

View Points

Food and wine pairing: A new approach

Peter Klosse

Academie voor Gastronomie, Hotel Gastronomique De Echoput, Hoog Soeren, Netherlands
e-mail: p.klosse@echoput.nl

Flavour can be assessed objectively with the use of the newly developed flavour styles theory. In this approach, flavour is structured on the parameters contracting mouthfeel, coating mouthfeel and flavour richness. The result is the flavour styles cube. The eight flavour styles are subcategories of flavour, each with their own characteristics. The flavour styles have proven to be useful in communicating about flavour. Flavour profiles can be made of foods and wines and this provides a basis for finding good combinations, not only of beverages and foods, but also of flavours that constitute a dish and menu order. Good combinations are generally liked which means that the flavour styles theory gives a valuable contribution in educating food and beverage professionals. The theory has also been used to define the culinary success factors (CSF).

Keywords: coating mouthfeel, contracting mouthfeel, culinary success factors, flavor theory, flavour richness, flavour profile, food and wine pairing

Wijn-spijscombinaties: Een nieuwe aanpak

Smaak kan objectief benoemd worden met behulp van de nieuw ontwikkelde smaakstijlen theorie. In deze benadering wordt smaak benoemd met behulp van de parameter 'mondgevoel strak', 'mondgevoel filmend' en 'smaakrijkdom'. Het resultaat is de Smaakstijlenkubus. De acht smaakstijlen zijn subcategorieën van smaak en hebben elk hun specifieke eigenschappen. De smaakstijlen hebben bewezen nuttig te zijn in het communiceren over smaak. Smaakprofielen kunnen worden gemaakt van gerechten en wijnen en dat biedt een basis voor het vinden van goede combinaties. Niet alleen van dranken en gerechten maar ook van de smaken die samen een gerecht vormen en ook voor de menuvolgorde. Goede combinaties worden in het algemeen gewaardeerd en dat betekent dat de smaakstijlentheorie een waardevolle bijdrage kan leveren aan de opleiding van food en beverage professionals. De theorie is ook gebruikt om de Culinaire Succesfactoren (CSF) te benoemen.

Trefwoorden: coating mouthfeel, contracting mouthfeel, culinaire succes factoren, flavour richness, smaak profiel, smaak theorie, wijn-spijscombinatie.

食物和葡萄酒搭配：一种新方法

食物和葡萄酒搭配：一种新方法 摘要 你是否总是发现自己在已经准备了可口的菜肴时却发现它破坏了一杯美味的葡萄酒的味道？你是否总是疑惑为什么一份特别的菜肴或一杯美味的葡萄酒在夏季很爽口，但是在冬季很糟糕？你是否总是注意到，葡萄酒的产生取决于特定区域内不同的葡萄种植者，并且同一葡萄品种酿出的葡萄酒，味道也是不一样的？你是否总是问自己为什么对于口味和风味的喜好的表达这么难？

关键词：食物，葡萄酒，调配，风味理论，口感依赖性，外部的口感，口味丰富，香气，烹饪成功因素

Introduction

Have you ever experienced how a good wine can be ruined by a flavourful dish? Have you ever noticed that wines from the same region and grape variety can nevertheless be very different in flavour? Have you ever asked yourself why communicating about taste and flavour needs to be so difficult? The chances are that you have and this, in turn,

may have led you to conclude that flavour is too personal. As the old saying goes: 'There is no accounting for taste'. This being the case, you may consider efforts to address the dynamics of food and wine to be somewhat frivolous, and you certainly would not be the only one to think so. I, however, beg to differ. About ten years ago, I came to the

realisation that what we needed was a new approach that would give us the answers we need in order to understand the essence of flavour and the practice of pairing food and wines. In developing this new approach, it became clear to me that we have traditionally looked at the issue from the wrong perspective. The new insights I have gleaned will help us to understand the complex world of flavour in general, and offer exciting possibilities to the wide world of food preparation in all of its many guises. They constitute a part of what we now refer to as 'flavour theory'.

New concepts

The new approach demands new concepts. A central concept of the new flavour theory is the 'flavour profile'. To understand what this is, we must first define what we mean by 'flavour', and that, in turn, can only be understood in relation to 'taste'.

Taste is one of the five senses with which humans are endowed. People have the capacity to taste the flavour of foods and drinks. As one of the five senses, taste is profoundly linked to the other senses. Our tongue, nose and eyes are all involved in the act of tasting, thus taste is inextricably bound up with the senses of touch, smell and sight. Once we have placed 'taste' into this human context, we can move on to say that 'flavour' is the counterpart of taste.

