

## **Terminology of the field named “sensory linguistics” in Greek: proposal for validation and standardization**

**Malamatenia Panagiotou, Konstantinos Gkatzionis**

### **ABSTRACT**

In the English language the term “sensory” denotes the related to the senses and is used in collocations such as sensory perception, sensory organs, sensory studies, sensory modalities, sensory vocabulary, sensory lexicon, sensory adjectives, sensory analysis, sensory linguistics. In Greek bibliography, in Greek dictionaries, and in official translations of documents issued by the European Union, the term “sensory” has been translated as “αισθητηριακός”, “αισθητήριος”, “αισθητικός” and “οργανοληπτικός”, depending on the meaning of the term in each case. As the field of sensory linguistics, i.e., the study of the connection between language and the senses, is being enriched by new studies and finds applications in various domains, such as that of food, advertising, and lexicography, the need for terminology in the Greek language is evident. The present study presents the field of sensory linguistics, the possibilities in translating and defining the term “sensory” in collocations of this field [sensory modalities, sensory vocabulary, sensory lexicon, sensory adjectives, sensory linguistics] and makes a final proposal for validation and standardization of this terminology. Aiming at reinforcing the status of the Greek language as an effective language for the production of knowledge, dissemination of ideas, and communication between Greek scientists, it is important to have standardized, validated terminology for the field of sensory linguistics in Greek.

### **0 Introduction**

Humans live in a physical world which they perceive through their senses: sight, hearing, smell, touch, and taste. In antiquity, Aristotle studied in depth and talked about the senses, and his division of them into five has been maintained until today to a large extent even though a lot of stimuli are perceived through more than one senses simultaneously, as is the case with taste and smell when consuming food. How important the senses are for humans becomes evident when one of them is not available, even temporarily. Winter takes it a step further when he says that, if we couldn't express what we perceive through the senses, language would be of no use (Winter, 2019).

The human brain perceives stimuli provided by the environment through the senses and, by performing subconscious and cognitive processes, it makes sense of these stimuli and of our reactions to them – physiological, mental, and emotional. These processes and conscious conclusions are expressed through language, which takes part in the previous stage of cognitive processes as well, as it is known that humans think in words and pictures together.

Language though is not a personal means of expression. It is created and acquires sense within a given culture, which influences our perceptions as well. For this reason, the relation between language and the senses is studied within a given language/ culture and across languages/ cultures. It is commonly acknowledged that people from different cultures experience and express the stimuli they perceive through their senses and the emotions that these stimuli provoke in them in different ways. They get pleased and displeased by different experiences. These preferences are shaped by personal experiences but also, to a great extent, by collective cultural habits. There are also variations within population groups in the same culture, according to age, gender, income, or educational level.

### **1 Sensory Studies: related branches of science, object of study**

In the past few decades, a new scientific field has emerged, that of sensory studies, dealing with the study of the senses and of the human reactions – physiological, cognitive, emotional- to anything from food and medicine to cosmetics and cars. The aim is to develop products and provide services in a focused and successful way, as well as to promote them effectively. The field of sensory studies makes use of scientific branches such as food science, linguistics, psychology, medicine, statistics, trade, advertising, and many others. Within the framework of today's technological advances and consumers' demands for immersive experiences, with the Internet of Things and the Internet of senses under development, investigating consumers demands and needs through tests and questionnaires or through opinion mining and sentiment analysis in social media, attracts the interest of industry and is done by using tools developed from academic and theoretical studies. What is also essential is to detect target groups of consumers interested in a specific product and this is done by using demographic data as well. A field that has a lot to offer to these studies is linguistics.

## 2 Sensory Linguistics: key notions<sup>1</sup>, object of study

“Sensory linguistics” is the field that studies the ways in which language is related to the senses and attempts to answer questions such as: how is what we perceive through the senses grouped into words? which physical features are easier to express through words? how are languages different in the way they encode what is perceived through the senses? how are words linked to the cognitive systems in our brain? (Winter, 2019).

Key to the field of sensory linguistics is the “theory of embodiment” or else “the embodied lexicon hypothesis” according to which language depicts perception as cognition and language are constructed through constant interaction with the environment through our body (our senses) and our brain (Diederich, 2015; Winter, 2019).

