procedure

Wines to be analyzed are those of the 2000 vintage. Parker makes it a rule to taste wines from the same vintage. Likewise, vintages cannot be mixed in the analysis. There are About 230 wines of the millennium vintage that are given a score and a note in Parker (2003a). Out of these, 63 wines whose notes contain information about the blending of red grape varieties are analyzed. Firstly, these 63 tasting notes are made into a database. And secondly, with the use of the tm package incorporated into R, converting all capital letters in the text data into small ones is done automatically. And so is removing sparse words in addition to so-called stopwords such as “and”, “the”, and “of”. These automatic operations are followed by some manual ones. From a sizeable collection of content words left after the procedure above, there is a need to select terms which pertain to evaluating the quality of wine. Making a term list for analysis requires not only the elimination of inappropriate words but also the synthesis of words. In Parker’s tasting notes, what usually comes first and what he rarely omits is the description of wine’s color. Parker insists on extreme importance of color for Bordeaux red wines, saying that virtually “all the great Bordeaux vintages have shared a very deep, rich, saturated purple color when young”. Obviously, “purple” is one of the most high-frequency words in his notes. Besides single colors like “purple”, “ruby”, “black”, some combinations of colors are also seen: ruby/purple, bluish/purple, black/purple, et cetera. These slash marks to separate two colors are removed in order to let them stand as different colors form “purple” or “ruby”. These color terms are always accompanied by a couple of words that indicate the depth of color, such as “opaque”, “saturated”, and “dense”. Expressions like “opaque purple color”, “saturated purple color”, and “dense purple color” occur in the text so frequently that with each space between words removed, they are treated all as one term. These operations have left us with 65 terms.

Of 63 wines to be analyzed, the minimum score value is 86, while the maximum score value is 100. With no 99-point Bordeaux red wine in the 2000 vintage, all the other scores are grouped into five categories which are labeled A, B, C, D, and E (Table 1). Counting frequency of each term in each category forms a contingency table, to which correspondence analysis can be applied.

Table 1: Five Score Categories and the Number of Wines Belonging to Each

score category	frequency
A (100)	7
B (98)	4
C (95 – 97)	17
D (90 – 94)	27
E (90 >)	8

3 The Result of Correspondence Analysis 1

A resultant biplot is Figure 1. B seems to stray far from the coordinates (0, 0) and the other score categories, which might be ascribed to the small number of elements that fall into it. Around the origin are the terms such as “sweet”, “smoke”, “cassis”, “opaque”, “cocoa”, “tannin”, “blackcurrant”, and “purity” which can be all regarded as the overall quality of the 63 wines. Probably it may be interesting to note that a smell of “blackcurrant” is “commonly associated with red Bordeaux wines”. In the immediate vicinity of the A category, there are two terms pertaining to color. And the upper and lower sides of these two terms have “potential” and “patience” respectively. The latter two terms might seem to be completely unconnected with each other, but in fact the main idea these two connote is virtually the