Where taste belongs to the taster, if you will, flavour is exclusively associated with the food products, themselves. All foods and drinks have flavour. Flavour can be broken down into a number of separate elements: the gustatory element, the olfactory element and the tactile element. This definition of flavour is broader than that supplied to us by most standard dictionaries, and while this may seem confusing to some, to me it is a natural consequence of looking at the matter closely.

A conscious awareness of the distinction between taste and flavour is very useful. Taste, being linked to humans, is by definition a subjective concept. People have different capacities, experience and culture and they experience taste in their particular environments. This will necessarily influence the registration of flavour, but it certainly does not influence the nature of the flavour itself. Compare this to the idea of colour. The colour of a given object will remain steadfast, even though it may be experienced differently by individuals with varying degrees of visual ability. In fact, flavour is objective. Any trained professional will acknowledge that. To avoid subjectivity when defining a flavour, the tasting of the food item in question must be undertaken by a team of tasters.

Once all of this has been established, we need descriptors: parameters or rather concepts that can be used to describe flavour. In the field of physics, frequency (hertz) and intensity (decibel) are the parameters used to describe the phenomenon of sound. In the field of flavour, 'mouthfeel' and 'flavour richness' are the parameters we use to help us define flavours (see Figure 1).

Mouthfeel

Humans are, from birth, highly sensitive with regard to mouthfeel. There is no flavour without mouthfeel. Mouthfeel can be defined as the human perception of the texture of food or beverage in the mouth. Mouthfeel covers all tactile experiences, including texture, thermal effects and chemical

influences of acids, salts, minerals, metals, and irritants. Mouthfeel is closely related to food appreciation. Toasted bread that has lost its crispness will have lost much of its appeal as well. In the process of wine-making, wine growers will traditionally counterbalance a highly acidic wine by adding alcohol or residual sugar; otherwise it will develop into an unappealing wine. As a tool to aid us in describing particular flavours, mouthfeel can be subdivided into two categories: 'contracting mouthfeel' and 'coating mouthfeel'.

Contracting mouthfeel

Acidity and saltiness play an important part in the composition of many foods, and trigger a contracting response in the mouth. The papillae on the tongue register the presence of acidity and saltiness; this is experienced as tactile 'tingling' or 'stinging' impressions. The acidic wine will have a 'contracting' mouthfeel, as will the freshness of a green salad, citrus fruit, apples, and pickles. No wonder such wines go well with salads and other fresh foods. Frozen substances such as can be found in ice cream also trigger a fresh and tingling oral sensation. They have a rinsing, refreshing influence in the mouth. In fact, the pores located in the mouth contract to bring about this effect. The more extreme tactile reactions produced by carbon dioxide, menthol, raw onion, mustard, ginger, horseradish, and some peppers are similar to the reactions triggered by milder foodstuffs, but they are very different from a chemical and physiological point of view. The common denominator is that all of these food substances trigger a contracting, prickling or stinging feeling.

In addition to the effect just noted, contracting mouthfeel may also be characterised by dryness in the mouth. Foodstuffs that easily absorb saliva can cause this: a dry biscuit; a crispy, fresh crust of bread; potato chips; some meats and nuts. The drying (roughing, puckering) effect in the mouth caused by tannins (red wine) and other bitter tasting elements (as in coffee, tea or unsweetened chocolate) is also characteristic of contracting mouthfeel.

Coating mouthfeel

Creamy, fatty substances and those containing a significant amount of dissolved sugars, coat the mouth. In other words, they leave a layer of fat or sugar behind. These substances also influence saliva by making it thicker. In beverages, alcohol and sugars are viscous, coating elements. They coat the mouth, and this coating may influence the way in which the mouth perceives the next mouthful of food it encounters. Proteins also produce a coating mouthfeel, especially amino acids and some chemical substances, such as gelatine.

Contracting mouthfeel and coating mouthfeel are capable of neutralising each other. Oil (coating) and vinegar (contracting) are mixed together to get a well-balanced vinaigrette. Alcohol and/or residual sugar (coating) balance or neutralise the acidity (contracting) of wines. A dry slice of toast (contracting) will neutralise a slice of smoked salmon (coating). The fattiness of that smoked salmon may also be neutralised by teaming it up with lemon, raw onion or horseradish, all of which trigger a contracting mouthfeel.

