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The imitation game – exploring the double-grip analysis for creating analog wines

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ABSTRACT

In this pilot study, we investigated the use of the Double-Grip Analysis method as a tool to create analogue wines. The study involved four groups of sommeliers using the method to identify critical analytical and analogical attributes in four commercial wines. The basis of communication with this method is via the use of analogies, metaphors, and practical examples that emerge during the analysis and the dialogue. An overmatured rosé wine with mature flavours and low acidity served as the base for all groups when replicating the commercial counterparts making analogue wines. At first, the study aimed to assess the sommeliers' ability to use this method in blending and wine production. In addition, the study explored the acceptability of these analogue wines, as they aim to replicate sensory characteristics of commercial counterparts, providing environmentally friendly alternatives. A panel of 20 consumers evaluated the quality of the wines as guests at a blind tasting dinner. The results help to shed light on the effectiveness of the Double-Grip Analysis Method, while at the same time providing insights into the acceptability of these analogue products amongst consumers. This research contributes to the field of culinary exploration and sustainable alternatives in the wine industry.

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Definitions

Analytical attributes

Analytical attributes are associated with analytical methods, techniques, or processes used to assess the quality and reliability of measurements and analyses. The characteristics of these attributes are the nature of trying to establish a strong connection to physiological reactions created by a certain sense modality. By so doing, measurability is another characteristic of these attributes, which is thus achieved by only describing isolated parts of the sensory experience: vision, odour, taste, tactile sensations.

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Analogical attributes

Analogue attributes, on the other hand, are characteristics associated with analogue systems, by finding representations and communicating human experiences and knowledge on a holistic and thereby also a cultural level. The driving force in analogical thinking is to strive for recognition which thereby starts from previous experiences, focusing on the whole rather than the parts of the sensory experience. By doing so, the characteristics of these attributes are images, parables, examples and metaphors, driven by understanding communicating a meaning, rather than seeking measurability.

Analogue wine

Analogue wine is a wine that is a replicate of a certain archetype wines or wine style commonly recognized and accepted by many consumers. Instead of creating an entirely new 'wine', the idea of analogue wines is to use an already established recognition and acceptance for a style of wines using the concept of acceptance through similarity. Examples can be imitating archetype wines like Barolo, Côte du Rhône blends, Clare Valley Riesling, Alvarinho, white Burgundy or Carneros Chardonnay.

Archetype wine

In this study the term 'archetype' is commonly used to describe classic or ideal examples of certain wine styles or grape varieties. These archetypal wines represent the benchmark or standard for a particular style or grape variety due to their typicity or style of wine. In this case the archetype wines served as being the target for replication of a new wine-using the image representation of the former.

Upcycled wine

Upcycled wine refers to the creative reuse or repurposing of materials or products to reduce waste and minimize environmental impact. Beside reusing the wines that are at risk of becoming waste, in wines and other products, it also includes finding innovative and more environment-friendly ways to package, distribute, communicate and to use by-products of the winemaking process.

1. Introduction

Which museum would consider presenting a Rembrandt painting using analytical colour codes? Or try to describe John Coltrane's *Love Supreme* solely by means of sound frequencies? When it comes to the communication of arts, metaphors and analogies are commonly used to help convey the complexity of the lived experience. Unlike many art forms that focus on an individual sensory experience – be it visual, auditory, or tactile – culinary art is relatively unique in its ability to engage all of the consumer's senses. As such, it possesses the potential to provoke and generate complexity quite unlike any other form of art. From this perspective, it can be said that art can play a significant role in analysing and communicating wine, enhancing the overall wine experience and

helping people better understand and appreciate wine. Art, in its various forms, frequently relies on analogical thinking to create meaningful and thought-provoking compositions. Significant for analogical thinking is drawing connections between seemingly unrelated concepts, ideas, or objects in order to generate new insights, solve problems, or communicate complex human experiences (Alousque, 2015; Deroy et al., 2013; Gilbert et al., 2016; Leung et al., 2012; Niebert et al., 2012). In this sense, art as a tool of communication can be said to have a profound role in the craftsmanship and the practical work of sommeliers and wine experts. This is accomplished by exposing them to training that incorporates the use of metaphorical language to communicate the overall and holistic characteristics of wine early in their careers (Herdenstam et al., 2018; Lehrer & Lehrer, 2016).

However, despite this potential in analogical thinking and using art to help analyse and understand wine, the vast majority of the literature and wine training programmes often approach wine, and culinary arts in general, by means of an analytical mindset. This by emphasizing the identification of specific attributes, and their intensity, driven to answer the question from a deductive perspective: 'What can I find in this glass in front of me?' (Harrington, 2008; Herdenstam et al., 2018; Herdenstam et al., 2020; Koone et al., 2014). That being said, when approaching the tasting situation with a deductive mindset, there can be a disparity between what you perceive as a legitimate experience of a specific attribute and what can be reliably quantified (Garner, 1954). For instance, the tannin level may be accurately measured using instruments, but that does not necessarily imply that its contribution to the wine, as perceived by the taster, is valid or significant within the tasting context (Harrington & Hammond, 2006; Spence & Wang, 2018). In contrast to the analytical approach, using an analogical approach, entering the same tasting situation, the primary question to be answered is instead 'What is it that tasting this wine awakens in me?' (Herdenstam et al., 2020; Riddell, 2016).

