Padua 2017 Abstract Submission

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Conference Presentation

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Keywords
Global Warming, Alcohol Level Content, Category, Categorization, Reducing Alcohol Level Techniques, Prospect Theory

Research Question
Since alcohol content in wine is a general criterion for consumers, might any variation in alcohol level (and associated cause) call into question the definition of what constitutes "wine"?

Methods
Exploratory qualitative study. Semi-directive interviews into three parts: the purchase and consumption of alcohol; alcohol level as a factor of choice; consumer perceptions regarding the reduction in alcohol levels

Results
The results highlight the major role played by the nature of the attribute in the categorization and its influence on the perception of breaks in a category.

Abstract
Global warming is amply covered in the media. People are becoming aware of it and admit that they are concerned about the questions raised by changes in the environment. Nevertheless, even if the subject of global warming (with associated loss of bio-diversity, deforestation, gaps in the ozone layer, etc.) is explained to them in detail, the practical repercussions of this on their daily lives is given less media coverage. For the time being, consumers do not necessarily appreciate the impact of global warming on the properties of the products which they use every day. Wine is a good example. If the average high temperatures recorded during the maturation and harvesting of grapes, have been seen as positive by the professionals, the continuous and steady increase in temperatures will have a definite effect on the nature, the taste and the ability to keep, or 'lay down', wines, as well as on the geographic location of the vineyards (Alston, 2015; Holland, Tara; Smit, Barry, 2010; GIEC, 2014).

In practical terms, table wine today registers almost 14° of alcohol content on average as opposed to 10° in the 1970's, and could reach 16° 20 years from now ( ). This trend towards a steady and increasing rise in the alcohol content of wine has been recorded for at least the last thirty years (Escudier, 2007), but in recent years it has been accelerating. This is mainly attributable to the increase in average temperatures, which, since it favors an increase in the sugar content of mature grapes, has led to the emergence of wines which are more concentrated, which have very strong flavors, and which are very much appreciated by a certain kind of international critic ('The Wine Spectator' journal, for example). The phenomenon is caused by global warming, and early harvesting can only have a limited effect on it. At the same time, the expectations and behavior patterns of wine consumers are also changing, in that some consumers are looking for wines with a lower alcohol content. The increase in alcohol content can also come into conflict with public health policies (Sorio, 2011).

The wine producing community has found itself at the center of a paradox frequently discussed in the press ( ). On the one hand, global warming leads to the production of wines with higher levels of alcohol, and on the other, some consumers are looking for wines with a lower alcohol content. In order to match the products on offer with the demands of consumers, wine producers are resorting to different techniques. These might involve early harvesting of the grapes, planting new strains of vine, creating new combinations of grapes or even using techniques for reducing alcohol levels.

Consequently, global warming presents a real challenge for grape growers and wine producers, and it is likely that the wines that consumers will be drinking in the future will be different from those they drink today. Wines which are high in alcohol, as well as those whose low alcohol content is the result of agronomic research, could lead to a rethink of the traditional norms of wine production and wine consumption. Variations in the characteristics of wine (increases or decreases in alcohol levels, for example) could indeed represent a positive potential, but they could also give rise to a loss of identity for wines which are certificated as authentic local products.

Because of knowledges being transferred from categories to the products associated with them, understanding how wines are categorized is an important subject of research. It is interesting to note that, in an experimental scenario, given the lack of empirical evidence, a reduction of up to three degrees in alcohol content (from 12° to 9°) does not register in consumers' sensory perceptions, with consumers even expressing a preference for the wines with less alcohol content. On the other hand, a clear labelling of the alcohol level influences (and even reverses) consumers' preferences (Masson, 2010). Other research studies on low alcohol wines reveal the effect that the presence of information has on consumer preferences. Sorio (2011) showed that the mention 'alcohol content' on wine is representative of, or central to, the category of product. In experiments where information on the alcohol content is given, a change in the alcohol content of +/- 3° around the 12° level (which is considered as the reference point for the wine) changes the category and the preference for consumers (Sorio, 2011). Consequently, from a cognitive perspective, wine and alcohol level are seen as being closely linked.

The practice of reducing alcohol levels in wine is perceived in different ways, depending on the type of consumer (and particularly on his/her level of expertise). Since wine is seen as an integral part of French gastronomic culture, and as a natural product, techniques used to reduce alcohol content can be considered to be unacceptable forms of human intrusion (for example, http://voyagesvinsdumonde.20minutes-blogs.fr/archive/2015/12/20/changement-climatique-et-vin-partie-3-de-3-924763.html). Or, on the contrary, they can be seen as new scenarios for enjoyment of wine (by way of illustration, http://blog.midi-vin.com/techniques-viticoles/vin-desalcoolise-001999).

