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A HINT OF THE SUMMERY GOODNESS OF GREEN GRASS: A LOOK AT ENGLISH DESCRIPTORS IN TASTING NOTES

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Abstract: *Tasting descriptors, which are common terms used to describe a food product, play a significant role in tasting discourse and particularly in tasting notes. Although they have been the subject of a number of studies from different perspectives, none of them, that we know of, describe and classify descriptors according to their form, function and combination in tasting notes in English. In this paper, we examine a corpus of tasting notes with the aim of 1. determining the position of English descriptors in relation to the keywords designating the tasting process; 2. scoping the depth of description, as indicated by the number of descriptors; 3. identifying if the descriptors are specific to a given aspect of the food product or are generic enough as to be used to describe different aspects of it.; and 4. categorizing frequent semantic associative processes among descriptors and keywords. Our results will be a valuable resource for professionals, technical writers and students' tasters in English.*

Key words: *LSP genre, register, corpus linguistics, descriptors.*

1. INTRODUCTION

Semiofoodscape (Järlehed & Moriarty, 2018) examines the relationship between language and food and can be defined as the lens through which semiotic landscapes pertaining to food can be analyzed. It comprises types of *foodstuffs* (like wine, cheese, coffee, beer, chocolate, and others), spaces (the places they are made, stored, sold, and consumed), actors (producers, regulators, distributors, marketers, connoisseurs, and consumers), practices (drinking, branding, differentiation, localization, standardization, regulation), norms (extrinsic, such as laws, and intrinsic, rules and expectations), inscriptional genres (product labels, tasting notes, expert reviews), and semiotic resources (names, linguistic code, script, orthography, typography, color, material, images) (Järlehed & Moriarty, 2018).

Semiofoodscapes vary depending on the pragmatic components involved; according to the type of product, the actors and the inscriptional genres, they may share some language features, particularly their subjectivity in the description and evaluation. Thus, food language shares tasting descriptors, which can be defined as common terms used in semiofoodscapes that allow tasters to qualitatively describe the appearance, aroma and taste that they experience, in order to communicate their likes and dislikes or to more objectively assess overall quality, with the purpose of guiding casual customers or potential buyers in their choice (Herdenstam, Hammarén, Ahlström & Wiktorsson, 2009: 54). However, since the primary source of a person's ability to taste a product is derived from their sensory perceptions, a taster's own personal experiences play a significant role in conceptualizing what they are tasting and its description. Finding words to describe perceptions is a challenge (Suárez-Toste, 2017: 89) followed by yet another: getting other people to understand what the taster means (Diedrich, 2015: 2). The individual nature of tasting means that descriptors may be perceived differently among various tasters even though "sensory meanings are universal and concrete sensuously speaking" (Caballero, Suárez-Toste, & Paradis, 2019: 34). These two challenges are in large part responsible for the ever-growing interest on the part of linguists and professionals in the topic of tasting descriptors.

1.1. Scope and aim of the study

There have been other studies related to the language of food in general and to tasting descriptors in different languages and products (López Arroyo & Roberts, 2014, 2017; Caballero et al., 2019, on wine; Ramón & Labrador, 2018, on cheese; Sanz-Valdivieso & López-Arroyo, 2022, on olive oil, among others). Most deal with a classification of Phraseological Units (PhUs) using linguistic-based or statistic-based approaches but not many of them isolate

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and classify these descriptors. The present paper will analyze descriptors quantitatively and qualitatively in order to provide a comprehensive account of their in-context behavior. A work of this kind is needed to provide professionals and technical writers (TPW) of tasting notes (TNs) with a reference on the form, usage and combination of food descriptors; and also to offer professionals in training and students an explicit and realistic reference that supports the learning of tasting language. By describing the form, usage and combination of descriptors the groups defined above will find a reference that helps them in their professional and/or learning activity.

There has been, however, some linguistic work done on tasting genres. For instance, López-Arroyo and Sanz-Valdivieso (2022a, 2022b) found that wine and olive oil TNs share genre and register features: both display similar moves and steps, with distinct communicative goals and a similar set of terms and PhUs, although with some usage differences. However, regarding descriptors specifically, to the best of our knowledge, only Ramón and Labrador (2018) and López Arroyo and Roberts (2014) isolated tasting descriptors. López Arroyo and Roberts (2014) studied common wine descriptors in English and Spanish through genre analysis; but their study, undertaken from an English-Spanish contrastive linguistics perspective, was limited to the descriptors used in the presentation move (in Swales' terminology) of *Taste*.

Besides, there are two other important sections or moves in TNs: those describing the appearance and the aroma of the product. Are the same types of descriptors used in the same way in all three major moves? The present study focuses on English descriptors from the perspective of professionals and technical writers and learners facing the challenge of describing the complex sensory perceptions involved in the tasting process. In other words, we will analyze the typical linguistic choices of professionals connecting those features functionally to the situational context of the variety or register, according to Biber and Conrad (2019). More specifically, we focus on the language variety found in tasting settings, and we will attempt at explaining how this communicative context determines particular linguistic features, namely, the use and type of descriptors. An ad hoc corpus of tasting notes written originally in English will be used to carry out our analysis.

Hence, in this paper, our objectives are the following:

- To identify the keywords designating color, fragrances and flavors and determine both the type of collocation they tend to appear and the positioning of tasting descriptors. Our conclusions will help ensure the grammaticality of the writing as well as the use of appropriate collocations by technical writers and especially foreign language writers.

- To examine the depth of description, as indicated by the number of descriptors used. This, in turn, will allow us to provide guidelines for the use and combination of multiple descriptors.

- To identify descriptors that are specific to a given aspect of the tasting process or and those generic enough to be used to describe different aspects of a food product. The results will indicate clearly the range of application of a given descriptor, which would, in turn, be useful both to foreign language and native speakers writing TNs in English.