Despite recent research emphasizing the significance of multisensory factors in shaping the wine experience, adopting more comprehensive approaches such as visual imagery and vividness (Croijmans et al., 2020; Croijmans & Wang, 2021; Spence & Wang, 2018) to understand the intricate, multisensory nature of wine (Alousque, 2015; Chen & Spence, 2022; Crisinel & Spence, 2012; De Luca et al., 2019; Deroy et al., 2013; Heatherly et al., 2019; Spence, 2022), breaking established communication conventions remains a formidable challenge, particularly within the wine context (Barber et al., 2007; Boudreaux & Palmer, 2007; Celhay et al., 2020; García Arancibia et al., 2015).

In summary, this invites the question of the extent to which art can be used as an additional tool in multisensory analysis: This is by investigating how analogical thinking and metaphorical language can serve as a tool and role model in understanding and communicating complex human experiences. In this pilot, the 'Double-Grip Analysis' tasting method, a sommelier training and tasting methodology that incorporates both a scientific and an aesthetic, holistic approach, was adopted (Herdenstam, 2011). The method was originally developed to stimulate both the analogical and the analytical experience of sommeliers when entering the tasting situation, as well as training in change of perspective dependent on the questions that evolve from the wine experience (Herdenstam et al., 2009; Herdenstam et al., 2018). This method develops the sommeliers' craft and their ability to switch from analyses that focus on concrete attributes to the ways in which these attributes affect the holistic character and its expression and development during

the interaction between the wine and the sommeliers (Crichton-Fock & Scander, 2022; Herdenstam et al., 2020; Klosse, 2014; Rinaldi, 2017). In short, the method can be said to establish co-existent rooms for implementing both scientific deductive approaches and an artistic inductive approach during the tasting of wines (Hayward et al., 2020; Herdenstam, 2011; Herdenstam et al., 2009; Heymann, 2017; Lawless, 1999; Lawless & Heymann, 2010) and other beverages (Herdenstam et al., 2020), to a greater extent grasping complex odour memories as well as mapping multisensory effects that have been shown to affect consumer experience (Bremer & Lee, 1997; Chen & Spence, 2022; Chu & Downes, 2000; Ernst, 1980; Parr et al., 2002; Shepherd, 2006; Spence, 2016). The process involves identifying analytical attributes as well as analogies and metaphors and using these tools while communicating both individual parts and the overall character of the wine, to investigate how these interact, i.e. 'The Double-Grip' (Herdenstam et al., 2018; Herdenstam et al., 2020).

The key aspects of this tasting method are to grasp the analogies that arise and create a common understanding for their use by identifying common elements within the members of the tasting group (Fusaroli et al., 2014; Göranzon et al., 2005; Göranzon & Hammarén, 2006; Göranzon et al., 2006; Herdenstam et al., 2009). By establishing a shared language and framework for describing and creating wines, the Double-Grip Analysis Tasting Method aims to enhance communication and understanding amongst sommeliers (Herdenstam, 2011; Herdenstam et al., 2018). The purpose is achieved through a pragmatic, constitutive approach that puts more emphasis on the experiences constituting a certain group of attributes than on the words that are used to describe those experiences (Torres-Martínez, 2021; Wittgenstein, 1968).

In this study, the aim was not only to analyse and communicate wine using the Double-Grip Analysis in a group of sommeliers, but also to investigate their ability to use the outcome from this comprehensive analysis in communication to create an image representing the overall character of a wine and use this image as a tool in the process of creating an analogue. One important task using this method is the idea of using both analytical analysis of the parts, as well as the analogue images of the whole, to create a sensory experience on multiple levels. One important aspect during the verbalization process of this method, the *dialogue consensus technique*, is the character of the analogies that are used. Since the dialogue starts by focusing on the individual experiences of each sommelier, the analogies are primarily characterized by short stories on a personal level rather than human analogies. These stories often contain descriptions of complex odour memories that were triggered during the initial tasting, the *autobiographic tasting technique* (Herdenstam et al., 2009; Herdenstam et al., 2018; Herdenstam et al., 2020; Lehrer & Lehrer, 2016; Paradis & Eeg-Olofsson, 2013).

In order to investigate this process, four groups of sommeliers were given the task of *upcycling* a wine by using their mental image of the archetype as a map, supported by a list of analytical and analogical attributes created after the tasting, using the Double-Grip Analysis (Korley et al., 2021; Li & Wang, 2023; Zhao et al., 2022). The wine selected for upcycling was the same for all groups, an old rosé wine that had developed matured flavours and low acidity, making it slightly flabby or flat.

In addition to the primary question, whether an artistic and analogical approach could be a useful tool in wine communication beside the analytical methods, a second purpose was to evaluate these analogue products in a concrete culinary context (Jraissati & Deroy,

2021; Lee & Spence, 2022). One incentive being the fact that analogue foods, such as plant-based meat analogues, have been successfully introduced due to an escalating demand for environmentally friendly food products (Singh et al., 2021; Wanderstock, 1968). One important incentive being to achieve consumer acceptance when introducing novel foods (Bartelmeß & Godemann, 2022; Chen et al., 2022; Schreuders et al., 2021; Singh et al., 2021). This is achieved through mimicking 'natural food products' by imitating¹ parts of the multisensory experience; odour, taste, texture, and flavour (Chomsky, 2007; Hoffmann, 2022; Lee & Spence, 2022; Maziriri et al., 2021; Spence, 2020; Spence & Van Doorn, 2022; Wang & Spence, 2018).

To evaluate the sommelier groups' ability to create these analogue wines, the analogue wines were served blind together with a commercial counterpart, the archetype wine, during a four-course dinner. The study aimed to explore the potential of the Double-Grip Analysis tasting method as a tool in a 'wine production' context by bridging the gap between analytical and artistic aspects of the wine experience. Furthermore, as pointed out, a second aim was to contribute to the growing field of analogical products by investigating the acceptability of these *upcycled* wines.

