

Essay

# From the “Òstrakon” to the Art of Wine Tasting and the Measurement of Consumer Emotions

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**Abstract:** The language of wine is richer and more complex if compared to that of other alcoholic beverages, including the tasting, production, history, and culture associated with it. The evolution of the language employed to define the quality and the characteristics of wine from the “òstrakon” of the Ancient Egyptians to the present is shown in the article. The symbolic aspects of wine, the communication of emotions, the wine sensory analysis, and the wine tasting are discussed. The glossaries which appeared in France, at the turn of the 18th and 19th centuries, are mentioned: they attest both the beginning of tasting, and the official recognition of the sensory evolution of wine. Moreover, some considerations are reported on some particular words employed to describe wines: *vinous*, *aftertaste*, and *body*. The language employed to evaluate wine is still evolving. It expresses the need and the desire to communicate and define the perceptions and the emotions derived by drinking wine. Finally, the pleasure of wine is not only a physical pleasure, but above all it is a pleasure of the brain, as well as, naturally, of the word.

**Keywords:** wine; communication; tasting; sensory analysis; consumer science; emotions



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## 1. Introduction

The language of wine is extraordinarily rich and complex if compared to that of other alcoholic beverages, including the tasting, production, history, and culture associated with it.

The evolution of the language employed to define the quality and the characteristics of wine from its origin to the present is described in the article.

The symbolic aspects of wine, the communication of emotions, the wine sensory analysis, and the wine tasting are discussed together with some considerations on some particular words employed to describe wines: *vinous*, *aftertaste*, and *body*.

It is important to mention the glossaries that appeared as documents in France at the turn of the 18th and 19th centuries, which “de facto” attest both the official and the popular beginning of tasting, and the official recognition of the sensory evolution of wine [1].

Sensory analysis grew rapidly in the second half of the 20th century in the food industries, and then was applied in wine production, is always enriched with novel profiling methods, like Time-intensity methods (TI), Temporal dominance of sensations (TDS), Free choice profiling, Flash profiling, Napping, Sorting, Check-all-that-apply (CATA), Rate-all-that-apply (RATA), and temporal check-all-that-apply (TCATA) [2,3].

More recently, the study of consumer emotions is becoming more and more relevant, even in wine marketing through the use of implicit or explicit methods. Explicit measurements can be done with specific surveys, using verbal, visual, numerical, or graphic methods to define the conscious description of the emotion induced by a stimulus on a subject, who can choose the right emotion from a list of words or emojis. Implicit methods have been developed thanks to advances in neuroscience and psychology that allow the

measuring of the physiological reactions of the subjects, like their facial expressions, heart rate, respiration rate, sweat secretion, skin temperature, and neuronal activity [4].

The language of wine is still evolving, following the desire to define and communicate the perceptions and the emotions associated with wine.

## 2. Symbolic Aspects of Wine

Wine is a beverage not found in nature, so someone must have produced it for the first time. According to the ancient Greeks, Dionysus was the one to crush grapes first, but according to the Bible, this individual would be Noah, who survived the universal flood. In both cases, we are on the shores of the Mediterranean, but this is not the only element that connects these two mythical figures. Indeed, both “discoveries” of wine involve two opposing aspects. Wine brings Dionysus the happiness of inebriation, but also drunkenness and even death. Noah finds the wine to be good, gets drunk, and after he argues with one of his three sons and curses him and his offspring: wine is ambivalent [5].

In 1981, at the General Assembly of the O.I.V. which took place in Vienna, Cey-Bert [6], belonging to the “Institut de Recherches des Préférences Alimentaires” of Geneva, Suisse, presented a report titled “Evolution du langage du vin en tant que moyen de communication” (in English, the “Evolution of the language of wine as a means of communication”). That communication involved a study conducted by the Geneva Institute on the symbolic meaning of wine, carried out by surveying consumers through questionnaires and direct interviews (conducted in France and Switzerland). The analysis of the responses identified two groups of semantic categories; the first one was articulated as follows: “connotations related to origin and terroir; to the vineyard and the work it entails; to the succession of vintages and traditions; to consumption and taste characteristics; to the sacred aspect and to the health benefits of wine”. The common denominator of these connotations expressed a series of ideas interpreted by the Geneva expert [6] as a search for physiological, emotional, and social security. “The main meaning of this first semantic group corresponds, therefore, to the concept of *security*. In the second semantic group the following categories were included: the connotations related to the euphoric aspect of wine; to the liberating aspect of wine that allows for easier relationships with the surrounding environment; to the festive aspect; to the spiritual and poetic *escapism* of wine”.

The author of the study stated that the main meaning expressed by this second semantic group corresponded to the concept of escapism and meant the search for pleasure and physiological, emotional, and social evasion.

Several millennia have passed since Dionysus and Noah, but the symbolic significance of wine has remained unchanged. For our part, we sought to understand if any traces of this dualism remained in the glossaries of wine tasting.