- To identify how descriptors relate to and combine with other descriptors to give place to multi-word units.

Our conclusions are primarily corpus-based. However, we have considered existing tasting and sensory perception documentation. We have based some of our analyses on literature dealing with phraseology in LSPs, while considering the problems faced by professionals writing in a foreign language—an issue that initially generated our interest in descriptors.

2. LSP PHRASEOLOGY: COLLOCATIONS

Collocations are a type of PhUs which, according to Firth (1957: 182), "are actual words in habitual company" and a syntagmatic co-occurrence of words; there have been numerous attempts to define more precisely this type of word combination.

From the statistical approach, some scholars have used the frequency-based approach to describe them, which is normally adopted in computational linguistics (Gyllstad, 2007; Nguyen & Webb, 2016; Liu & Afzaal, 2020). In contrast, the linguistic approach defines collocations by delimiting them from other significant types of combinations, namely, free combinations and idioms, in terms of their degree of transparency and commutability (Nesselhauf, 2005). Aisenstadt (1979) viewed collocation as "combinations of two or more words used in one of their regular, non-idiomatic meanings, following certain structural patterns, and restricted in their commutability not only by grammatical and semantic valency". Cowie (1988: 71) defined collocation simply by distinguishing it from the other types of multi-word units.

Collocations have also been designated by different terms (e.g. "restricted collocations" (Aisendstadt, 1979) or Phraseological unit midway between nominations and propositions" (Glässer 1994)). Here, we adopt the linguistic approach to collocations and the definition proposed by Roberts (1998: 65), with an addition for clarification:

> Collocations (…) are habitual word combinations, although not necessarily completely fixed (e.g. *to commit a blunder, a severe winter*). (…) [C]ollocations do not represent one part of speech. Their components are still seen as separate units, with each retaining its own meaning. But collocations can, over time, become completely lexicalised.

According to Benson, Benson, & Ilson (1997: xix–xx), collocations fall into two different categories: grammatical and lexical, being the former "a phrase consisting of a dominant word (noun, adjective, verb) and a preposition or grammatical structure such as an infinitive or clause (1997: xx), i.e *aroma of freshly cut grass.* Lexical collocations *normally do not* contain prepositions, infinitives, or clauses but a combination of a noun or verb plus adjectives, nouns or adverbs (1997: xxxi), for example *deep garnet color*. In the present study, we will use this taxonomy to answer our research questions.

Collocations are language-bound and may be a source of difficulty even at very advanced levels of specialized language learning (Lesniewska, 2006). Collocations are consequently not processed mentally in the same way in one's mother tongue and in a second or foreign language (Matsuno, 2017), due to which they are so relevant in mastering language and LSP.

3. LITERATURE ON DESCRIPTORS

Given the major role of descriptors in TNs, and in the discussion of tasting discourse in general, most works written contain some reference to them. Tasting descriptors are dealt with in three very different types of texts: in academic articles; glossaries and dictionaries; and writing tools for tasters and technical writers (López-Arroyo & Roberts, 2020: 302).

To begin with, articles related to the topic under discussion usually cover four main themes: tasting language in general, metaphor in tasting language, the organization and evaluation of tasting descriptors. While some writers complain that there are few words in English to describe tastes (Suárez-Toste, 2017: 89), Lehrer (2009), referring to wine descriptors, feels that, though only a small number of words may be used exclusively or primarily for tastes, there are actually dozens that can be and have been used to evaluate food products in general and wine in particular. Robinson points out that tasting words are often used by professionals "with a blithe lack of precision", supported by Krebiehl (2018), who states tasting terms have meaning, but their definitions can be elastic. That could be applied to wine, olive oil or cheese as well, among other products. In other words, the meaning of sensory language, semiofoodscape, is not static but dependent both on the speaker and the context, so that meaning becomes flexible and is determined by the context of use (Diedrich, 2015: 2).

In addition to articles that discuss tasting language in general, there are others, such as Caballero and Paradis (2017), that focus on a specific aspect of sensory perceptions. Many articles highlight the dominance of metaphors in tasting language, and they generally attribute the widespread use of metaphor to the fact that the tasting vocabulary is rather poor (Caballero & Ibarretxe-Antuñano, 2013; López Arroyo & Roberts, 2017; Suárez-Toste, 2007, 2013, among others). Besides, "[g]ustatory impressions do not correspond to an objective referential vocabulary and as these impressions are often highly subjective, the vocabulary describing them is marked by analogy and metaphor" (Coutier, 1994: 662).

The major articles on the organization and categorization of food products refer to a classification of metaphorical descriptors according to the thematic fields from which the metaphors are drawn to (Coutier, 1994); Normand (1998) classifies all the adjectives in her corpus into lexical classes according to the words which they qualify, and presents them in the form of a classificatory tree; finally, Lehrer (2009), who analyzes wine words in terms of what she calls "dimensions", and classifies the descriptors for each dimension along a scale indicating too much of the dimension (negative), the right amount of the dimension (positive) and too little of the dimension (negative). López Arroyo and Roberts (2014) have since proposed a classification of wine descriptors based on their degree of generality, with the descriptors divided into three categories on the basis of the number of steps that they are applied to.

Finally, the Appraisal Theory (Martin & White, 2005) has been used as the theoretical framework for the evaluation of wine descriptors (i.e Wislocka, 2014). The Appraisal Theory offers a comprehensive framework for interpreting and categorizing emotions based on cognitive evaluations; emotions may be then categorized into attitude, engagement, and graduation, which are subdivided into different concepts. Wisloscka, among others, applies the Appraisal Theory to analyze wine technical sheets and argues that any genre whose "aim is to stimulate a factual or emotional response from the receive (...) may and should be analyzed in the Appraisal Theory frame"

(2014: 116). In this sense, TNs appeal to feelings and emotions and an analysis of evaluative adjectives may be the main resource for conveying evaluation. However, the Appraisal Theory primarily focuses on the link between events and emotions, rather than solely on sensory experiences (Troiano et al., 2022) which may overlook the intricate and nuanced nature of sensory perceptions and responses.