2. Materials

2.1. The sommelier group

A group of 10 sommeliers with expertise possessing expertise in sensory evaluation related to both wine and other food products, were carefully selected to participate in this study. Inclusion criteria required a minimum of two years of professional experience in the field and a demonstrated ability to effectively articulate sensory experiences. Participants were drawn from the second year of a three-year sommelier programme at Campus Grythyttan, Örebro University, where they received comprehensive training in sommelier skills, craftsmanship, and wine pairing.

Among the recruited sommeliers, nine were female, and one was male, with ages spanning from 19 to 28 years. These individuals voluntarily engaged in this case study, which was seamlessly integrated into their academic curriculum. Specifically, it was embedded within their coursework on wine analysis and trade. While the participants had prior experience with analogical tasting, which included the use of the Double-Grip Analysis technique in group wine evaluations, this study marked their first foray into leveraging this methodology to serve as the foundational framework for producing wine or a novel product.

In the course of crafting the analogue wines and conducting the Double-Grip Analysis during tasting sessions, the sommeliers were divided into four distinct groups. Each group was assigned the task of upcycling and creating one analogue wine, destined to be presented as part of a comprehensive four-course meal.

2.2. The guests

The guests consisted of a mixed group of 20 product experts aged between 27 and 54 years old. 16 of them (13 female, 3 male) worked in the food production industry taking an assignment training course 'to understand multisensory experiences in the

food industry', at Campus Grythyttan, Örebro University. While the remaining four (2 females, 2 males) were final year students at the 3-year sommelier programme at Campus Grythyttan, Örebro University. The assignment course was an introduction to understanding the impact of the senses; sight, hearing, smell, taste, and touch work, and how the interaction between them can be used as a tool. The course was equal to three university credits, and since the targeting subjects in the assignment course also were included in a three-year sommelier programme, given on-site at the Campus Grythyttan, they were also invited to participate in the role as 'product experts' during the dinner event.

2.3. The base wine

The selected base wine, having reached a stage deemed unsuitable for commercial market distribution, was earmarked for disposal due to its pronounced overmature character. Specifically, this wine constituted an overaged rosé, hailing from the 2017 vintage, characterized by well-developed flavours and a notable absence of acidity, resulting in a somewhat diminished and flat taste profile. The primary rationale for the selection of this base wine lay in its distinct character, which, notably, retained residual tannins and an aroma profile deemed adaptable to serve as a foundational substrate for the creation of diverse analogue wines replicating distinct wine styles.

Subsequently, this base wine underwent a process of revitalization and repurposing to serve as the foundational component for all sommelier groups tasked with the formulation and enhancement of a spectrum of analogue wines intended for presentation during a four-course dining event. The manipulation and upcycling procedure entailed the judicious introduction of natural additives and meticulous adjustments to acidity, sweetness, and natural flavour components. The overarching objective was to closely approximate the taste profile of the designated commercial reference, referred to as the archetype wine, which concurrently featured on the dinner menu. Specific details pertaining to this process can be found in [Table 1](#).

2.4. The archetype wines

The rationale behind pairing specific wines with each dish during the dinner event was to optimize the harmony of flavours and enhance the overall dining experience. This approach was guided by the following principles (Harrington, 2005, 2007; Harrington & Hammond, 2007; Harrington & Seo, 2015):

Flavour Enhancement: Each wine was carefully selected to elevate and complement the distinct flavour profiles of the corresponding dishes. For instance, the semi-sweet sparkling rosé was paired with the 'Confit-baked egg 63° with spawn of lumpfish' dish to emphasize the wine's fruity and floral notes, resulting in a well-balanced combination of flavours.

Balancing Taste: The wine and food pairings were chosen to achieve a harmonious balance of taste elements. Wines with suitable levels of acidity were paired with dishes to cut through richness, while wines with appropriate sweetness levels complemented savoury or spicy components. For example, the off-dry rosé was chosen to harmonize with the flavours of the 'Lightly cured and rimmed, pan-fried pikeperch & fresh dill' dish.

Table 1. Wine and food combinations served at each culinary station (A–D) during the four-course dinner event.

Culinary station A <i>Confit-baked egg 63° with spawn of lumpfish</i>			
Wine style	Semi-sweet sparkling rosé		
	Archetype wine	Analogue wine	<i>per 750 ml bottle (g)</i>
	Prosecco Rosé. 2021	recycled wine	750.0
	Veneto	syrup 1:2	25.6
	Italy	citric acid	93.3
	(organic)	jasmine	5.3*
Culinary station B <i>Lightly cured and rimmed, pan-fried pikeperch & fresh dill, blanched snow peas</i>	(10 Euro)		
		rose petals	42.6*
	<i>Off-dry rosé</i>		
	Rosé. 2021	recycled wine	750.0
	Penedès	syrup 1:2	10.5
	Spain	citric acid	3.0
Culinary station C <i>Double panko-crumb dough breaded quail & beetroot hummus</i>	(9 Euro)		
		apple/pear juice	149.8
		dill	15.0*
	<i>Off-dry red</i>		
	Red. 2021	recycled wine	750.0
	Burgundy	sugar	12.0
Culinary station D <i>'Kalvdans' (Colostrum creme brulée)</i>	France		
		beetroot juice	60.2
	(9.5 Euro)	black currant puree	60.0
		fennel dill	22.5*
	<i>Sweet semi-sparkling</i>		
	Moscato d'Asti. 2021	recycled wine	750.0
Wines style	Piemonte	syrup 1:2	31.5
	Italy	citric acid	3.0
	17 Euros	black currant puree	2.3
		green tea (cold-infused)	11.3*

* Filtrated and removed from the blend (infusing only).