In the 2011 text of Rosanna Cavalieri [7], a Philosophy professor at the University of Messina, it is possible to identify some words that evoke or can somehow express the need for *security*, such as: *Broad, Harmonious, Warm, Body, Full-bodied, Delicate, Elegant, Balanced, Intense, Clear, Soft, Nerve, Creamy, Persistent, Full, Robust, Round, Structured, Quiet, and Velvety*. As for terms that could be common to the symbolic concept of *escapism*, the following words can be considered: *Pleasant, Bouquet, Bright, Ethereal, Fragrant, Youthful, Light, Perfumed, Ready, Faded, Subtle, Veiled, and Lively*. It is possible to notice that many of these words are figurative terms that play a significant role in describing the sensory characteristics of wine.

## 3. The Communication of Emotions

Currently, there are essentially three criteria for communicating about wine: emotional communication, tasting, and sensory analysis. The oldest criterion of communication is the one that uses and evokes emotions. The reason for the current interest, in addition to the increased scientific knowledge of the issue, is well explained by Vincenzo Russo [8], a professor at IULM University in Milan, who observes that “more is sold with emotions than with rationality” and quotes Robert Cialdini’s “Influence: The Psychology of Persuasion” [9]

to better understand “how powerful emotions are in persuasive and decision-making processes”. This type of communication is primarily of interest in marketing, but there are also different contributions from studies conducted on the human brain, such as the differences in its functioning between men and women, or in the tastings conducted by women and men.

Francesca Venturi, a lecturer at the University of Pisa, in a recent paper [10], describes a series of results regarding the role “that emotions play both during technical tastings . . . and how to measure this role in order to better understand the psychophysiological mechanisms that necessarily guide consumer choices”. In this preliminary phase, some interesting data emerged: “basic emotions (fear, anger, sadness, joy/happiness, disgust/contempt, surprise) would be correlated with some parameters related to olfactory and gustatory aspects . . . scents that fall within olfactory alterations were positively correlated with negative emotions . . . disgust/contempt, fear, anger, and sadness . . . on the contrary, they are negatively correlated with positive emotions like joy/happiness and . . . with surprise. The Fruity character was positively correlated with joy/happiness and surprise and negatively with the remaining indicators of emotions”. Finally, at the gustatory level, the two parameters that, more than others, obtained greater emotional significance were spherical perception and structure. Both obtained an inverse correlation with negative emotions of anger and sadness. The author concludes with some observations, stating that “training does not seem to shield from emotions during a technical tasting, but the path to define the role played by emotions each time is complex and certainly uphill”.

Odello and Cantoni reported in [11] that, in 1972, Paul Ekman classified six fundamental emotions: *happiness, anger, sadness, surprise, disgust, and fear*.

In their study a few years ago, Cowen and Keltner [12] defined twenty-seven emotions: *admiration, adoration, anxiety, love, aesthetic appreciation, calm, confusion, desire, sexual desire, disgust, amusement, pain, excitement, empathic, joy, ecstasy, embarrassment, interest, envy, boredom, nostalgia, horror, fear, sympathy, satisfaction, subjection, and triumph*.

By nature and definition, emotions are expressed unconsciously and, as such, are difficult to recognize and control. Two researchers, Pedroza and Herrell [4], recently emphasized the importance of the vocabulary used to describe emotions, listing 72 terms (44 positive, 20 negative, and 8 neutral/ambiguous) taken from numerous studies, mostly conducted with consumers of Caucasian origin (Italians, Spaniards, Swiss, and Australians), hoping for a future multicultural approach.

Below there is an example of a wine emotional description from an era less involved in neurobiology studies. It is a page excerpted from a Wine Treaty of Ignazio Lomeni printed in 1834 [13]. It concerns the sensory description of a raisin wine called “Diavoletto” made with Berzemino grapes, discussed by Pietro Poldi, who produced and narrated it: “. . . First, as you uncork the bowls, a very sweet (in Italian “*soave*”) odor of violet that enchants your nostrils and spreads that pleasant fragrance that invites the taste to appetite. Secondly, and here lies the goodness, as you swallow it, you experience a delicatet, delightful, and powerful taste that floods your stomach with a strong shock, warming you and making you titillate all inside in a blissful way that gives you ecstasy, leaving you nothing more to desire, confirming the saying of our own who wrote that good wine is true joy of hearts . . . Oh! Truly divine Diavoletto, worthy of unparalleled praise! Hail to you, dispenser of dear joy, delight of convivial gatherings and only capable of making us forget the low cares of the world”.

It is possible to think that this is an effective representation of the emotions that a wine can evoke. However, what is possible to know about Diavoletto, from a sensory perspective, is that it has a “very sweet smell of violet”, while the taste is “delicate, delightful, and powerful”. It cannot be denied that the description of the wine just seen has a certain charm, although, as emphasized, it says little about the sensory characteristics of this raisin wine, while it is possible to learn more than necessary about the physiological and emotional reactions of the drinker.

#### 4. Technical Communication: Sensory Analysis

If emotional communication is a tool that can meet consumers' needs, it can be in harmony with the definition of quality by making them aware of at least some of the needs defined as implicit.

Since the late 1980s, according to UNI EN ISO 8402, Food Quality is defined as follows: "The totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs." This definition was substituted in 2005 by UNI EN ISO 9000 "Quality is the degree to which a set of inherent characteristics fulfill requirements". The ISO norm 9000 was modified in 2015, and it is now under development (ISO/WD 9000).