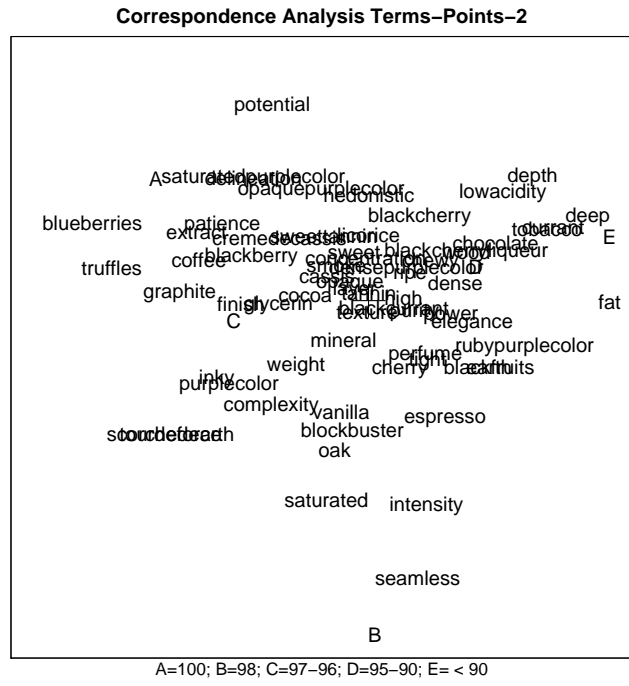


Figure 1: A Resultant Biplot of Correspondence Analysis 1

same thing. “Potential” conveys the meaning that the wine has the potentiality to age or evolve for many years, or even for decades. Such wines mostly possess abundant tannin that masks a wealth of fruit. If drunk young, they taste only austere and tannic. Therefore “patience” is required, until tannin dissipates and becomes sweet.

Parker always provides, at the end of all tasting notes, an anticipated period of years during which wines should be drunk. He calls this period the “anticipated maturity”. This period has the beginning and the last years of the maturity plateau. The minimum, the maximum, and the median of the last years (not the beginning years) in each of the five score categories are shown in Table 2 and Figure 2.

Table 2: The Last Year of the Anticipated Maturity Period for Each Score Category

score category	min.	median	max.
A (100)	2030	2045	2050
B (98)	2020	2035	2050
C (97 – 95)	2016	2020	2035
D (94 – 90)	2011	2020	2035
E (90 >)	2010	2016	2020

As seen clearly from these, the last year of the maturity period is expected to be further ahead as the score category ascends. Longevity is undoubtedly one of the most crucial factors for extraordinary wines.

“Opaquepurplecolor” and “saturatedpurplecolor” positioned very next to the A category are very important when we remember Parker’s assertion that all the great Bordeaux vintages share “a very deep, rich, saturated purple color when young”. The result here seems to corroborate or match Parker’s words. The basic color of great Bordeaux red wine is “saturatedpurplecolor” that can be considered virtually the same color as “opaquepurplecolor”. And the wines with this color are qualified candidates for perfection. The term “purplecolor” without “saturated” or “opaque” is situated in the realm of the C category which has the score range from 95 to 97. C is also a very-high-score category, yet the positions of “saturatedpurplecolor” and “purplecolor” suggest that wines with lighter or less deep colors are likely to be put at a disadvantage.

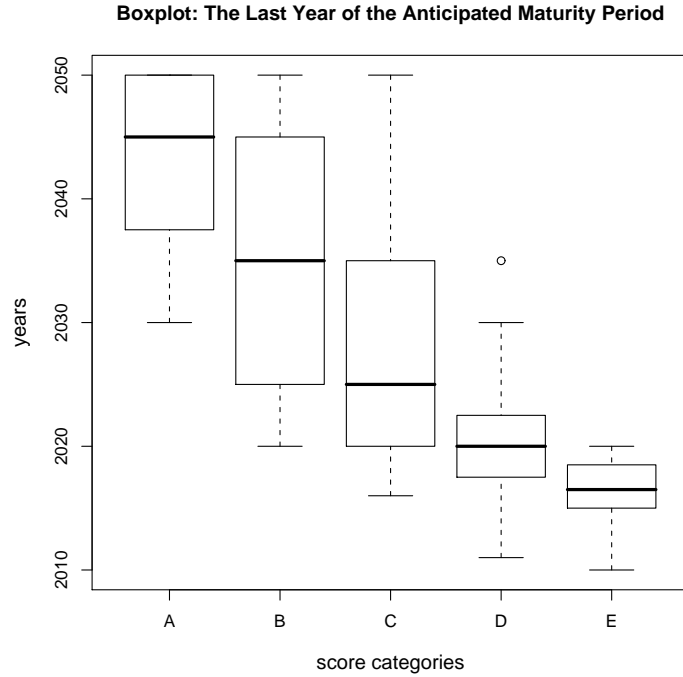


Figure 2: The Last Year of the Anticipated Maturity Period for Each Score Category