Synergistic Flavour: The goal was to create a synergy where the combined flavours of the wine and food enhanced the overall dining experience. These pairings aimed to elevate both the wine and the dish, resulting in a more enjoyable and integrated flavour profile.

Alignment with Wine Styles: Each wine style, such as semi-sweet sparkling, off-dry rosé, off-dry red, and sweet semi-sparkling, was matched with dishes that complemented its inherent characteristics. For example, a sweet semi-sparkling wine was selected to complement the dessert course, 'Kalvdans' (Colostrum creme brulée).

Consideration of Regional and Culinary Context: In some instances, the regional origin of the wine was taken into account in relation to the cuisine being served. This thoughtful pairing created a connection between the wine's origin and the thematic elements of the meal, enhancing the overall dining experience. In essence, the clear rationale was to create a meticulously curated dining experience where the flavours of the wines and dishes harmonized to elevate the overall culinary journey for the guests.

2.5. The dinner event

The rationale behind serving the wine blind was to examine the sensory characteristics from a guest's perspective in a specific food pairing dinner context, which provided an

opportunity to investigate the acceptance of (in this case four) analogue wines at the same time. At each culinary station, two wines – the analogue and the archetype – were made available for self-service to the guests from a circular side table positioned alongside each station. As guests moved from one culinary station to another, two queues naturally formed around each side table. The purpose behind this arrangement was to prompt guests to opt for different wines to commence their tasting experience, thereby establishing an organic serving context while still promoting a mixed and randomized tasting sequence. This approach aimed to minimize any potential biases in preference (Cain, 1970; Heymann, 2017; Nygren et al., 2003).

This approach aimed to introduce both the commercial archetype wines and the analogue wines in a context where the wines were not the sole focus of the guests' attention. The dinner event took place in the halfmoon-shaped restaurant in the Seville Pavilion, situated at Campus Grythyttan. In the 'Arch of the half-moon', four separate culinary stations were presented, each with a specific dish and a self-service sideboard consisting of two wines, presented in clean black socks. By presenting the wines blind, the study sought to evaluate how they would be perceived by consumers in a realistic dining scenario (Harrington, 2005, 2008; Herdenstam et al., 2018; Koone et al., 2014). Beside the blind serving – to keep the dinner context as natural as possible, minimizing any interactions with the guests they were only given one single task during the dining event. When entering the dining room, they received a QR-code, linked to the online questionnaire tool Mentimeter (mentimeter.com), and they were asked to rate their experienced quality of each wine on an individual experience, not price or quality by market or style, (on a scale 1–5) any time during the dinner (see Table 1).

3. Methods

3.1. The double-grip analysis

The Double-Grip Analysis™ was used as the primary approach to establish a linguistic platform for finding analytical as well as analogical attributes relating to each wine (Herdenstam, 2011; Herdenstam et al., 2009), both when analysing the archetype wine and when making the replicated analogue. This method consists of two individual tastings that are performed by the sommeliers, one analogical and one analytical (Herdenstam et al., 2018). The analytical tasting has a deductive approach, using the wine-tasting methodology *Systematic Approach to Tasting Wine* (trust, 2022) to identify specific attributes by asking what the sommeliers can find in the glass (see Figure 1). When performing the analogical tasting the focus of the sommeliers is inductive, they are asked what's awoken in them when their senses meet the wine. Instead of using a traditional wine-tasting protocol, they have a blank paper and a pen to take notes while they individually perform the autobiographic tasting technique (Herdenstam et al., 2009; Herdenstam et al., 2018; Herdenstam et al., 2020).

Regardless of whether it's an analytical or an analogical tasting, the next step is the open group tasting, using the Dialogue Consensus Technique (Göranzon et al., 2005; Göranzon & Hammarén, 2006; Herdenstam et al., 2018), and the Critical Attribute Technique (Herdenstam et al., 2020). These steps are used sequentially in order to facilitate meaningful discussion, foster shared understanding, and identify the essential attributes of the

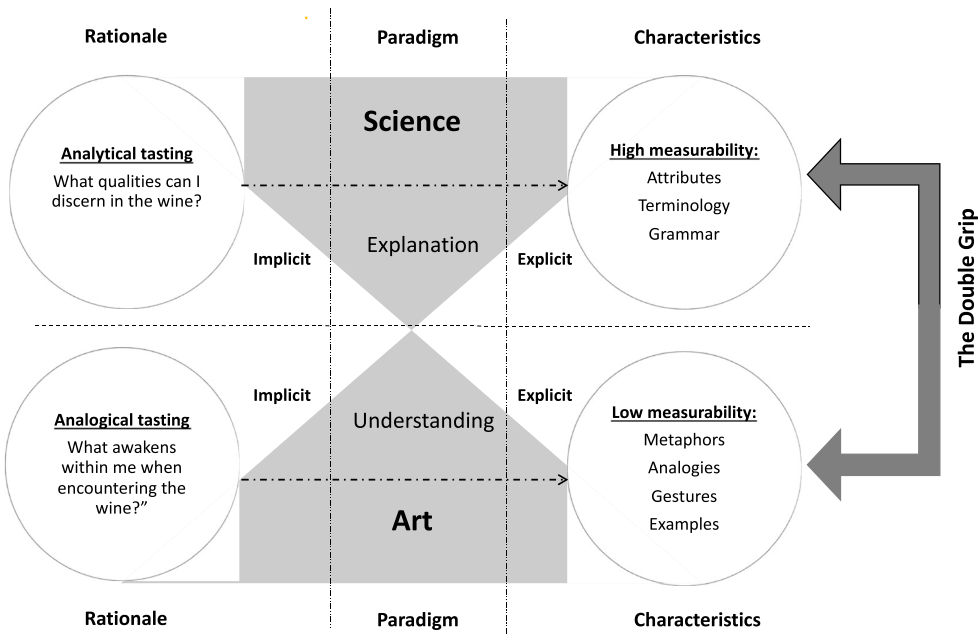


Figure 1. The Double-Grip – Two sides of the same coin (Crichton-Fock et al., 2023).