Sensory analysis, a generic term that defines a specific discipline, can be considered the latest process aimed at communicating the sensory characteristics of wines.

Traditionally sensory evaluation methods are divided into three main applications: discrimination tests, which deal with understanding whether products are different or similar in terms of general or specific attributes; descriptive analysis, which provides a detailed qualitative and quantitative picture of the sensory characteristics of products and their sensory intensities; and consumer tests (or affective or hedonic tests), which focus on understanding the hedonic and emotional responses of consumers toward products [3,14].

Nowadays, these techniques are employed in Academia and food industries [3] and they have an essential role in the beverage industry [2].

The guiding principle of this discipline is the representation of the olfactory and gustatory characteristics of wines to be as close as possible to the reality of the product. However, there is an obstacle to achieving this goal: the performance of the judge (or the assessor). The judge? Yes, indeed, that is what the taster is called in this discipline which requires an objective evaluation of the wine sensory properties.

Sensory analysis found its first applications in the USA during the last world war and grown rapidly in the second half of the 20th century, along with the expansion of the food industries. However, it is a discipline born in the Anglo-Saxon food industry [2,14–16] and only after some years was applied in wine production.

In Europe, the first important texts of food sensory analysis were published by Sauvageot in 1982 [17], by Jellinek in 1985 [18], and by Piggot in 1988 [19]. This discipline arrived on the wine scene in Italy in the 1980s, mainly with the use of discriminative tests, notably the duo-trio test. This test together with the preference test was used for the first time in 1983 by Usseglio-Tomasset et al. [20] to evaluate some experimental sparkling wines from an important company in Canelli, in the Piedmont region (the northwest of Italy). The non-structured scale was used by Castino in the same year [21]. Other studies of sensory analysis in wine evaluation were published by Usseglio-Tomasset in 1988 [22], in 1992 [23], and by Usseglio-Tomasset and Bosia in 1993 [24].

Some research on panel behavior in the evaluation of wines was conducted by Ubigli in 1986 [25] and in 1990 [26]. In 1990, Ubigli et al. [27] examined the correlations between viticultural, physico-chemical, and sensory parameters.

In those years sensory and instrumental analyses of wines were investigated by some important researchers from the University of Milan and Florence, namely, in 1984 by Montedoro and Bertuccioli [28], and in 1989 by Bertuccioli et al. [29].

In 1991 the first Italian book on food sensory analysis was published by Pompei and Lucisano [30], a text by Porretta [31] on the tests employed in sensory analysis was published in 1992, a specific text on wine sensory analysis by Ubigli [32] was published in 1998, and a new Italian text on food sensory analysis of Pagliarini [33] was published in 2002.

The diffusion and evolution of sensory analysis in Italy is witnessed by the birth of the Italian Sensory Science Society in 2002, with "the aim to further the development and applications of Sensory Science, with a specific attention to promote research and discussion, to share knowledge and to teaching" [34]. In 2012, the Society published a text on the sensory description analysis of many food products and beverages [35].

It was mentioned earlier that there is a problem represented by the subject who tastes and defines the characteristics of wines, namely the human problem. If, in the other two forms of wine communication, generally, there is only a single subject, here, the judges must be selected from a larger group, as the rules say, one that is at least three times greater. In the case of descriptive methods, the panel should be constituted by 8–12 subjects [33]. The selected judges are trained to taste the wines as members of a panel, and not as individual assessors. The sensory evaluation essentially involves the smells, aromas, and the five tastes present in wines, using standards of the compounds contained in wine. This is a solution as elementary as it is fundamental for preparing the group for judgment uniformity and correspondence to the reality of perception. The problem of disparities in the judgment of intensity measurements is solved with statistical analysis. The evolution and diffusion of sensory analysis is also connected to the development of the digital technology, computing, and software able to analyze a high amount of data.

The words (descriptors or attributes) used to characterize wines cannot be chosen randomly by the panel leader, but must adhere to five requirements: relevance, precision, discriminative ability, exhaustiveness, and independence. As one can easily infer, there is no room for figurative words, such as metaphors like “Body” or synesthetic descriptors like “Velvety”, which are so frequent and common in the field of wine tasting. A clear definition of wine “Body” do not exist in the literature, and confusion remains around the precise meaning of this term [36]. Many sensory analysis experts did not consider “Body” to be a descriptor of the wine mouthfeels; for example, the authors of the 2012 text of the Italian Sensory Science Society [35] included “Viscosity”, “Astringency”, “Pungent” and “Heat”.

The language of sensory analysis can be free, always under the conditions mentioned, or facilitated using pre-established lists such as the USA wine aroma wheel created by Noble, a professor at the University of Davis, and colleagues in 1984 [37], integrated with sensory descriptors of French wines [38] and revised in 1987 [39], or like that of Pfister et al. [40], published in 2006 and inspired by the methodology used by perfumers. The Noble wine aroma wheel, now available in eight different languages, is a list of the most common wine aromas and can improve the wine vocabulary of wine tasters or experts [41].

Jackson reminds us [42] that the first simplified descriptor list, in the form of a wheel, was published by Meilgaard et al. in 1979 to describe beer [43]. This design was subsequently adopted in 2001 by Jolly and Hattingh [44] for brandy and by Lee et al. [45] for whiskey, as well as by Gawel et al. in [46] for mouth-feel sensations.