It might be a good idea to check the individual comments on all the 10 wines that have been awarded a perfect score (the 2000 vintage). Three out of ten are described as “saturatedpurplecolor”, and four “opaquepurplecolor”, with each of the other three being “inky purplecolor”, “inky blackrubypurplecolor”, “saturated blackpurplecolor”. All these three different colors can be judged to be equivalent or even superior to “saturatedpurplecolor” or “opaquepurplecolor” in the depth and darkness of color. Concerning the three major chateaux mentioned in the very first section, Lafite Rothschild rated 100 is “opaquurplecolor”, and similarly 100-rated Margaux is “saturatedpurplecolor”, while Latour which could not hit the level of 100 is “saturated rubypurplecolor”. What is the difference between “saturatedpurplecolor” (or “opaquepurplecolor”) and “saturated rubypurplecolor”? The depth, or opacity of color is exactly the same. The only difference lies in color hue. “Rubypurplecolor” is probably identical to reddish purple, and the reddening process is at the same time the maturing process that all red wines are supposed to go through, from purple of very young wine, and to ruby, to red, to garnet, to brick, and to brown of old wine past its prime. In Figure 1, the position of “rubypurplecolor” can be found approximately between the zones of the D and E categories whose scores are below 95. This term is definitely not the one that can be associated with perfect wine. For Parker, very young wines that mature more quickly than other equivalents or that possess hues and depths lighter than “saturatedpurplecolor” might be less attractive and not deserving of the highest rating.

The analysis above has extracted “potential” meaning longevity, and “saturatedpurplecolor” or “opaquepurplecolor”, or any other “purplecolor” deeper and darker than purple, as important factors that are closely related to a perfect score. These attributes of wine, however, cannot be construed as the determining factors of a perfect score, which is evident from Table 3.

Table 3: Score Ranges of the Three Important Terms

term	score range	frequency
patience	93–100	7
saturatedpurplecolor	91–100	5
opaquepurplecolor	91–100	13

4 Analysis Procedure 2

All the wines that have been rated from 95 to 100 (also from the 2000 vintage) are next to be analyzed. The total number of them is 46. Analysis procedure to follow is exactly the same as in the previous one. Making a term list for analysis requires attention directed toward another examination item presented by Parker, that is, the third item pertaining to “the flavor and finish”. Parker believes that “the major difference between a good young wine and a great young wine” lies in the “finish or length of a wine, its ability to give off aromas and flavors even though it is no longer on the palate”. In the analysis above, the resultant biplot (Figure 1) has placed the term “finish” right above C, a high-score category of 95, 96, and 97. This term is used synonymously with “aftertaste” and “length” in Parker’s tasting notes, and frequently appears in those on highly-rated wines in collocations such as: “finish lasts well over one minute”, “a majestic 60-second finish”, “a 40-second finish”, “finish that goes on for nearly one minute”, and so forth. To discover whether or how the actual time length of a wine’s aftertaste left on the palate affects the score, expressions like “well over one minute” and “60-second” which indicate that the length lasts for one minute or more are all synthesized into “oneminuteormore”, and those indicating that it is fairly long, but not long enough to reach one minute, from “40-second” (which is the smallest among the precisely-counted numbers of seconds) to “nearly one minute”, are all into “nearlyaminute”.

The number of terms for the second analysis is 78. The scores dealt with in this analysis are from 95 to 100, so that each one of these scores can be treated as a score category and its label. The 2000 vintage has no wine scored 99, which makes the score categories of 100, 98, 97, 96, and 95. The number of wines that belong to each category is as follows:

Table 4: 5 Score Categories and the Distribution of 46 Wines

score	100	98	97	96	95
frequency	10	5	3	15	13

The numbers of elements that belong to 98 and 97 are relatively too small. Therefore, the category of 97 is synthesized into the category of 98, which makes the total number of the latter category 8.

Table 5: Modified Score Categories and the Distribution of 46 Wines

score	100	98	96	95
frequency	10	8	15	13

In the exactly same way as in the previous analysis, each term’s total frequency of occurrence in each of four categories is counted up to form a contingency table.