wines that are being evaluated. By using this method, sommeliers engage in a collaborative exploration of their personal experiences, reflections, and sensory perceptions, ultimately leading to a comprehensive and contextually rich description of the analogue wines.

3.1.1. Autobiographic tasting technique

In this step, the sommeliers are prompted to explore what stirs their senses as they approach the wine glass, allowing their senses to gradually uncover the nuances of the wine. Instead of focusing on identifying the specific elements within the glass, the sommeliers are instructed to tap into their impulses, and olfactory memories while experiencing the wine (Chu & Downes, 2000; Díaz, 2013; Reid et al., 2015). This approach closely resembles the concept of 'flow', where participants follow their intuition and creativity, driven by the process rather than the final outcome (Csíkszentmihályi, 2008; Dietrich, 2004). The sommeliers involved in this process are encouraged to make notes of significant autobiographic olfactory memories that arise during the tasting process.

3.1.2. Dialogue consensus technique

The subsequent step involves a structured process of verbalization and dialogue, during which the sommeliers take turns attempting to describe the wine based on their own personal, autobiographical stories associated with it. Traditionally, it has been quite common to use human analogies, drawing from physiological and psychological characteristics, using descriptions like: *thin, fat, structured, concentrated, flabby, intensive*, to convey the overall character of a wine (Lehrer & Lehrer, 2016; Paradis & Eeg-Olofsson, 2013). However, this approach raises the question of which human analogies are considered

appropriate in today's context when articulating the holistic attributes of wine. Analogical terms such as masculine, feminine, bold, sexy, fat, or thin have traditionally been used to describe the holistic characteristics of wine. Through this method of verbalization, the analogies that emerge are often rooted in the individual experiences of the sommeliers, reflecting their personal perspectives rather than providing oversimplified and generic descriptions. Each sommelier in the group draws upon their personal memory notes to describe their unique experiences through an analogical lens, initiating the process with the question: 'What emotions and sensations are evoked within me when encountering this wine?'

An answer to this question could, for example, be:

In the initial encounter with the glass and the first scent, a wave of melancholy washes over me, reminiscent of emotions from my early years. It's a midsummer day, with the grass still damp from the previous night's dew. I'm on my way to my grandmother's house for her birthday, riding my bike along the asphalt with dusty rubber tires. I arrive late, and her strawberry cake has been sitting in the sun for too long. The taste of strawberries is jammy and warm, some slightly overripe from the sunlight, and the cream has dried out slightly. It's a sensation of something that has passed – she's still happy to see me, but I wish I had arrived earlier.

After each individual has shared his/her initial description, in this case involving 2–3 sommeliers per group, the other members of the group offer reflections based on their own autobiographical experiences of the same wine (Herdenstam et al., 2009). Through this process, a dialogue is initiated to identify similarities and shared experiences among the participants, using analogies and metaphors to grasp the intended meanings (Fusaroli et al., 2014; Göransson et al., 2006; Ratkić et al., 2006). The dialogue is driven by an exploration of commonalities, which unintentionally reveals notable differences between the participants. When this occurs, the moderator, one of the appointed sommeliers in the group, encourage the sommeliers who disagree to further investigate whether these differences are related to the use of different language and words describing the same experience or related to different or other parts of the sensory experiences formulated in other words. By using the practice as source for identification of concepts and words, while performing simultaneous tasting, by so doing, the focus is on firsthand in their actual experiences rather than the words they use to describe the same (Gierlinger & Riegelnik, 2014; Torres-Martínez, 2021; Wittgenstein, 1968). This process leads to the gradual formation of a consensus within the group, characterized by the development of a common language. Participants use analogies and practical examples to pinpoint both commonalities and distinctions within the group. As part of this process, they assign provisional nicknames to these emerging concepts and visually represent them on a whiteboard. This visual mapping aids in the identification of potential relationships among these concepts, a methodology observed in earlier studies (Herdenstam et al., 2018; Herdenstam et al., 2020).

3.1.3. *Critical attribute technique*

In the final step, once a common language has been established, the focus shifts towards identifying the key attributes of the wine, analytical as well as analogical (see Table 2). This is accomplished by delving deeper into the dialogue, aiming to connect various concepts and attributes to the wine (Herdenstam, 2011; Herdenstam et al., 2009; Herdenstam et al., 2018). At this stage, it is essential to note that the concepts and attributes used are

Table 2. Significant characteristic and features of analytical and analogical attributes, respectively.