While articles treating descriptors certainly continue to be written, there has been a veritable explosion in the number of glossaries and dictionaries that cover them. Although most of these lexicographic works deal with food related language, descriptors occupy an important place in them. Many of these glossaries are found in journals and webpages. The way the descriptors are defined varies to some extent from one glossary to another; despite such differences and discrepancies, however, the fact that such glossaries are multiplying exponentially is a sign of the relevance of tasting language and, more particularly, of the descriptors used to describe food products.

Finally, tools to help tasters to identify and then describe the qualities of food products are one of the most recent outcomes related to tasting language. These tools include tasting wheels, charts and forms. These wheels, known as *Aroma wheels*, organize descriptors into three categories based on their specificity. Examples of these wheels are the multilingual Noble's wheel for wine, Gawel, Oberholster, & Francis's (2000) wheels for mouthfeel perceptions of wine and oil, or the cheese flavor wheel (https://www.cheesescience.org/wheel/). There are also lists and charts of olive oil descriptors such as The Nibble (https://blog.thenibble.com/). However, these tools are often commercial products that do not reveal the origin of the descriptors included or how the information was found.

Hence, there is a need for a corpus-based study of descriptors that goes beyond providing definitions to users and shows how descriptors are combined and positioned in real use.

4. CORPUS AND CORPUS-BASED METHODOLOGY

The goal is to identify the language features that are typical or characteristic of the target register. A basic concern, therefore, is how to determine whether a linguistic feature is "typical" in a given register. Biber and Conrad (2019: 52) set up what they call "three major methodological considerations" to determine typicality: (1) the need for a comparative approach, (2) the need for quantitative analysis and (3) the need for a representative sample of texts. One approach to study register is to focus on a particular aspect of language use, descriptors and collocations.

We used a corpus of TNs in English. This corpus was compiled using pragmatic and availability-first selection criteria: TNs were chosen to ensure a representative amount of samples of the language of members of the discourse community. Our TNs corpus includes samples from wine and olive oil tasting since other studies, as stated in section 1, have shown that they share genre and register features. To ensure authenticity and quality, an institutional search was performed: texts written by wineries or olive oil press companies were taken from registered official wine and olive oil webpages such as the California Olive Oil Council, for example. TNs written by critics were taken from international contests or reputable critics like the Wine Advocate, published by Robert Parker.

The corpus includes 716 wine (55,391 words) and 620 olive oil (21,105) TNs written originally in English. While the corpus is relatively small, it is more than adequate for a specialized corpus and meets Biber's representativeness criterion (1993: 254). In compiling our corpus, we looked for balance in the number of samples, since we were interested in the occurrence of descriptors in the textual moves under study. The purpose of our study is to describe tasting descriptors from a functional perspective, and not to compare the occurrences in each of the subcorpora nor evaluate the emotions or feelings.

4.1. Rhetorical analysis towards data extraction

The corpus was examined for rhetorical structure, starting by identifying the semantic units (*moves* and *steps*, according to Swales, 1990, 2004) that constitute wine and olive oil TNs in English (WTNs and OTNs). We took previous rhetorical studies on OTNs (Sanz-Valdivieso & López-Arroyo, 2022; López-Arroyo & Sanz Valdivieso, 2022a, 2022b) and WTNs (López-Arroyo & Roberts, 2014), where a rhetorical structure was identified for the TNs in both contexts (summarized at the move level in Table 1). Moves are marked 1, 2, 3, etc., and compulsory and high priority moves are in bold (Suter, 1993: 119).

For instance, see the following rhetorically tagged OTN: [*It is a strong and robust oil* <Intensity>] [*that is characterized by a soft green entry* <Entry>], … [*and is mildly pungent* <Pungency>]. The tags, added in an interface specifically designed by the ACTRES research group (https://actres.unileon.es/wp/), were quantified, aggregated, and normalized on a base of 100.

Table 1. Rhetorical structure of WTNs and OTNs.

	OTNs		WTNs	
	Prod.	Critics	Prod.	Critics
1. Colour	10.80%	13.47%	24.44%	46.67%
2. Aroma	47.60%	79.13%	71.00%	55.56%
3. Taste	99.20%	99.57%	100%	100%

The present study focuses on the move level, i.e., Color, Aroma and Taste.

4.2. Data extraction: identifying keywords and analyzing descriptors

Keywords were identified in each rhetorical move: within each move, a wordlist was extracted using Lancsbox where synonyms of the names of the moves were searched for manually. We considered the keywords (all nouns) for each move with a frequency threshold of at least 3 occurrences per keyword. This threshold was established based on the relatively small size of the corpus and the desire to include pervasive linguistic patterns—three was deemed adequate since that would include a varied set of keywords but also ensure no accidental occurrences or possible repetitions in the dataset became part of the analyzed items. Not all the keywords were modified by descriptors, so we were left with the following keywords which were specified by descriptors (Table 2):

Table 2. Keywords for the moves used in the present study.

	O subcorpus		W subcorpus	
Color	colo*r hue tinge		colo*r hue core	
Aroma	aroma aromatics bouquet characteristic fragrance hint nose	note nuance scent sensation smell tone trace	aroma aromatics bouquet character element hint layer nose	note nuance perfume scent tone touch undertone
Taste	background character characteristic flavor hint impression mouth note	nuance overtone palate sensation taste tone touch undertone	character characteristic element flavor hint layer	note palate taste touch undertone

After querying these keywords, all concordance lines were downloaded for the analysis of the three issues presented in the objectives. Descriptors had to appear at least 5 times. This threshold was set to ensure only the most pervasive linguistic items would be part of the analysis following the same rationale as with the three-occurrence scope for keywords.