5 The Result of Correspondence Analysis 2

A resulting biplot obtained by performing correspondence analysis on the contingency table is Figure 3. Most terms seem to converge around the coordinates (0, 0) where the x-axis and the y-axis intersect. And right under the origin is located the 96-score category which is in the midst of the term cluster. These terms are all representing the good quality of high-rated wines from 95 to 100, and seem to be absorbed into the 96-score category. This category, not the 98-score category, is indeed the closest to the 100-score category in position both in terms of the x-axis and in terms of the y-axis. It can be inferred that the wines belonging to this category possess almost all the desirable attributes of perfect wines, and that the only few factors that they lack for achieving a perfect score are those represented by the three terms that are located nearest to the 100-score category: “potential” (completely overlapped with “port”), “delineation”, and “oneminuteormore”.

“Potential” means, as explained in the previous analysis, that the wine cannot necessarily give a profound satisfaction at the present time, but its robust tannin enables it to evolve for decades. The key concept of this term is abundant tannin. “Delineation” may be difficult to grasp, but the main idea that this term conveys is this: The ideal flavor, which possesses a wealth of fruit (“blackcurrant”, “blueberry”,

Correspondence Analysis Terms–Points–2

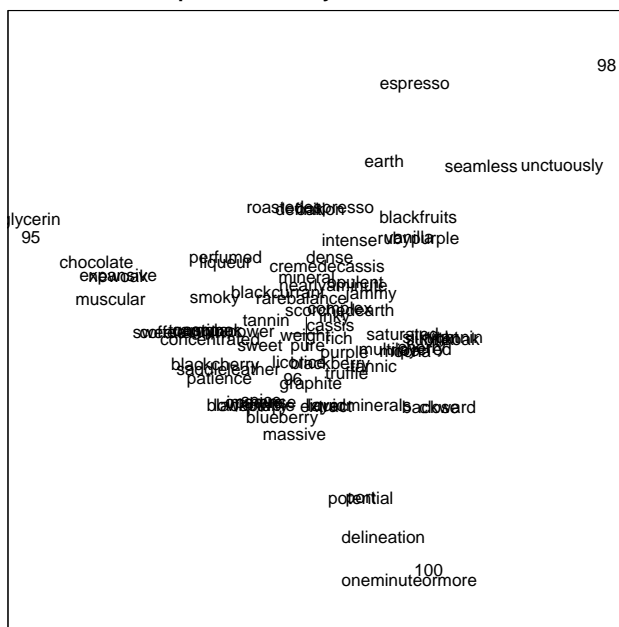


Figure 3: A Resulting Biplot of Correspondence Analysis 2

and “cassis” and the like) intermixed with some complexity (“truffle”, “licorice”, “graphite”, “spice” and so on), would be only flabby without acidity. It is lively acidity that gives “delineation” to the various great features of wine. “Oneminuteormore”, which is the nearest to the 100-score category, indicates, as shown above, that the aftertaste of wine lingers for a minute or more. It is very conceivable that wines blessed with ample richness and ripeness of fruit, if combined with both abundant tannin and acidity, can leave a longer and stronger impression on the palate.

Out of the 10 wines that are scored 100, 6 wines actually have the term “oneminuteormore” in the tasting notes on them that are included in Parker (2003a) and which have been used for this analysis. Leoville Las Cases and Margaux are not given the exact number of seconds in Parker (2003a), but in The Wine Advocate Issue 146 (Parker (2003b)) are they given a detailed description, “a finish that lasts over 60 seconds”, and “a finish that goes on for nearly 70+ seconds” respectively. Both exceed the one-minute line. Ausone, having no such description on length either in Parker (2003a) or in The Wine Advocate (Parker (2003b)), has an unparalleled longevity anticipated (2020-2075). It could be easily imagined how splendidly the aftertaste goes on and on.

The total frequency of “oneminuteormore” is 7, 6 out of which belong to the 100-score category. The remaining one wine is L’Eglise-Clinet whose score is only 96 in spite of its aftertaste lasting for “oneminuteormore”. Here is the actual tasting note of this wine to search for the reasons why Parker does not bestow a perfect score on this wine.