Analytical	Analogical
Tasting starts with the question: What can I find in the glass?	Tasting starts with the question: What is awakening in me when I meet the wine?
Characterized by deductive reasoning following a tasting protocol	Characterized by inductive reasoning following the autobiographic flow
Focus on the specific parts within the wine	Focus the whole
Measurability	Non-measurability
Based on regulatory compliance	Experience based
Standardization	Individualization
Scientific rationale: Objectivity	Scientific rationale: Inter-subjectivity
Lexical definition	Pragmatically constituted meaning
Aim of reasoning: Agreement	Aim of reasoning: Agreement or disagreement

defined within the sommelier group, rather than relying on conventional definitions, usage, and interpretations that may be found in a regular lexicon (Torres-Martínez, 2021; Wittgenstein, 1968). This approach allows for a more personalized and contextual understanding of the wine’s characteristics and helps the sommeliers to uncover and articulate unique qualities based on their shared experiences and perspectives. After inventorying all attributes that emerged during the dialogue, the focus changes to mapping the significance of each of them by going further down exploring possible interactions between the attributes and how each individual attribute contributes to the overall character of the wine, for the better or the worse.

3.6. The wine geometric system

In this study, the sommelier groups used a personality figure tool named the Wine Geometric System, which is constituted by three geometric shapes representing the wine experience (Crichton-Fock et al., 2023) from a time-development perspective, with the aim of supporting the sommelier in grasping and articulating complex parts of their personal experience. One essential aspect involves understanding the dynamic temporal changes that sommeliers undergo during the tasting process, encompassing the attack, mid-palate, and finish. Additionally, this method aims to depict the intensity of each stage, represented by the size of distinct geometric shapes: a circle for the attack, a rectangle for the mid-palate, and a triangle for the finish. Depending on the intensity level, the size of each geometric figure varies for each stage. Ultimately, the Wine Geometric Model serves as a tool to describe the wine’s overall character by stimulating analogical thinking, associating the wine with typical human personalities (Herdenstam, 2011). One of the questions used in this approach is: ‘If this wine were a person you met at a cocktail party, who would it be?’ One potential response might be:

It could be someone initially appearing reserved and enigmatic but gradually revealing depth, engaging with a range of emotions. However, as we part ways, they leave behind a lingering thought, an intriguing impression that lingers even as the feeling slowly fades away. (see [Figure 2](#))

Through the utilization of various shapes and sizes at each stage of the tasting experience, it becomes clearer which aspect of the wine experience the sommeliers are discussing when analysing the wine.

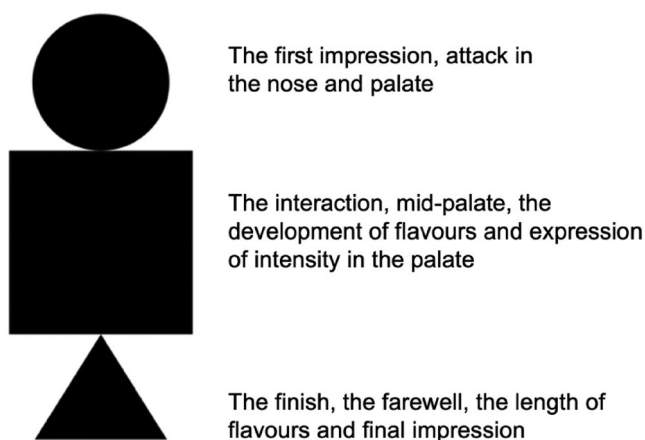


Figure 2. The Wine Geometric System (Crichton-Fock et al., 2023).

4. Results and discussion

The Dialogue Consensus Technique effectively cultivates a shared language amongst sommeliers. Engaging in active dialogue and sharing personal experiences led the participants to a consensus, enhancing their mutual understanding of the wines' attributes (Backlund et al., 2012; Göranzon et al., 2005; Göranzon & Hammarén, 2006; Herdenstam et al., 2020; Ratkić et al., 2006). This dialogue was intentionally designed to promote the development of a unified language within the group, as demonstrated by their adept use of the dialogue to explore common experiences and meanings. Notably, all groups successfully reached the maximum of 8 attributes for both analytical and analogical attributes (see Table 3).

The Critical Attribute Technique, in turn, underscored the contextual interpretation of wine attributes within the sommelier groups, revealing its potential for examining the pivotal attributes that influence the overall character and perceived quality during tasting. This underscores the significance of acknowledging the collective experiences and perspectives of the group, rather than relying solely on pre-established definitions (Torres-Martínez, 2021; Wittgenstein, 1968). In this regard, participants employed analogies, metaphors, and autobiographical references to describe and comprehend the wines, underscoring the profound impact of personal experiences and perspectives in shaping attribute interpretation (as illustrated in Table 3). As seen in prior studies, the employment of the Double-Grip Analysis highlighted the participants' capacity to utilize analogies, metaphors, and practical examples during spontaneous tasting, aiding in the establishment of mutual understanding and consensus regarding elements present in each other's wine experiences.

Despite the initial divergence in lexical attributes and language among the sommeliers at the outset of the dialogue, the end result was the formulation of a unified list of analytical and analogical attributes. In accordance with previous research, these selected attributes constituted a provisional collection of concepts that encapsulated the shared experiences identified within the group, encompassing both intricate and straightforward aspects of wine perception.

Table 3. Attributes that emerge during the Double-Grip Analysis.