5. RESULTS AND DISCUSSION

5.1. Position of descriptors and type of collocation formed with keywords.

As indicated above, tasting descriptors can form different type of collocations, i.e., lexical, preceding the keyword, or grammatical, following the keyword designating Color, Aroma or Taste. Descriptors can simultaneously be found in both positions. The absolute frequency of each kind of descriptor position in relation to the keywords for each move is presented below in Table 3. Types refer to different keywords, and tokens refer to the occurrences of keywords that were pre- or postmodified (type figures in Table 3 do not necessarily add up to those in Table 2, as the keyword is not always directly modified). We offer the occurrences in the two subcorpora for transparency and information, but it is not our aim to compare the results obtained.

Table 3. descriptor position.

		Rhetorical moves						Total	
	Descriptor position vs. keyword	Aroma		Color		Taste			
		Type	Token	Type	Token	Type	Token	Type	Token
Olive oil	Postmod. only (gramamatical coll.)	10	124	0	0	11	213	21	337
	Premod. only (lexical coll.)	13	165	3	69	16	348	32	582
	Combined	10	101	0	0	15	142	25	243
Wine	Postmod. only (gramamatical coll.)	11	149	0	0	8	209	19	358
	Premod. only (lexical coll.)	13	101	3	88	8	186	24	375
	Combined	10	152	0	0	8	91	18	243

There is a rather homogeneous distribution of descriptors in relation to the keywords denoting the main moves of the tasting discourse, with only lexical collocations (premodification) in OTNs standing out. The following are some examples of the collocations (keyword is underlined as well as the subcorpus:

1. *Deep garnet colour* (lexical collocation, WTN)

2. *Aroma of freshly cut grass* (grammatical collocation, OTN)

3. *Harmonious aroma of freshly picked olives* (combined modification, i.e., a lexical and a grammatical collocation arise from descriptors premodifying and postmodifying the same keyword, OTN)

Regarding POS, descriptors that form lexical collocations are normally either adjectival premodifiers, as in (4) and (5), or nominal (6) which could be simple or multi-word:

4. *Garnet color* (simple adjective, WTN)

5. *Lemon yellow color* (multi-word adjective, WTN)

6. *Sweet almond notes* (multi-word noun, OTN)

However, descriptors that postmodify keywords, forming grammatical collocations, are more varied in form: they may be adjectives (7), but they may also be noun phrases preceded by a preposition (*of* in all cases found) serving an adjectival function (8), or relative clauses (9):

7. *Greenish yellow color* (adjective, OTN)

8. *Aromas of tart cherry, fig and cedar* (noun phrase with an adjectival function, WTN)

9. Spicy nose that smells green and fruity (relative clause, OTN)

In lexical collocations, the collocation produced generally follows an adjective + noun pattern, and, less frequently noun + noun. When the descriptor is a postmodifier in grammatical collocations, the structure of the collocation formed can vary, since the form of the descriptor varies, as seen above.

5.1.1. Position of descriptors in relation to the keywords: Color

Below we present data about each of the keywords analyzed, including number of total occurrences, occurrences where the keyword is modified by a descriptor, and the itemized figures of pre- and postmodification of each.

Table 4. Position of descriptors in relation to the keywords: Color.

		Keyword	Total occurrences	Total with descriptors	Premod. only (lexical coll.)	Postmod. only (gramatical coll.)	Combined
Color	Olive oil	color	53	44	44	0	0
		hue	22	22	22	0	0
		tinge	3	3	3	0	0
		Total	78	69	69	0	0
	Wine	color	103	72	72	0	0
		core	9	8	8	0	0
		hue	8	8	8	0	0
		Total	120	88	88	0	0
TOTAL			198	157	157	0	0

Lexical collocations are the exclusive pattern found when describing color, as shown in Table 4 above (where underlined keywords indicate they appear in both the wine and olive oil TNs subcorpora). The dominance of premodification can be explained in part by the fact that neither of these keywords enter easily into the structure? *color/hue of*, a structure that would automatically lead to postmodification:

10. **colour of red* versus *limpid golden yellow color*

5.1.2. Position of descriptors in relation to the keywords: Aroma

Table 5. Position of descriptors in relation to the keywords: Aroma.

		Keyword	Total occurrences	Total with descriptors	Premod. only (lexical coll.)	Postmod. only (gramatical coll.)	Combined
Aroma	Olive oil	aroma	207	147	100	29	17
		aromatics	3	3	2	0	1
		bouquet	19	8	1	2	5
		characteristic	5	5	4	1	0
		fragrance	12	8	5	0	3
		hint	73	72	3	41	28
		nose	54	17	10	2	5
		note	62	61	14	23	24
		nuance	5	5	1	4	0
		scent	43	40	10	15	15
		sensation	3	3	3	0	0
		smell	15	13	9	3	2
		tone	4	4	4	0	0
		trace	5	5	0	4	1
		Total	510	391	166	124	101
Aroma	Wine	aroma	187	161	41	50	70
		aromatics	12	8	6	0	2
		bouquet	69	54	12	15	27
		character	7	7	6	1	0
		element	7	7	6	1	0
		hint	46	44	1	40	3
		layer	10	8	0	5	3
		nose	115	10	2	0	8
		note	74	73	18	19	36
		nuance	4	4	1	3	0
		perfume	9	3	3	0	0
		scent	3	3	1	1	1
		tone	3	3	3	0	0
		touch	11	11	0	10	1
		undertone	6	6	1	4	1
		Total	563	402	101	149	152
TOTAL			1073	793	267	273	253

As shown in Table 5, keywords for Aroma are specified by descriptors featuring lexical and grammatical collocations and the combination of both. This heterogeneity shows that keywords for Aroma are more flexible than those used for Color. There are different patterns depending on the specific keyword involved. For example, *hint* and *touch* are more commonly postmodified than premodified, since they enter easily into the structure *aroma/hint/nuance/note of* as follows:

11. *Distinct hints of fresh almond, green apple, cinnamon, vanilla, exotic fruits and olive leaf* (WTN).