Other procedures were proposed in recent years—Time-intensity methods (TI), Temporal dominance of sensations (TDS), Free choice profiling, Flash profiling, Napping, Sorting, Check-all-that-apply (CATA), Rate-all-that-apply (RATA), Temporal check-all-that-apply (TCATA), as reported by Ubigli, Cravero [47] in 2020 and Pagliarini in 2021 [48]. A recent paper [2] critically reviews the sensory techniques from classical descriptive analysis to the emergence of these novel profiling methods.

It is evident that this communication process, like the emotional one, has a specific audience and is not addressed to any wine drinker but may involve, for example, the programming of a specific product or the definition of sensory characteristics of certain wines tied to the territory, etc. This type of communication is, therefore, purely technical.

## 5. The Art of Communication: Tasting

In his essay, Patrick E. McGovern [49] observes that dating the birth of viticulture and, even more so, wine is not easy. Certainly, documentation is not abundant. However, some artifacts allow us to discern that in Egypt, the cultivation of vines and wine production left clear traces. He wrote “The hieroglyphics meaning “grape, vine, wine” are the most significant evidence that Egyptian viticulture was highly sophisticated from the beginning”. The oldest “wine labels” date back to around 3100–2700 B.C. These were cylindrical seals placed on heavy clay stoppers that sealed clay jars. Between 1413 and 1377 B.C., a pharaoh named Amenhotep III ruled. Excavations conducted between 1910 and 1920, in the area around Malkata, confirmed not only his long reign but also his passion for wine. In

fact, during the excavations, 400 fragments of jar shoulders with inscriptions in black ink (“*ostraka*”) were unearthed. Wine, after meat, is the most mentioned product, mentioned 285 times, 20% of the total cited products. The author explained “Like modern wine labels, *ostraka* provided information about the production and the wine contained in each amphora. The Egyptian word for wine “Irp” was sometimes modified by the words “genuine”, “good”, and “excellent”, even “truly excellent”, as additional guarantees of the high quality of the wine”. These judgments could be attributed only through tasting, which was probably rudimentary but still considerable. If this was not the first form of tasting, it was certainly one of the earliest.

Why has wine been tasted and discussed from the time of the pharaohs to the present day? One of the many possible answers is provided by Giancarlo Gonizzi [50]. This author reported an observation of Edward VII, the son of Queen Victoria and her successor to the throne of the United Kingdom: “Wine is not only drunk, it is sniffed, observed, tasted, sipped, and . . . talked about”. Therefore, we know, thanks to this authoritative observation, that wine is talked about, but why it is talked about is explained with equal authority by Rosalia Cavalieri in her text published in 2013 [51]: “The ultimate goal of tasting is therefore the transmission and sharing of this sensory knowledge through the narrative that reveals, embodies, and specifies it: spoken and written words represent the inevitable, as natural, extension of this complex sensory experience. One moves from a subjective dimension of individual perception—a cognitive operation of evaluation, discernment, and interpretation of what is tasted: colors, scents, aromas, tastes, textures—to a linguistic dimension of verbalization, and therefore, sharing an experience”.

It may seem reductive, but it is our impression that wine is talked about out of the need to share a pleasant experience, not out of altruism or generosity, but as a natural, spontaneous impulse. If wine is talked about, the words used become important not only because they certify the perceived experience but also because they become important as a tool and means of communication. In this regard, Emile Peynaud (1912–2004), author of the famous book “*Le goût du vin*”, [1], a master of tasting and a professor at the University of Bordeaux, reports on the requirements that a good taster should have: “. . . the taster is obliged to communicate what he perceives and to formulate his own judgment. He tastes to know a wine and to talk about it. However, the value of a taster depends not only on his sensitivity as endowed with perceptual ability, nor on his ability to recognize smells, tastes, and grasp their relative harmonies; it also depends on his ability to describe his own impressions. It is not enough that he has a trained palate, awake and ready senses, a vigilant and attentive memory, and knows how to arrange himself in the best conditions to evaluate a wine; he must be able to express his sensory perceptions clearly. In short, he must possess a sufficiently vast and precise sensory vocabulary to communicate his perceptions and justify his evaluations”. It seems that Peynaud considers communication and mastery of language as equally important as perceptual “ability”.

The words of wine are not just ordinary words; they must meet specific requirements. Peynaud [1] himself notes that there are substantial differences between mere consumption and tasting; in the former case, drinking is generally silent, while in the latter, it is mostly spoken.

Rosanna Cavalieri [51] also echoes this concept: “One of the privileges of humans is the ability to eat without being hungry and drink without being thirsty . . . The transformation of the natural need to quench thirst into the pure aesthetic pleasure of drinking without being thirsty has led man to create wine . . . and to appreciate its aromas, flavors, and beauty, turning this pleasure into a true art: the art of tasting”.

The glossary is a collection of words used to describe wine and, due to its necessary specialization, it is sometimes considered hermetic, even esoteric, and primarily directed at the initiated, thus tending to exclude those who are not initiated. The language of the taster may seem surprising to non-experts because wine, in many cases, is a daily and familiar beverage, and speaking about it in such a manner may seem like a jest. Especially if, as Francesco Annibaldi observes [52]: “the oenological language used by the expert is

characterized by a strong liturgical component, in the sense that it tends to retreat into highly technical-specialized language zones, even when communication is intended for the general public”.