Truly spectacular, this could be another of the great classics proprietor Durantou has produced over recent years. For now, it is hard to believe it could rival or eclipse the fabulous 1998 or, for that matter, the 1995, but the 2000 has gone from strength to strength in its evolution. From bottle, it is dazzling. The saturated ruby/purple color offers up pure fruit notes of mulberries, figs, and cassis intermixed with hints of licorice and toasty oak. Revealing great palate presence, tremendous texture, sweet tannin, relatively low acidity, and a finish that exceeds 60 seconds, I assume this wine will close down, not to reopen for nearly a decade. This is a profound example from a proprietor who has never subscribed to the new, progressive/razzle-dazzle techniques being employed by some of the cutting edge producers. Here it is low yields, ripe fruit, and non-interventionalistic winemaking at its purist. Anticipated maturity: 2010-2035+.

The length certainly “exceeds 60 seconds”, and the last year of the anticipated maturity period is 2035 or later, which could allow the wine into the 100-score category. The truth is that this tasting note contains two probable minus factors. One is the “saturated ruby/purple color”, which is identical to the term extracted from the previous analysis as a cause of Latour having failed to achieve 100. And the other one is “toasty oak”. Bordeaux Wine goes through the process of aging in oak barrels for one or two years before being bottled. These oak barrels more or less “impart a toasty, vanilla flavor and smell to the wine”. If wine does not have enough richness and concentration, it is easily overwhelmed by the effect of oak. Parker almost nervously iterates warnings many times against the excessive use of new oak barrels that wine cannot stand up to. He says that if wine is sufficiently rich and concentrated, and if oak is used properly and judiciously, “the results are a wonderful marriage of fruit and oak”. But the truth is that any hint of oak his keen olfactory sense catches seems to play a certain negative role in his final decision about whether or not he will give a perfect score.

6 Conclusion

Parker points out that the major differences between great young wine and good young wine lie in “the length of a wine, its ability to give off aromas and flavors even though it is no longer on the palate”, and that great (profound) wine can be “characterized by a purity, opulence, richness, depth, and ripeness of the fruit”, adding that when “the wines have both sufficient tannin and acidity, the balance is struck”.

The wines that have been analyzed in the second analysis of this study are those scored from 95 to 100. These are what Parker calls great or profound wines. The result of this study has elucidated the qualities of great wines outlined by Parker. The length of aftertaste does really count when he evaluates wine. The study has made it clear that if it lasts for one minute or more, the wine can be a leading candidate for a perfect score in Parker’s rating practice. No matter how long it lingers on the palate, the wine never deserves 100 lest the length strictly reaches the one-minute line. This can be clearly seen from Table 6.

Table 6: Frequency of “nearlyaminute” in Each of 4 Score Categories

score	100	98	96	95
frequency	0	2	6	1

“Purity, opulence, richness, depth, and ripeness of the fruit” given by Parker as characteristics of great wines are all located among the terms which converge on the 96-score category. The 96-score wines can be regarded as petit-100 wines, or pseudo-perfect wines on a smaller scale. These wines, reinforced with the elements represented by the two terms, “potential” and “delineation”, gain size. The level of “potential” is increased with the force of tannin, while it is the function of acidity that gives wine “delineation”. A wealth of mighty fruit combined with well-balanced abundant tannin and acidity can leave a very long impressive aftertaste on the palate. If this length is “oneminuteormore”, the wine is highly qualified for a 100-score category. One cannot actually measure up the scale or size of wine. But provided that it can be considered proportionate to the length of aftertaste, it can be physically counted up and converted into a numerical value. It might be the only possible way, if any, to evaluate wine truly objectively.

References

- Ingo Feinerer (2008). tm: Text Mining Package. R package version 0.3-1.
- Parker, Robert M.(2003a). *Bordeaux: A Consumer’s Guide to the World’s Finest Wines*, 4th ed., New York: Simon & Schuster.
- Parker, Robert M.(2003b). *The Wine Advocate*, 146. The Wine Advocate, INC.
- Parker, Robert M.(2001). *The Wine Advocate*, 134. The Wine Advocate, INC.