On the other side, keywords such as *aroma*, *nose*, *smell* and *tone* are more prone to premodification:

12. *Appealing herbal and green tomato aromas* (OTN).

5.1.3. Position of descriptors in relation to the keywords: Taste

Table 6. Position of descriptors in relation to the keywords: Taste.

		Keyword	Total occurrences	Total with descriptors	Premod. only (lexical coll.)	Postmod. only (gramatical coll.)	Combined
Taste	Olive oil	background	4	4	1	1	2
		character	12	12	10	0	2
		characteristic	15	11	10	0	1
		flavor	225	177	127	30	20
		hint	109	109	4	82	23
		impression	3	3	1	0	2
		mouth	43	8	8	0	0
		note	190	188	65	68	55
		nuance	7	7	1	3	3
		overtone	3	3	2	0	1
		palate	57	9	7	1	1
		sensation	38	36	27	3	6
		taste	178	97	77	6	14
		tone	7	7	5	1	1
		touch	26	26	1	16	9
		undertone	7	6	2	2	2
		Total	924	703	348	213	142
Taste	Wine	character	17	15	14	1	0
		characteristic	7	6	5	0	1
		element	10	10	9	1	0
		flavor	284	243	95	89	59
		hint	52	50	0	49	1
		layer	20	14	0	10	4
		note	88	88	37	31	20
		palate	216	22	20	0	2
		taste	10	4	2	0	2
		touch	27	27	0	25	2
		undertone	7	7	4	3	0
		Total	738	486	186	209	91
TOTAL			1662	1189	534	422	233

In the case of Taste (Table 6), lexical collocations, i.e., premodified keywords, are the most frequent pattern, amounting to almost both grammatical collocations, i.e., postmodified, and combined modification together:

13. *Natural earthy and meaty character* (WTN).

Like in the Aroma move, *hint* and *touch* are more heavily postmodified than following any other pattern. The difference between OTNs and WTNs is noticeable in this case: premodification for taste keywords is more prevalent in the olive oil LSP than in wine's, where both pre and postmodification twice outnumber combined modification. In any case, in both LSPs, combined modification is the least frequent pattern, with the exception of the keyword *note*, which shows more flexible patterns:

14. *Lingering notes of black fruits, sweet spice, vanilla bean* (WTN).

Grammatical collocations and combined modification are never the most frequent patterns on their own.

5.2. Depth of description, as indicated by the number of descriptors

By "depth of description" we mean how detailed the description of color, fragrance or flavor is in terms of the number of descriptors specifying keywords. Table 7 below shows the number of descriptors modifying aggregated keywords for each rhetorical move:

Table 7. Number of descriptors in lexical and grammatical collocations.

	Number of desc.	Aroma olive oil	Aroma wine	Color olive oil	Color wine	Taste olive oil	Taste wine	Total Aroma	Total Color	Total Taste
Premodifiers (lex. col.)	7	2	0	0	0	1	0	2	0	1
	6	0	0	0	0	1	0	0	0	1
	5	0	0	4	0	2	2	0	4	4
	4	6	0	16	1	13	6	6	17	19
	3	22	9	2	2	42	21	31	4	63
	2	75	70	40	16	194	80	145	56	274
	1	159	184	7	46	233	168	343	53	401
	0	121	149	0	23	217	209	270	23	426
					Keyword					
Postmodifiers (gram. coll.)	0	168	103	69	89	352	186	271	158	538
	1	54	69	0	0	131	86	123	0	217
	2	48	74	0	0	113	88	122	0	201
	3	58	73	0	0	68	66	131	0	134
	4	29	39	0	0	29	43	68	0	72
	5	14	21	0	0	18	12	35	0	30
	6	18	12	0	0	2	1	30	0	3
	7	4	6	0	0	1	1	10	0	2
	8	0	5	0	0	0	2	5	0	2
TOTAL		489	562	69	65	848	576	1051	134	1424

In the majority of examples from our corpus, lexical and grammatical collocations involve more than one single descriptor. Most keywords have 2-4 premodifiers (see example 15 below), although a single premodifier is frequent as well (garnet color). The same is true for postmodifiers, only that these can be more extensive. Taste is the move more heavily pre- and postmodified, followed by Aroma and, finally, Color (which is not surprising, giving it is the move less frequently included in TNs, see Table 1 above). In any case, it is more frequent for keywords to be specified by more than one single descriptor. For example, of the 17 contexts containing *garnet* and *colour*, only six presented simply *garnet colour*; 11 consisted of an accumulation of descriptors:

15. *very deep, dark, garnet color* (WTN)

In some cases, a descriptor modifies another descriptor:

16. *Brilliant straw yellow color* (WTN)

In the case of *ruby* and *red*, as well as *straw* and *yellow*, they appear together more than 5 times in each subcorpus, so we consider them so closely tied together that they function as a compound adjective. Appendix A shows all descriptors displayed with the keyword they modify in our corpus, as well as the number of occurrences of each.

In other cases, each of the descriptors directly modifies the keyword:

17. *The 2009 Chardonnay offers enticing citrus and melon aromas* (three descriptors, all modifying *aromas* (WTN).

18. *Flavors of tropical fruit, kiwi, tangerines, ripe apple and melon* (five descriptors, two of which are themselves modified (WTN).

These circumstances may occur simultaneously, so we may find two or more descriptors premodifying the keyword, which may also be postmodified by two or more descriptors:

19. *Remarkable tasting notes of dominant green apple* (OTN).