When and why does the language of tasting emerge? Lists of terms to define wines are not a game for lazy drinkers but arise from the need to qualitatively define wines that, towards the end of the 18th century, begin to spread and conquer markets. Moreover, new beverages such as coffee, chocolate, and some new liqueurs appear, leading to the need to distinguish and differentiate various aromas and tastes. Even among wines, high-quality products appear that must be recognized compared to the mass amount of more common ones. Peynaud [1] explained the birth of glossaries: “It is understood that we must now be able to have a justifying, precise, and descriptive tasting, and words that allow us to differentiate the various classes of wines. It is also necessary to communicate the pleasure derived from drinking”.

This last consideration seems to us to be emphasized because it seems to open the way to the equating of beauty with goodness. Scrolling through the many and varied websites about wine on the internet, it is possible to find lists and sheets in abundance. This was not the case in the past; the path of the wine glossary has been rather slow. In this context, we believe that it is symptomatic and may suffice to confirm what has just been written, the fact that the word “taste” appears in France in official texts only in 1813 with the signature of Napoleon, who was certainly not a passionate enthusiast of wines and food in general. The first concrete examples of lists of terms that speak more or less “technically” about wine are formed towards the end of the 18th century. Naturally, the lists lengthen as knowledge of wine composition progresses, as production techniques evolve, and as the quality of the product improves, etc. Some lists are reported to be among those considered older, such as Maupin’s list (1779) [53], a wine producer responsible for the gardens of Versailles. The list consists of 42 terms, 13 of which are technical, i.e., relevant to wine (including: fluid, potable, and intoxicating), the rest of which are translated (metaphorical). How many would be applicable to wine today? This is not easy to answer; we do not know the glossaries in use in France. However, we believe that at least thirty of these words can be adapted to current wines.

The second list is from the famous Count Antoine Chaptal (1756–1832) and dates back to 1807 [54]. Chaptal was an eclectic character. He was a chemist and agronomist, and he also worked in Piedmont and was Napoleon’s Minister of Police. Here we cite him as an oenologist. His list consists of 47 terms. Those relevant to wine seem to amount to 16, while the rest are translated (metaphorical) words. The number of words that have survived over time and are adaptable to wine, in our opinion, would be 32. The author of the third list was Pijassou [55], who was mentioned by Peynaud [1]. Peynaud wrote that Pijassou was interested in Bordeaux wines between 1798 and 1820. Unfortunately, we do not have the complete list, but only a list of terms that were not included in previous lists. It consists of 12 words, and among them, some have resisted the passage of time, such as *aftertaste*, *robust*, *round*, and *velvety*.

Now, let us discuss the last of the historical lists. We owe it to André Jullien (1766–1832), the author of a Treatise on Viticulture, published in 1816 (the authors read a 1822 reprint) [56]. He was a producer of clarifying agents, additives, and various aids, one of which, in case of famine, epidemic, and various misfortunes, could also be used for human consumption. He is a key figure in the history of oenology and wine tasting. His treatise is preceded by a list of about 70 terms, and each, being an aspect worthy of interest, especially for translated (metaphorical) words, is accompanied by the meaning attributed to it. Jullien was a highly esteemed oenologist who was awarded and considered. He died of cholera in 1832.

There are 64 terms on the Jullien’s list, and among them, we find *barrel*, *cask*, and a few other terms that are compatible with oenological vocabulary but seem to be less related to the glossary of tasting. However, 28 words seem pertinent, we are close to understand about 50% of the terms of this list, while we could not interpret three of them as either being pertinent or metaphorical.

Let us take another leap in time and arrive in 1896, when the text of Baron Giovanni a Prato [57], “La mescolanza ossia il taglio dei vini” (“The mixture or the blending of wines”), was published in Rome by the press Centenari brothers. It is not a list of terms for the tasting of blended wines, but a description from which, however, some considerations can be drawn.

## 6. Considerations about Some Particular Terms

Some observations regarding some words—*vinous*, *aftertaste*, and *body*—are illustrated in this chapter. They express the strenuous journey that the glossary of tasting has had to undertake and that it is perhaps still undergoing. In fact, the meanings of the first words (*vinous* and *aftertaste*) have changed over time, while that of the third (*body*) has not yet been well clarified.

### 6.1. *Vinous*

Here is a first consideration regarding the use of the term “Vinous”:

It is used in a sentence by the Baron Giovanni a Prato [57] as follows: “Fruity, the aroma of grapes that quickly fades, replaced by the vinous smell. The vinous smell or the vinosity of the wine depends mainly on the amount of ethyl enanthate and alcohol it contains . . . Vinosity is common to all wines, but it is more openly expressed in neutral wines and in younger ones”.

There is a slight dissonance between the Baron [57] and Jullien [56] on this matter. Jullien, to define the term “Vinous”, uses three terms: “Vinous”, “Vinosity”, and “Avvinare” in Italian (*viner* is the term in French), in the sense of increasing the vinosity.