The aim of this research is to deepen our understanding of the reactions of consumers in this new environment, i.e. how wines are perceived, how preferences are established etc. In more detail, the main questions we shall be asking are the following:
- Since alcohol content in wine is a general criterion for consumers, might any variation in alcohol level (and its associated cause) call into question the definition of what constitutes 'wine'?
- How do consumers perceive the different techniques of reducing alcohol levels? Does their understanding of the cause, i.e. global warming, change their perceptions in any way?
The same methodological approach could lead to a study of 'bio-wines' (wine labelling).

The literature review centers on categorisation theory, in particular the role of attributes, and prospect theory. Cognitive categorisation is a means of information processing, during which the consumer assesses one factor in relation to a reference factor in the category, and can associate them with each other if he considers that they are similar.

We wish to confirm that a wine produced by changing a typical (or central) attribute such as the degree of alcohol would be more difficult to categorize in the 'wine' category. Indeed, modifying the attributes of a category runs the risk of calling into question the definition of the product's host category.

Moreover, the greater the degree of change to the typical attributes of a product, the greater will be the feeling of uncertainty and risk on the part of the consumer. One of the most useful theories in studying consumer decisions in situations of uncertainty is prospect theory (Kahneman and Tversky, 1979). This theory posits that the consumer

weighs up the characteristics of the product in terms of his previous experience with it, which allows him to identify a point of reference which will provide a basis for subsequent evaluations. Any discrepancy with the consumer's reference point (for example, an alcohol level of 9 instead of 12) could be seen as a gain or a loss. Combining these two theories, we suggest that the degree to which the attributes of a product change has a significant effect on the product's categorization, but also on the gains or losses to be expected.

This paper takes account of the exploratory qualitative study carried out on the same subject. A number of semi-directive interviews were conducted. They were structured into three parts: the narrative of the purchase and consumption of alcohol (to identify the choice and the weighting of the criteria); alcohol level as a factor of choice; and consumer perceptions and attitudes regarding the reduction in alcohol levels carried out by wine producers.

The research also reveals essential managerial lessons for the different actors in the chain. For wine producers, categorization has an impact on market boundaries. For distributors, categorization influences the allocation of products to product families and store shelves. And finally, for consumers, the difficulties inherent in categorization can influence their attitude to the product and potentially, their decision to consume.

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Impact of global warming on the alcohol content of wine: Consumer perceptions, a prospect theory approach.

Global warming is amply covered in the media. People are becoming aware of it and admit that they are concerned about the questions raised by changes in the environment. Nevertheless, even if the subject of global warming (with associated loss of bio-diversity, deforestation, gaps in the ozone layer, etc.) is explained to them in detail, the practical repercussions of this on their daily lives is given less media coverage. For the time being, consumers do not necessarily appreciate the impact of global warming on the properties of the products which they use every day. Wine is a good example. If the average high temperatures recorded during the maturation and harvesting of grapes, have been seen as positive by the professionals, the continuous and steady increase in temperatures will have a definite effect on the nature, the taste and the ability to keep, or 'lay down', wines, as well as on the geographic location of the vineyards (Alston, 2015; Holland, Tara; Smit, Barry, 2010; GIEC, 2014).

In practical terms, table wine today registers almost 14° of alcohol content on average as opposed to 10° in the 1970's, and could reach 16° 20 years from now (1). This trend towards a steady and increasing rise in the alcohol content of wine has been recorded for at least the last thirty years (Escudier, 2007), but in recent years it has been accelerating. This is mainly attributable to the increase in average temperatures, which, since it favors an increase in the sugar content of mature grapes, has led to the emergence of wines which are more concentrated, which have very strong flavors, and which are very much appreciated by a certain kind of international critic ('The Wine Spectator' journal, for example). The phenomenon is caused by global warming, and early harvesting can only have a limited effect on it. At the same time, the expectations and behavior patterns of wine consumers are also changing, in that some consumers are looking for wines with a lower alcohol content. The increase in alcohol content can also come into conflict with public health policies (Sorio, 2011).

The wine producing community has found itself at the center of a paradox frequently discussed in the press (2). On the one hand, global warming leads to the production of wines with higher levels of alcohol, and on the other, some consumers are looking for wines with a lower alcohol content. In order to match the products on offer with the demands of consumers, wine producers are resorting to different techniques. These might involve early harvesting of the grapes, planting new strains of vine, creating new combinations of grapes or even using techniques for reducing alcohol levels.

Consequently, global warming presents a real challenge for grape growers and wine producers, and it is likely that the wines that consumers will be drinking in the future will be different from those they drink today. Wines which are high in alcohol, as well as those whose low alcohol content is the result of agronomic research, could lead to a rethink of the

[1] http://www.nationalgeographic.fr/9725-le-rechauffement-climatique-augmente-aussi-le-degre-dalcool-du-vin/

[2] http://www.futura-sciences.com/planete/actualites/rechauffement-climatique-rechauffement-climatique-vin-sera-t-il-meilleur-62136/
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