Flavour richness

The decibel and the lux are units of measure of sound and light intensity, respectively. Flavour richness is their counterpart

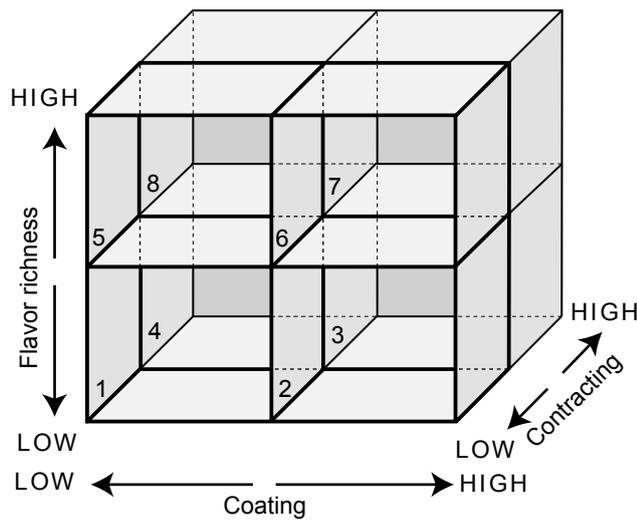


Figure 1: The flavour styles cube

Table 1: The flavour styles and their characteristics

flavour style	primary flavour factors		
	contracting mouthfeel	coating mouthfeel	flavour richness
1. neutral	Low	Low	Low
2. round	Low	High	Low
3. balance fresh	High	High	Low
4. fresh	High	Low	Low
5. powerful/dry	Low	Low	High
6. rich	Low	High	High
7. balance ripe	High	High	High
8. pungent	High	Low	High

in the field of flavour. As with contracting mouthfeel and coating mouthfeel, flavour richness can be scaled from low to high. The level of flavour richness can be classified by regarding the ‘flavour type’ (see Table 1). Flavours that are characterised by the fresh, fruity, acidic tones of lemons, apples and menthol are called ‘fresh’. Such flavours are easily associated with spring and summer. Primary fruit flavours in general are often fresh, as are herbs like chives, parsley, chervil, and mint. Fennel, leek, raw onion and raw peppers are examples of vegetables that bring freshness to dishes.

As flavour richness increases, ‘ripe’ flavour tones are likely to increase. Consider the changes that occur in the flavour profile of a potato depending on whether it is boiled, pan fried or deep-fried. Frying or grilling meat or fish shows how flavour intensity rises, while the flavour type changes to ripe. This is also true of onions and peppers that are roasted in the oven. Other examples of food ingredients with ripe flavour tones are mushrooms, caramel and vanilla. In wine-making, the process known as barrel ageing will bring about differences in flavour style, giving such wines a ripe character, just as ageing does. In many cases, flavour intensity and ripe flavour tones rise with the level of preparation, leading to higher levels of flavour richness. Pure and non-prepared foods are likely to be lower in flavour richness.

Flavour profile

Foods and drinks can be classified within the three above-mentioned parameters. Contracting mouthfeel, coating mouthfeel and flavour richness can all be scaled from low to high. The three-dimensional model below is called the flavour styles cube.

The world of flavour is a cube. Classified products find their place somewhere in this world based on their perceived objective properties. This basic structure can easily be subdivided into eight categories: the flavour styles.

Practical use

The empirical model of the new flavour theory is scientifically validated in my academic thesis ‘The concept of flavor styles to classify flavors’ for which I received my PhD in 2004. I am currently writing ‘The essence of Gastronomy’. It is intended for food professionals’ educational purposes. The Dutch version ‘Het Proefboek, de essentie van smaak’ is widely used and much appreciated. In Holland, Belgium and Denmark the theory has been widely adopted.

New gastronomic guidelines

Space in this paper is limited, so instead of elaborating on the flavour styles, allow me to address some of the advantages of this new flavour theory. Indeed, it has proven to be very useful in daily practice. A big advantage of the new flavour theory is that it is a universal language that is easy to comprehend. In our courses, we do not need much time to get people to understand how a flavour profile can be determined. Consequently the guidelines for wine and food pairing have proven to be very useful and relatively easy to apply. Flavour is what wines and food have in common. Thus, the same descriptors can be used. This leads to new guidelines for the pairing of food and wine. Basically, good combinations are found if the flavour profile of wines and foods resemble one another. In other words:

- Contracting wines go well with contracting foods
- Coating wines go well with coating foods
- The flavour richness of wines and foods should be about the same
- The rule of thumb when composing a menu is to progress from contracting to coating foods and wines, and from lower levels of flavour richness to higher levels.