Jullien [56] wrote: ““Vinous is properly said of a wine with a lot of strength and spirit (=alcohol). “Vinosity”. Taste and vinous strength. This word is sometimes used to indicate a high degree of spirits (=alcohol).” Viner” (=avvinare) Consist of providing a wine with more vinous strength or more spirit (=alcohol), as in the case of low-alcohol wines mixed with others of higher qualities and strengths. However, wines from southern France, usually used for this purpose, have themselves been “*avvinati*” or enriched to a greater or lesser extent with brandy or spirit of wine”.

We have two versions of the word “Vinous”. If a wine has the characteristic of being “Vinous” at first is, to say the least, surprising; it is like saying that the bread is bready, or the pizza tastes like pizza. The situation becomes different if the term has a specific meaning. Jullien’s definition [56] of “Vinous” means “added with alcohol”.

Jullien’s text, in our edition, is from 1822, and the text of the Barone a Prato [57] is from 1896, with about 74 years in between, roughly two generations of winemakers. Jullien [56] refers to the rather advanced French situation from a cultural and technological point of view, while the Baron writes in a dynamic cultural context, quite active both culturally and technically, but an heir, until the mid-19th century, to a viticulture and oenological practice of a medieval type. We do not know how this situation may have led to different interpretations of the term “Vinous”. We have no further information on the vocabulary adopted by the Baron a Prato [57], nor do we know if he was familiar with Jullien’s works [56]. Certainly, the term appears to still have an ambiguous meaning nowadays and it is generally not accepted as wine descriptor in sensory analysis, but there are some exceptions. In a 2019 paper [58], the “Vinous” attribute was identified in some experimental wines, associated with ethyl acetate and isoamyl alcohols. Unfortunately, no standard is indicated in the paper for the “vinous” odor (attribute). The connection between “Vinous” and the content of ethyl acetate was evidenced in 2008 by Oliva et al. [59]. These authors reported that it had a positive effect on the overall sensorial quality of red wine, and concentrations close to 80 mg/L contribute to vinous-like aromas, but higher concentrations contribute negatively to wine aroma, having more influence than acetic acid in the sour-vinegar off-odor. In a very recent paper in 2022, Fairbairn et al. [60] explored the possibility of creating a wine-like aroma (a “vinous aroma”) using yeast metabolic activity alone. Their results suggest that the wine-like character responsible for the recognition of a



product as “wine” is largely the result of the de novo synthesis of aromatic compounds by yeast and does not require the contribution of grape-derived volatile compounds.

The origin of the “vinous” odor in wines needs further investigation.

## 6.2. Aftertaste

“Without a doubt, the most difficult and important part in wine tasting is entrusted to the sense of taste”. This is the opinion of Giovanni a Prato [57], who used the words “taste” to indicate the perceptions related to stimuli in the oral cavity, and “flavors” the stimuli of sweet, bitter, sour, and salty. It seems that according to this author, the retro-olfactory perception is more effective than the ortho-olfactory one. This opinion is not shared, for example, by some current neurobiologists like Shepherd, who claims that they are even different perceptions.

Baron Giovanni a Prato [57] dedicates special attention to the “Aftertaste”: “At the back of the palate . . . the sensations produced by the wine . . . are not always fleeting but remain, depending on the cases, impressed for a longer time, which can vary from 3–4 to 25 min s, even an hour or more”.

It seems that there was still no distinction between the concept of *persistence* (from 3–4 s to about 20) and that of *aftertaste* (an hour or more). In fact, he continued: “This taste impression is barbarically called the “*aftertaste*” (in Italian “*retrogusto*”, in French “*arrière-goût*” and in German “*Nachgeschmack*”). It reveals to the taster certain aromas and flavors (such as those of wood, bitterness, mold, and others) that could not be discovered at all or only weakly before, and partly serves to appreciate the quantity of extract, i.e., the body, and the sapidity (*sève* in French) of the wine”.

The sentence just mentioned further confirms the confusion in the glossary in use between the “Aftertaste”, identified but not defined, and what Védél et al. [61]—also reported by Peynaud [1]—will define about 70 years later, in 1972, with the term “persistence”. French experts [58] affirmed the existence of a characteristic that is identified as *intense aromatic persistence* or P.A.I. (in French *persistance aromatique intense*), which was also reported by Ubigli [32]. It is a lingering aroma that persists when the wine is no longer in the mouth. It lasts for a period ranging from 2 to 16 s and it has an extremely positive value, so much so that it is an indicator of the quality of the wine.

Oddly enough, the seconds were called “caudalies” (a term that we believe depends on the Latin “*cauda*”, an appropriate word for final perceptions). The term that was supposed to replace seconds did not have much success; in fact, it fell into disuse.

Here is the context: in 1992, a poster of Ubigli and Castino [62] using the word “caudalies” was presented at a conference on spirits held in Cognac. A few days before the start of the conference, presumably when they set up the room with the posters, a phone call arrived in which the organizers politely asked what kind of compound was referred to as “caudalies”.