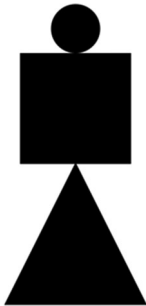


Sommelier groups (1–4)	Analytical attributes	Analogue attributes
1. Analogue wine A	Viola Earth Dark berries Rose Smoky Stable Liquorice Eucalyptus	Fire Warm Serious Elegance Relaxed Calm Lo-fi Jazzy* Educated
2. Analogue wine B	Tomato plant Dried fruits Red wild berries Green pepper Red apple-peel Unripe tomato Spices Herbs	Autumn Wet forest Fire smoke Picking berries in the forest Grandma's vegetable stew Marilyn Monroe Drizzle Rusty Bucket that has been out
3. Analogue wine C	Violet Blackberries Liquorice Strawberries Blueberries Raspberries Menthol Eucalyptus	Earthiness Forest Autumn Cosy Berry picking Sun-ripened Rain Decaying soil
4. Analogue wine D	Strawberry Salmiac** Lingonberry Texture Violets Herbal Fennel Structure	Complexity Elegance Refreshing Smooth Curious Awake Approachable Sun-warm orange

*Lo-fi is derived from the term 'low fidelity', meaning lower quality and/or stripped-back production.

**Salty Liquorice.

Beside the attribute lists, the sommelier groups were also given the task of using the Wine Geometric System™ to create a common experience of the wine's personality by investigating the dynamic temporal change of the intensity of each wine: the attack, the mid-palate, and the finish. In this system, each of the three stages is represented by the size of its respective geometric symbol relating to the overall character and impact of the wine during the whole experience (see Table 4). By using this tool, it also turned out that the groups could engage in a more introspective and expressive process of exploration when solving their task to agree on the figure, like the time dynamic change and the overall character development. In this context, it fostered a deeper understanding of the multisensory complexity of the wine-drinking experience (Alousque, 2015; Crichton-Fock et al., 2023; Shepherd, 2006; Spence, 2020; Spence & Wang, 2018). However, by highlighting the subjective nature of the wine experience, it encouraged a more comprehensive and personalized approach to describing and analysing wine (refer to Table 4). This was achieved by engaging the group in a deeper exploration of their collective experience, essentially creating a literary depiction of what they collectively perceived in the wine during their discussion (refer to Table 3).



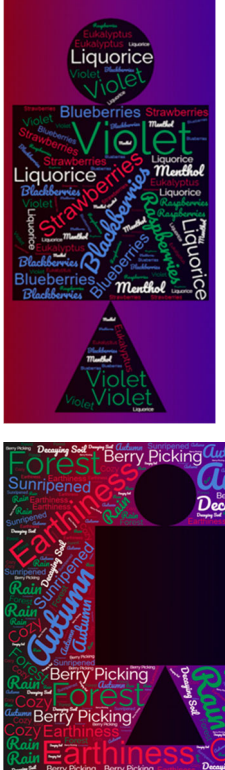
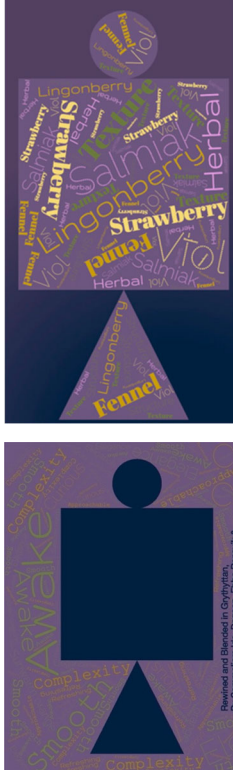
Table 4. Geometric image representing the mental image created by the sommelier groups based on the Wine Geometric System™, in which the size of the respective geometric symbols reflects the intensity and duration at each stage of the wine tasting experience; the attack, midpalate, and finish. These symbols, when combined, generate an overall character for the wine.

Sommelier group A	Sommelier group B	Sommelier group C	Sommelier group D
			

During the tasting sessions using the Double-Grip Analysis, the groups of sommeliers created a common language consisting of both analytical and analogical attributes that helped them to represent the archetype wine. This also functioned as a tool supporting them when upcycling and reconstructing that image in the analogical counterpart (see Table 5). The methodological approach revealed the subjective and personal nature of the wine experience when creating a representation using an analogical attribute (Chu & Downes, 2000; Fusaroli et al., 2014; Herdenstam et al., 2020; Reid et al., 2015; Torres-Martínez, 2021). By means of the autobiographic dialogue technique, the sommeliers were able to explore their emotions, impulses, and olfactory memories, highlighting the more individualized aspects of wine perception (Chu & Downes, 2000; Díaz, 2013; Gilbert et al., 2016). By encouraging the sommeliers to tap into their autobiographical memories, emotions, and multisensory perception, the method recognizes that wine appreciation is deeply influenced by individual experiences and contexts, which is in line with the findings of previous studies (Alousque, 2015; Díaz, 2013; Göranzon et al., 2005; Herdenstam et al., 2020). When using this approach, the sommeliers could also explore and express novel and innovative attributes of the wine (see Table 5). By stepping away from conventional descriptions, the sommeliers were able to identify and articulate several new dimensions that they added when elaborating the label design. Beside the original tasks that were given to the groups, they were asked to make a label design based on the agreed attributes and geometric shape. This was demonstrated in their experimentation with colours and font types when incorporating the attributes into the wine labels (Croijmans et al., 2020; Croijmans & Wang, 2021; Ernst, 1980; Gallace & Spence, 2010; Gilbert et al., 2016; Spence, 2015, 2017; Spence & Wang, 2018). The design of the label reflected the intensity of each attribute experienced by each group, generated by Word cloud (see Table 5).

The study results indicate that the analogue wines received a similar level of acceptance as their commercial counterparts during the dinner event (see Figure 3). This suggests that it is possible to create analogue wines with sensory properties and overall acceptance resembling commercial wines. However, it's important to note that due to the blind serving context of this study, definitive conclusions about consumer

Table 5. Showcased wine labels that were created by sommelier groups based on commonly agreed-upon attributes drawn from Wordcloud. The size and repetition of each attribute served as a visual representation of its intensity within the agreed-upon wine personality, as determined by the Wine Geometric System.