In this new flavour theory, the colour of the wine, grape varieties, region and year are not important; this is evidence of the fact that the new theory goes beyond traditional emphases on wine labels and menu descriptions of food. Instead new roads are opened, roads that were previously considered to be closed or even non-existent. Creativity in gastronomy is enhanced when it grows from a solid base.

Furthermore, it becomes clear that small changes in preparation will lead to big changes in flavour. Amounts of salt and various herbs, acidity, the thickness of a sauce, will all, in their own way, change the flavour profile. The same applies to wines: such things as the use of a particular yeast strain, a change in the length of the vinification period, variation of temperature during fermentation and the use of wooden barrels will influence the flavour profile of wine. This explains why wines do not all taste the same even though they come from the same region, year and grape variety.

Culinary success factors

Another interesting application of the new flavour theory is the formulation of culinary success factors. We searched for factors that determine palatability, which we define as flavours that are pleasing to the palate. The term 'palatable' is easily confused with 'liking', which is defined as the human response to a certain flavour. As such, 'liking' is a subjective concept. Palatability on the other hand, is product-related, and can be considered to be a successful combination of product characteristics. In order for a restaurant dish to be considered palatable, it must exhibit all of the following six characteristics:

- The name and presentation must fit the expectation
- The aroma should be appetising and appropriate to the food
- There should be a good balance of flavour components in relation to the food
- The savoury, 'deliciousness' factor, umami (also called the fifth basic taste), must be present
- The mouthfeel of the dish should offer a mix of hard and soft textures
- The dish must be characterised by high flavour richness.

It is interesting to note that one hospital in Denmark has evaluated and changed all of its recipes based on these factors. Patient satisfaction with regard to food has risen so much that the method is currently being applied in fourteen other hospitals.

Conclusion

If somebody had come to me ten years ago and asked me to write an article on the new flavour theory, I would have hesitated. At that time I had just presented the new ideas, and nobody could foresee the impact they would have. In the Netherlands, today, terms like 'coating mouthfeel', 'contracting mouthfeel' and 'flavour richness' are bandied about very casually in restaurants, wine shops and magazines. Supermarket magazines, several food industries and many journalists have also adopted the new flavour-language. The new theory is implemented in educational programmes on

various levels. The *sommelier* training in the Netherlands is based on the theory and many chefs use it to their advantage. Most recently, Stenden University offered me a professorship in Gastronomy with the ambition to develop Gastronomy as a science, and to initiate research and develop educational programmes culminating in a Master's degree in Gastronomy.

It is hoped that all these activities will lead to a wider adoption of the flavour styles theory.

About the author: Peter Klosse was born on 3 February 1956, the birth very nearly taking place in his parents' newly opened restaurant, 'De Echoput'. The restaurant quickly gained a national reputation, and was awarded its first Michelin star in 1967. After finishing high school, Peter spent a year in California as a foreign exchange student. Between 1975 and 1979 he studied Business Administration and graduated from the Rotterdam School of Management. Following in his father's footsteps was not a predisposed option. Running a restaurant not only requires management capability, but also a love of food and wine and a supportive partner. After meeting his spouse and working for a period of two years in all kinds of learning positions in famous two- and three-star restaurants in Europe, Peter satisfied all of the requirements, and took over his parents' restaurant in 1983. In 1991, he founded the 'Academy for Gastronomy'. It offers professional courses in wine and food pairing. Peter continued his research, which gradually led to his development of a comprehensive empirical theory on flavour. He has published several commercially successful books on this subject, currently available only in Dutch: in 1998, *Smaak* and in 2000, *Smaakstijlen*. In 2001 Peter began researching the material that would eventually become his doctoral thesis. The new findings were compiled in a book for food professionals: *Het Proefboek*. Further works include four recipe books, and a complete book on wine with a detailed description of all the wine regions in the world. In 2008, in collaboration with photographer, Jan Bartelsman, he published *Chef en Sommelier*. It shows how some of the best chefs and *sommeliers* in the Netherlands work and apply the new flavour theory. Meanwhile his restaurant, De Echoput, continues to be successful. In 2004, it closed its doors for a time, reopening in 2007 at the same location, together with a five-star luxury design hotel. The restaurant was chosen as the best new luxury restaurant in 2008 by the IRHA (International Restaurant and Hotel Awards).