Although, at present on the internet, it is possible to find the definition of caudalie in many sites on wine from different wine-producing European countries (Italy, France, Spain). For example, in the Bourgogne wines Glossary [63], we found this definition for caudalie: the measure of the aromatic persistence or “length” of a wine in the mouth after tasting. Expressed in seconds. A “short” wine will have a score of 2–4 caudalies, a great burgundy will have 8–12 caudalies or even more. In the Bordeaux wine glossary [64], caudalie is defined in the following way: derived from the word “caudal”, meaning tail, this unit measures the duration of the aromatic persistence of a wine on the palate. One caudalie is equal to one second. A fine wine has a finish of 8 or more caudalies.

We will add, moreover, that “caudalie” is also the name of a famous French skincare company specialized in vinotherapy.

Persistence, probably, is no longer considered to be an “intense aromatic” because that expression was valid prior to the prevailing opinion of the multisensory nature of our perception of food [65]. The term multisensory perception is used to explain what happens when, for example, we modify the crunching sound of a potato chip produced during

the biting action. In this case, auditory and tactile sensations combine in the brain into a multisensory perception of freshness and crunchiness, and both senses are integral parts of the experience of a single food.

Then, persistence concerns the memory of perceptions derived from stimuli in the oral cavity; hence, it is an extension, for a limited time, of what is perceived.

What happened to the “Aftertaste”? The current meaning of “Aftertaste” is as follows: “a negative connotation, as it indicates an aroma or taste, or both, completely different from the sensations that support persistence . . . they are generally not very pleasant or even unpleasant (metallic notes, sediment, rot, old wood, mouse urine, and others), and in any case always different from the olfactory impressions . . . of persistence”. Their duration far exceeds that of the 12–16 seconds of the persistence of great wines (these concepts are taken from Luigi Moio [66]).

“Persistence” and “Aftertaste” are not distinguished in the text written by Jackson [42]; he uses the term “Finish”: “Finish refers to the aromatic and sapid sensations that linger following swallowing/expectoration . . . Typically, the longer the finish, the more highly rated the wine. Some tasters consider its duration a major indicator of quality. Its measure has been formalized in the term caudalie. One caudalie represents the duration of the finish for one second . . . Exceptions to the generally desirable nature of a protracted finish are features such as a lingering metallic aspect, excessively acidic, bitter, astringent sensations, or worse, a persistent off-odor or off-taste . . .”.

### 6.3. Body

We have taken as a pretext, citing Baron a Prato [57], a couple of differences between the lists of terms found in different languages, different years, more or less distant locations, and historically, economically, and socially incomparable contexts. Now, we can consider another significant aspect: a considerable difference regarding the interpretation that he provides of the term “Body” compared, for example, to the definition we read in Jullien [56]. The former [57] argues that the “Body” of a wine represents its dry extract, i.e., the remaining portion of the wine after the removal of volatile substances (aromatic compounds and alcohol) with appropriate heating, a customary operation in a laboratory.

Let us see Jullien’s [56] interpretation of the term “Body”: “Wine that has a certain consistency, a pronounced taste, a vinous strength, solid substance, filling the mouth as opposed to a light, dry, cold, and watery wine”.

The definition is based on three parameters: consistency, pronounced taste, and solid substance. “Taste”, in this case, concerns the perceptions of the oral cavity: the tastes, the tactile perceptions, and the retro-olfactory component.

What does the vinous strength represent? We encountered the concept a few lines ago: “Vinosity. Taste and vinous strength. This word is sometimes used to indicate a high degree of spirit”. Taste, which we have just defined, comes into play, and we believe the alcohol content is involved. But, as we have just seen, taste cannot do without the fundamental retro-olfactory component, and vinosity entails the presence of a high alcohol content. In the weighing of dry extract, there is no place for alcohol, or the olfactory component carried away from the wine by heat. In the wine glass of the taster, there is the wine with its own alcohol content and its own olfactory component, not the dry extract as such. Therefore, to conclude, currently, the “Body” of the wine is represented by the dry extract, as defined in 1984 by the International Union of Oenologists [67]. It is a convention and not a real sensory expression of wine. There will be valid reasons to justify its identification; we do not know them.

As reported by Niimi et al. [36], wine “Body” was described in different ways, for example, as the weight of wine on the palate resulting from the combined perception of alcohol, sugar, tannins, acid, flavor, and glycerol. However, for other authors, glycerol in wine contributed minimally. Moreover, the word “Body” was ambiguously used in the red wine mouthfeel wheel [46]. This is a term that does not yet have a clear definition [36]. These authors [36] showed that consumers described wine “Body” most frequently using

words such as flavor, fullness, and strength. Wine “Body” was therefore understood by consumers predominantly as a holistic multi-sensory perception of flavor.

If we read Jackson [42], “Body” is also defined as “weight” and we found this consideration: “Although “Body” is a desirable aspect in most wines, the precise origin of this perception remains largely a mystery”.

This author reports the opinions of a different researcher on a possible link between “Body” and sweetness in sweet wines or the alcohol content in dry wines. Glycerol seems to increase the perception of “Body”, but only at concentrations found in some very sweet wines. Acidity appears to reduce its perception and, on the contrary, yeasts mannoproteins and grape polysaccharides seem to increase it (fullness). The viscosity seems insufficient to explain perceived differences in “Body”, and also the effect of other components is not clear (physical viscosity, osmotic potential, total extract, as well as lactic acid and magnesium contents or phenolic compounds).