Sommelier group A	Sommelier group B	Sommelier group C	Sommelier group D
			

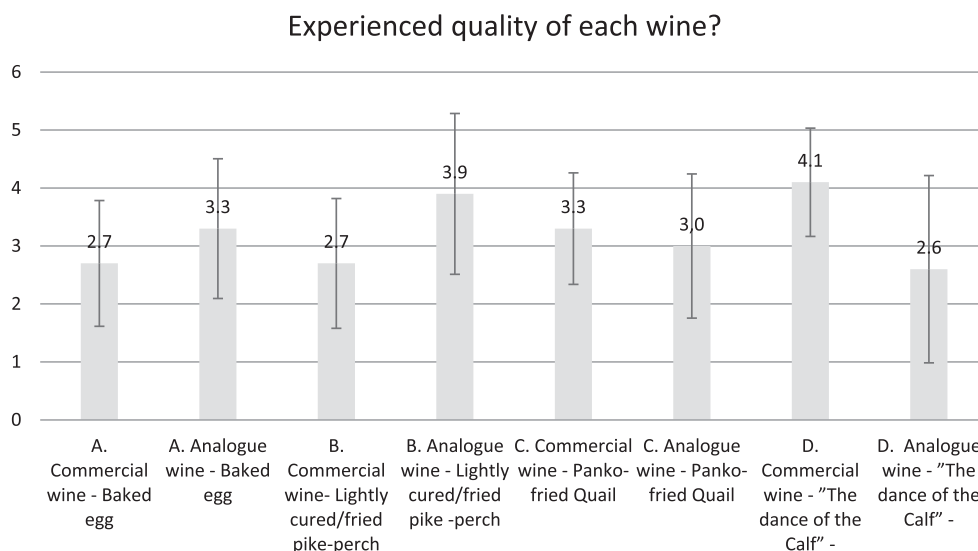


Figure 3. Consumers' experience of the quality of the wines served at the dinner event. Weighted average assessment scale 1–5 (3 = acceptable) with standard deviation.

preferences cannot be drawn. After all, knowing the origin of the wine during the presentation might have influenced acceptance.

While this study shows the potential for using alternative methods and ingredients to produce wines with similar characteristics, it is essential to recognize that the analogue wines were only a part of the dining context and were served blind. Therefore, making general conclusions about consumer acceptance, especially in real-life situations, is challenging. Nevertheless, the study underscores the significant role of the serving context in shaping consumer perceptions and acceptance.

This corresponds with a substantial body of research underscoring the significance of the complete dining experience, encompassing elements such as food pairing and ambiance, in shaping the perception and enjoyment of wines (Chen & Spence, 2022; Croijmans & Wang, 2021; De Luca et al., 2019; Derooy et al., 2013; Maziriri et al., 2021; Spence, 2020, 2022). It underscores the importance of taking into account the holistic experience when evaluating the acceptability of analogue wines.

The pilot study's overarching findings indicate that the Double-Grip Analysis exhibits promise both as a tasting method and when employed in the development of analogue wines. This is particularly noteworthy, given that half of the sommelier groups were able to enhance wines that received higher ratings than their commercial counterparts.

5. Conclusions

The results of this pilot study have highlighted the significant potential of the Double-Grip Analysis, both as a tasting method and as a tool for creating analogue wines. It is particularly noteworthy that half of the sommelier groups assigned higher ratings to their upcycled wines compared to their commercial counterparts.

In conclusion, this research underscores the vital role of effective communication and the establishment of a shared language amongst sommeliers when using the Double-Grip

Analysis. This structured framework enables sommeliers to collaborate seamlessly, facilitating the thorough analysis, manipulation, and recreation of critical attributes in the upcycled wines. The favorable feedback received from consumers further underscores the potential of these analogue wines to provide a gratifying sensory experience, especially when it comes to meeting consumer expectations within a multisensory environment. In this context, our study contributes valuable insights to the wider realm of analogical products by exploring the intriguing potential of analogue wines.

Nevertheless, it is essential to acknowledge the limitations of this pilot study, which include the relatively small sample size and the focus on a specific set of analogue wines. To establish the robustness of these findings, and to unlock the broader applications of the Double-Grip Analysis, further research and experimentation are undoubtedly warranted. Such endeavours will undoubtedly deepen our understanding of expertise amongst sommeliers and its potential influence on wine production.

Note

1. Alan Turing is credited with the design of the imitation game, commonly referred to as the Turing Test, which proposed a method for evaluating machine intelligence. However, Hoffmann (2022) argues against the validity and robustness of the standard Turing Test, suggesting that a measure of machine intelligence should yield actionable and thriving research outcomes. Hoffmann further asserts that such a test should be empirical, specific, and free from anthropomorphic biases. By contrast, Turing's original paper had modest objectives, as he dismissed the question of whether machines can think as lacking meaning and unworthy of discussion (Chomsky, 2007). The focus of this inquiry is to examine the potential significance of empirical, specific, and anthropomorphic approaches, incorporating human metaphors and analogies within specific contexts, as effective tools for successful imitations. Furthermore, drawing upon Wittgenstein's philosophy of language games, which emphasizes complex rule-following processes and representation reflecting human cognition and behavior (Torres-Martínez, 2021), as well as Turing's comments on machine thinking, it is suggested that analogical thinking and the use of analogies play a central part in human comprehension and imitation. This extends beyond understanding the complex and encompasses venturing into the realm of the unknown.

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Disclosure statement

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