These results show the language of tasting is pervaded with dense nominal phrases, where modification may occur before and after keywords. These rich descriptive and evaluative clusters seem to take the form of mainly juxtaposed modifiers, where descriptors embedded one within another are not infrequent. The multiple number of descriptors that co-occur appears to be extensive enough to add nuances to sensory descriptions, usually hard to grasp and express linguistically. Nevertheless, the scarcity of examples where five or more descriptors co-occur may indicate that synthetic expressions and communicative succes prevail over extreme accuracy (and excessive modification) in the description of sensory perceptions.

5.3. Rhetorical specificity of the descriptors

The question at this point is the following: are the descriptors specific to a given aspect or move of wine tasting or are they generic enough to be used to describe different aspects or steps of wine tasting? In other words, do the descriptors collocate with only one set of synonymous words designating a given step or do they collocate with words designating different steps? In the first case, the collocations would be considered strong, in that the link between the collocation's constituents is relatively fixed and restricted. In the second case, the collocations would be considered weak, since the descriptor can collocate with many different words designating different steps.

While, up until this point, descriptors had been selected with a threshold of 5 occurrences in the whole subcorpus, now we are broadening the scope to consider descriptors with 5 or more occurrences per move. Table 8 below shows the distribution of descriptors across subcorpora and moves. We also show how many of those descriptors are modified themselves (total types are not in the table since some descriptors coincide both across moves and subcorpora, as explained below).

Table 8. Distribution of descriptors across rhetorical moves.

Type		Descriptors in lexical colls.		Of which pre-mod. themselves		Descriptors in gramm. colls.		Of which pre-mod. themselves	
		Token	Type	Token	Type	Token	Type	Token	
Wine	W – Aroma	11	88	7	9	40	353	115	185
	W – Color	8	94	8	26	0	0	0	0
	W – Taste	12	116	31	57	36	406	106	203
	Total W	-	298	-	92	-	759	-	388
Olive oil	O – Aroma	14	130	5	8	42	384	67	178
	O – Color	7	105	7	26	0	0	0	0
	O – Taste	47	395	8	25	32	427	82	233
	Total O	-	630	-	59	-	811	-	411
	Total Aroma	-	218	-	17	-	637	-	363
	Total Color	-	196	-	52	-	0	-	0
	Total Taste	-	511	-	82	-	833	-	436

Table 9 below shows how descriptors were ascribed to one, two or all three moves under study:

Table 9. Exclusivity of descriptors across moves.

	Type	Token
Aroma	45	431
Color	16	158
Taste	65	568
Aroma+ Taste	63	1719
Color + Taste	1	12
Aroma+ Color+ Taste	2	123

As seen above, there is a good number of strong collocations related to one move exclusively, while fewer can be ascribed to a combination of more than one. Remarkably, *Aroma* and *Taste* share a significant amount of descriptors that would give way to weak collocations, while *Color* and *Taste* only share one, i.e., *bright*, and two descriptors appear in all three rhetorical moves: *green* and *intense*. Of course, there are descriptors that apply only to a particular step, such as the descriptors of colors found in the move *Color* (e.g. *garnet*, *limpid*, *ruby red*, *straw yellow, golden yellow*). However, many of the descriptors of fragrances in the move *Aroma* (e.g. *fruit*, *floral*, *oak*) reappear in the step *Taste*, which is by far the most common correlation. This could be due to the synthetic nature of perception, where aromas as flavors are perceived simultaneously, making their separate linguistic description difficult. Appendix B shows the full list of descriptors and their occurrences across moves.

5.4. Associations and functions of descriptors

As seen above, descriptors tend to appear in combination with others to modify a keyword (Table 7), and many of them are multi-word units, i.e., descriptors that are premodified themselves (Table 8). Such accumulation of nuances in the description of sensory meaning is possible because collocations may be formed through different semantic processes. In the same way, descriptors can become multi-word units in a variety of ways and with different purposes:

a. Metonymy and hyponymy in descriptions of color, fragrance or flavor serves the purpose of characterizing a particular aspect of the food product (20). These descriptors can be either adjectives or nouns and enter any kind of collocation to specify the keyword or descriptor they modify. Most importantly, they help restrict the aspect under description, which is especially relevant when keywords are either not transparent or used in more than one rhetorical move (21):

   20. ***Green almond*** *flavors* (Taste, OTN)

   21. *Notes of* ***smoke*** (Aroma, WTN)

Particularly interesting are the collocations ***bottle*** *bouquet of* (*Aroma*) or ***middle*** *notes of* (*Taste*), built through metonymy, since they are used to describe specific moments and places of a stage of the tasting process where certain stimuli were perceived by the taster.

b. In the same vein, a particular descriptor may combine with another descriptor or headword to indicate a more nuanced shade or tone of color, fragrance or flavor, among a set of concepts which are not hierarchical, as is the case of metonymy or hyponymy, but rather parallel. In other words, descriptors are often co-hyponyms, or sister words, which denote semantically equivalent but different members of the group:

   22. *[*Keyword *of] Tropical fruit* / *citrus fruit* / *stone fruit* / *black fruit* + (not necessarily found together, but these are an example of how sister words appear in TNs)

c. Similarly, we often find synonymic and antonymic descriptors used in isolation or even together (23). Sometimes, they may not be absolutely but contextually related, such as in (24), where *green* does not necessarily have the same meaning as *fresh*, but, in the adequate context does:

   23. *a complex mixture of* ***green*** *and* ***ripe fruity*** *notes* (*Taste WTN*)

   24. *Its* ***fresh, green*** *aroma* (*Aroma OTN*)

d. Evaluative descriptors, which may combine with other more specific descriptors, help reflect the taster's subjectivity on the aspect being described. Indeed, they are an essential part of TNs, since they become one of the main means through which the writer can convey less objective, more opinionable information about the product:

   25. ***Wonderful*** *notes of lacada cherry and toasty oak* (*Taste, WTN*)

   26. ***Delightful*** *fragrances of green tomato* (*Aroma, OTN*)

e. Closely related to the previous, we may find descriptors which serve as intensifiers or quantifiers of the following descriptor or the keyword itself. Like evaluative descriptors, they may be realized wither as adjectives (27) or adverbs (28), depending on the head they modify:

   27. ***Abundant*** *stone fruit aroma when poured* (*Aroma,* WTN)

   28. ***Predominantly*** *green olive fruit flavors* (*Taste,* OTN)

f. Metaphoric descriptors are common too, since metaphor is frequently found in tasting language as a consequence of the ineffability of many sensory experiences and the complexity of accurate lexical choice to describe them. In fact, synesthetic transfers of meaning are a pervasive and understudied area of

sensory language (Suárez-Toste, 2007, 2013). For instances, the arguably synesthetic expressions below show how a descriptor primarily associated with a given sensory mode is used to modify a ketword from a different sense:

29. ***Clean**, mellow, and buttery flavour* (*Taste, WTN*)

30. *Mild **stinging** sensation* (*Taste, OTN*)

As seen in the examples above, evaluative and intensifying descriptors premodify descriptors or keywords, while metonymic, hyponymic, and synonymic constructions are more flexible regarding their location with respect to the modified head. These different types of descriptors allow the TNs writer to multiply the descriptors used without seeming repetitive. In other words, multiple premodifications and postmodifications seem to be the norm in TNs.

6. CONCLUSION

This look at English descriptors in TNs confirms the following conclusions:

- Descriptors are used more often to exclusively create lexical collocations or both grammatical and combined than simply to create exclusively grammatical collocations. They enter into complex collocational combinations in the process.

- Descriptors are used in bunches, rather than singly, to provide depth of description. In other words, the same noun collocates with a number of different descriptors (and vice versa). However, most keywords are modified by 2-4 descriptors, being 7-8 the very infrequent maximum number of descriptors contained in a collocation of any type.

- Most of the collocations found are weak, since descriptors are often used in more than one tasting move and can be applied to different referents within a given move. In other words, the same descriptor enters into different collocations referring to more than one aspect of wine or olive oil. There is a good number of strong collocations, i.e., descriptors used exclusively to describe a particular aspect of wine or olive oil. There are only a couple of the weakest collocation possible, where descriptors *green* and *intense* are used to describe all three tasting moves (Color, Aroma, Taste).

- Descriptors combine with other descriptors and keywords in a variety of ways which allows writers to tackle different aspects of the product from distinct perspectives, so they can be accurate but synthetic at the same time. Metonymy, hyponymy, synonymy and antonymy, evaluation (including quantification) and metaphor are the main semantic processes observed in the collocations found. Evaluative and intensifying descriptors form lexical collocations tend to form lexical colocations, while metonymic, hyponymic, and synonymic descriptors can enter both lexical and grammatical collocations.

- In essence, the present paper constitutes a lexicographical reference for technical writers of TNs, where they can make consultations on specific descriptors regarding their frequency, the adequate length and type of collocations they can enter, and the rhetorical moves of the text where they usually appear. Hence, we hope to contribute, from a lexical and terminological point of view to the acceptance of such texts within the target discourse community, which is an essential condition in any successful specialized communicative event.

Future studies could include a comparison of wine and olive oil descriptors in terms of the evaluative strategies used in both subcorpora. This would shed some more light on the composition approaches to TNs which would help professional writers and translators in their tasks. Other future studies in this direction might target the business domain, where recurrent genre features could enable similar analyses that help business students or professional English learners write adequate texts in the variety or varieties. Within the food and drinks domain, it would be interesting replicating the study enlarging the corpus analyzed both in size and variety of products. Future studies with different corpora could focus on associating cognitive appraisal theories with tasting notes of products according to the score obtained in tasting contests could help analyze the importance of cognitive evaluations in the linguistic expression of sensory perceptions.

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APPENDIX A.

Bold keywords indicate they appear in both subcorpora, and descriptors which are modified themselves at least 5 times are extracted and indicated between brackets.

		Premodifying descriptors	Keyword	Postmodifying descriptors
Wine	Aroma	fresh	**Aroma**	pear
		enticing		blackberry
		intense		peach
		clean		raspberry
		melon		apricot
		fruit		cherry (black cherry)
		citrus		honeysuckle
		cherry		tangerine
				melon
				pineapple
				cassis
				plum
				boysenberry
				citrus
				spice
				flower
				fruit
				apple
				currant
				blossom
				zest
		subtle	**Note**	oak
		floral		cedar
				citrus
				spice
		bottle	**Bouquet**	blackberry
				currant
				plum (blue plum)
				violet
				cherry (black cherry)
				oak (sweet oak)
				vanilla
				cedar
				spice
				apple
				berry
			Hint	spice
				vanilla
				pepper
			Layer	fruit
	Color	deep	**Color**	
		garnet		
		yellow (straw yellow)		
		bright		
		purple		
		red (ruby red)		
		ruby		
		pale		

		Premodifying descriptors	Keyword	Postmodifying descriptors
Wine	Taste	fruit (ripe fruit)	Flavor	pear
		juicy		blackberry
		Berry (black cherry)		cherry
		cherry		spice
		apple		pineapple
		ripe		Apple (green apple)
				lemon
				Peach (white peach)
				tangerine
				Fruit (tropical fruit)
				plum
				apricot
				cedar
				lime
				melon
				currant (red currant)
				raspberry
				pepper
				lemon drop
				orange
				berry
				vanilla
				oak
				grapefruit
				tea
		refreshing	Note	spice
		spicy		tea (black tea)
		subtle		cocoa
		tea		lemon
		fruit		apple (green apple)
				oak
		middle	Palate	
			Layer	fruit
			Touch	spice
				oak
			Hint	spice
				vanilla
Olive Oil	Aroma	green	**Aroma**	tomato
		fruity		artichoke
		grassy		herbs
		fresh		grass
		floral		apple
		complex		almond
		wonderful		fruit
		intense		olive
		fruit		leaf
		olive		
		distinct	**Note**	herbs
		herbal		mint
				rosemary
				almond
				sage
				basil
				apple
				Banana
				Tomato
				leaf