It seems that the examples mentioned lead to a possible conclusion: the journey of developing glossaries has been anything but simple, anything but short, and anything but smooth.

## 7. Conclusions

A fundamental characteristic of tasting glossaries is the adoption of translated (metaphorical) terms that, as such, did not arise to define the characteristics of wine but rather other aspects of the context in which men and women live. Therefore, many of the terms used to define the sensory characteristics of wines are “dependent” on the context and change, in more-or-less short periods, depending on the changing context itself. In this regard, some glossary terms have been discussed, considering their genesis and evolution over time. Some lists of terms have been presented, not by chance, in France, a country that for many years has represented the guiding light that illuminated the awakening, around the mid-19th century, of the viticulture and oenology of other European countries like Italy, as well as the use of terms adopted to define the sensory characteristics of wines. If we talk about wine, we have necessarily had to consider the fundamental role of those (tasters or experts) who, day by day, created, preserved, commented, modified, and used the glossary, contributing to making it an occasion and a tool for culture. The figure of the taster, of course, is crucial in spreading the knowledge of healthy drinking, of drinking in a way that communicates the wine in such a way that those interested can be gratified by knowing something more about the wine than just its name. The tasting of wines lost an important monopoly function around the 1980s with the advent, even in tasting rooms, of sensory analysis, discriminatory methods, descriptive terms, pre-established lists of terms, and the advent of non-parametric statistical methods “built” to measure for the data provided by panels. Sensory analysis aims to obtain data as close as possible to those of reality; “tasting” becomes a reality if there is a consensus among the various tasters. Currently, studies by neurobiologists, psychologists, geneticists deepen the information on the relationship between wine and the consumer day by day, especially from an emotional point of view, probably subtracting further space from oral communication. Apparently, tasting should seek an attic to confine itself. Paradoxically, in our European or Western cultural context, despite the cries that terrify poorly informed consumers about the catastrophic effects of wine consumption, tasting can carve out an important space, perhaps one that is tailor-made. It has been said that the relationship with wine is a “dialectical relationship” because you cannot not talk about the wine you drink, especially when the product of certain consumption ranges becomes a special experience of gratification. We agree with Moio [67] when he observes that tasting cannot be considered “a purely technical procedure or a demonstration of subjective skill . . . to taste a wine, solid methodological knowledge, extensive experience, or good olfactory memory are not enough, but one must be an “artist””. Expressed in this way, the concept might suggest a particular gift, whether you have it, or you do not. Then, what role could the verbalized knowledge of wine expressed by a glossary play? Wine is a social beverage, it is drunk

in company; often, loneliness induces excessive and paroxysmal, pathological drinking. The artist's wine is the wine of joy, satisfying aesthetic sensitivity thanks to the harmony between different components that have a name corresponding to sensory perceptions. Perceiving them and not defining them is frustrating. Are artists born or made? According to us, the artist is one who, by talent or decision of will, is committed to cultivating certain convictions in themselves, among which sensitivity to beauty and goodness stands out as factors of well-being. "Seeking the deepest essence of wine is a playful act". Wine is not necessary for existence, just like music, the art of painting, poetry, or sculpture, but this apparent "uselessness" makes it important and precious. The vocabulary of tasting is not a dead letter, but it updates from time to time, introducing new terms that are more responsive to the needs of the times. Novel words like "crunchy", "ample and enveloping", "mineral", etc., are now well-established. Rosalia Cavalieri in one of her texts [7], highlights the vitality of wine communication. Regarding the "Body", of which we have just seen not exactly identical meanings, we report, as an example, a series of synonyms: "robust, heavy, powerful, strong, large, full, hard, oily, viscous", defining its consistency, and more recent ones like "muscular, fleshy, massive, slim, sinewy", evidently inspired by fitness. Then, again, "sculpted, well-built, manufactured, polished" are used. The wine glossary regarding sensory characteristics is updated, modified in progress precisely because those who use it are artists. This is a sign of vitality because it expresses the need/desire to communicate and define their perceptions, regardless of the context, their pleasure. From the relation of Cey-Bert in 1981 [6], we draw the following observation: "Wine has a very important emotional and social dimension, which constitutes authentic language. This language is a particularly well-developed symbolic language. For more than 4000 years, in our civilization, it has expressed the fundamental needs of humanity, desires, hopes, and fears. Symbols are means of communication that carry meanings to the psychological, emotional, and social values of eating behaviors. Wine is one of the most ritualistic food products whose symbolic meanings far exceed those of food and physiological ones". Massimo Donà, Philosophy professor at the San Raffaele University of Milan, author of a text [68] on the philosophy of food and wine, echoing in part the concept expressed by the authors mentioned earlier, observes that "as rational animals, . . . we would be able to perform activities that do not concern simple sustenance; activities that may even seem useless . . . but that nevertheless seem to be the only ones capable of nourishing the soul (the psyche). Or better, of satisfying that thirst for knowledge that characterizes us precisely as (animal) beings endowed with logos (word)". The word is also important for those who bring the wine to their mouths because if they have the glossary, they can, through the perception–word connection, know which characteristics of the wine attract them, both according to sensory and emotional modalities. The pleasure of wine is the pleasure of the stomach, but also, and above all, of the brain, as well as, naturally, of the word.

"Prosit".

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