		Premodifying descriptors	Keyword	Postmodifying descriptors
Olive Oil	Aroma	distinct	**Hint**	artichoke
				almond
				banana
				tomato
				apple (green apple)
				mint
				grass (freshly mown grass)
				herbs
				rosemary
				vanilla
				chicory
				olive
				leaf
		fruity	Nose	
			Scent	artichoke
				herbs
				banana
				flower
				Tomato (ripe tomato, green tomato)
				apple
				fruit
				grass
				leaf (olive leaf)
			Bouquet	leaf
	Color	limpid	**Color**	
		yellow (golden yellow)		
		intense		
		beautiful		
		green		
		green (green light)	Hue	
		slight		
	Taste	fruity	Flavor	chicory
		nutty		lettuce
		buttery		artichoke
		robust		almond
		bitter		pepper
		fresh		grass
		grassy		
		green		
		intense		
		perfect		
		strong		
		delicate		
		exquisite		
		herbaceous		
		pungent		
		smooth		
		artichoke		
		bold		
		spicy		
		sweet		
		fruit		
		olive		

		Premodifying descriptors	Keyword	Postmodifying descriptors
Olive Oil	Taste	distinct	Hint	artichoke
				almond (green almond)
				tomato
				apple
				pepper
				fruit (ripe fruit)
				olive (ripe olive)
				flower
				grass
				banana
				leaf
		bitter	Note	artichoke (creamy artichoke)
		green		almond (green almond, bitter almond)
		tasting		grass (cut grass, freshly cut grass)
		pungent		pepper (black pepper)
		herbaceous		apple (green apple)
		distinct		arugula
		floral		olive (ripe olive)
		spicy		tomato
		dominant		herbs (delicate herbs)
		subsequent		chicory
		grassy		fruit
				leaf
		bitter	Taste	
		fruity		
		pungent		
		intense		
		buttery		
		fresh		
		peppery		
		strong		
		fruit	Character	
		great		
		stinging	Sensation	
		mild		
		pleasant	Touch	artichoke
				chicory
				pepper

APPENDIX B.

Distribution of descriptors across moves.

Moves where descriptors appear					
Colour (C)	Aroma (A)	Taste (T)	C+T	A+T	C+A+T
Deep	Artichoke	Pungent		Spice	Green
Garnet	Aromatic	Spicy	Bright	Almond	Intense
Limpid	Wonderful	Ripe		Fruity	
Golden yellow	Enticing	Pleasant		Floral	
Slight	Basil	Black tea		Fresh	
Straw	Honeysuckle	Cocoa		Blackberry	
Light green	Red apple	Arugula		Tomato	

		Moves where descriptors appear			
Colour (C)	Aroma (A)	Taste (T)	C+T	A+T	C+A+T
Beautiful	Rosemary	Lemon		Herbs	
Golden	Sage	Nutty		Vanilla	
Pale	Clean	Stinging		Black pepper	
Purple	Violet	Buttery		Green apple	
Ruby	Boysenberry	Tasting		Apple	
Brilliant	Fig leaf	Bitter almond		Herbaceous	
Dark	Fresh olive	Middle		Pear	
Ruby red	Avocado	Robust		Distinct	
Straw yellow	Clove	Pepper		Ripe fruit	
	Fennel	Peppery		Grassy	
	Persistent	Refreshing		Grass	
	Smoke	Bitterness		Chicory	
	White flower	Lettuce		Fruit	
	Ample	Black fruit		Subtle	
	Blue plum	Green pepper		Cherry	
	Classic	Smooth		Banana	
	Field grass	Celery		Green almond	
	Fragrant	Green fruit		Citrus	
	Green grass	Lingering		Rich	
	Orange blossom	Perfect		Black cherry	
	Sweet oak	Red berry		Pineapple	
	Tea leaf	Red currant		Strong	
	Thyme	Sweet		Complex	
	White apple	Thistle		Tropical fruit	
	Yellow plum	Walnut		Cedar	
	Bottle	Balanced		Mint	
	Chai spice	Bold		Plum	
	Cola	Creamy artichoke		Herbal	
	Earth	Dominant		Mild	
	Fig	Exquisite		Olive leaf	
	Honey	Fresh almond		Peach	
	Lovely	Juicy		Tangerine	
	Medium ripe tomato	Leather		Tomato leaf	
	Parsley	Lime		Green banana	
	Red licorice	Orange		Melon	
	Ripe apple	Pink pepper		Ripe tomato	
	Sweet spice	Subsequent		Delicate	
	Wet stone	Toasty		Green tomato	
		Toasty oak		Raspberry	
		Tobacco		Apricot	
		Vegetal		Cassis	

		Moves where descriptors appear			
Colour (C)	Aroma (A)	Taste (T)	C+T	A+T	C+A+T
		Vibrant		Ripe olive	
		Berry		Black currant	
		Currant		Cinnamon	
		Dark chocolate		Flowers	
		Delicate herbs		Freshly mown grass	
		Earthy		Oak	
		Evident		Cut grass	
		Fresh cut grass		Mineral	
		Fresh grass		Blueberry	
		Fruit-forward		Green olive	
		Good		White peach	
		Great		Freshly cut grass	
		Lemon drop		Olive	
		Pink grapefruit		Red fruit	
		Pungency		White pepper	
		Soft			
		Unique			