What has already been studied is how many words there are relative to specific senses per language (Viberg, 1983), how often we talk about each sense (San Roque *et al.*, 2015) and how metaphor<sup>2</sup> (de Ullmann, 1945; Williams, 1976) and iconicity<sup>3</sup> (Marks, Carterette and Friedman, 1978; Dingemanse, 2012) are used to achieve reference to the physical world around us (Winter, 2019).

Linguistic studies of the senses use various sources, such as dictionaries, thesauri, corpora, the Internet, and consumers, as well as various methods, such as semiotic analysis and frame semantics, and deal with verbs, nouns, and adjectives. Most studies seem to focus on adjectives since these descriptors combine objective and subjective evaluation. These adjectives are called “sensory adjectives” and are the parts of speech that attribute features as they are perceived through the senses, like attributes of taste, warmth, texture etc (Diederich, 2015; Winter, 2019).

Within the field of sensory studies, terms are collected into lists, called “sensory lexicons”, and they are lists of terms used to describe products as they are perceived by consumers through their senses, for example, hard, noisy, soothing, feminine etc. There are many such lexicons, quite a few related to food, such as various types of tea, caviar, kinoa, honey, and others (Galán-Soldevilla *et al.*, 2005; Fenko, Otten and Schifferstein, 2010; Koch *et al.*,

---

<sup>1</sup> The correspondence between English and Greek terms is given in chapter 4 of the present paper.

<sup>2</sup> Metaphor, and more specifically within the field of sensory linguistics “synaesthetic metaphor”, is the usage of properties perceived through a specific sense to describe a notion that belongs to a different sense, i.e., harsh sound [harshness is perceived through touch while sound is perceived through hearing].

<sup>3</sup> Iconicity is the way of attributing meaning when the word depicts reality as is the case with sound (onomatopoeic) words (e.g., barking), in contrast to symbolism when there is no real connection to the referred object (e.g., dog).

2012; Ng, Chaya and Hort, 2013; Baker *et al.*, 2014; Wu *et al.*, 2017). In the Greek language there are such lists of terms only for coffee and wine. These lists though contain mainly technical terms which are hard to be understood by non-experts, like body (for coffee), felt tannins, sharp (wine), reductive (aroma).

Other studies target consumers' emotions elicited by certain products and the so called "emotion lexicons" are created containing emotions, either related to food in general or related to a specific food category in a given language.

Combining sensory and emotion lexicons with liking and sensory measurements as well as demographic data of participants in food studies can provide directions for the focused development and successful marketing of products.

There are also linguistic studies, the so called "sensory norms", that deal with the semantic mapping of words related to the senses as regards valence, i.e., if a word is considered positive or negative, sensory modality, and sensory exclusivity, i.e., which senses participate to the perception of a specific attribute or action and to what degree, etc.

Such research is being done in Greece too lately. Thus, it is important for scientists to be able to communicate with each other and with experts of other fields where findings of the sensory field are applied. The need for terminology, available and standardized for the Greek language, is evident.

### **3 The term "sensory" in English and its possible translational equivalents into Greek**

#### **3.1 How the term "sensory" is defined in English**

In Table 1, the term "sensory" is presented with its definitions. The term appears to refer to that which is related to: 1) the five senses, 2) the ability of sensation, and 3) the ability to perceive stimuli through the senses.

**Table 1: Definitions of the term “sensory” in English dictionaries**

connected with the physical senses of touch, smell, taste, hearing, and sight <a href="https://dictionary.cambridge.org/dictionary/english/sensory">https://dictionary.cambridge.org/dictionary/english/sensory</a>
1. of or relating to the senses or the power of sensation 2. of or relating to those processes and structures within an organism that receive stimuli from the environment and convey them to the brain <b>Word origin:</b> from Latin <i>sensōrius</i> , from <i>sentīre</i> to feel <a href="https://www.collinsdictionary.com/dictionary/english/sensory">https://www.collinsdictionary.com/dictionary/english/sensory</a> [from Collins English Dictionary. Copyright © HarperCollins Publishers]
1. of the senses or sensation 2. connected with the reception and transmission of sense impressions <b>Also</b> <i>sen'sorial</i> (ˈsɛnˈsɔriəl) <b>Word origin:</b> sense + -ory <a href="https://www.collinsdictionary.com/dictionary/english/sensory">https://www.collinsdictionary.com/dictionary/english/sensory</a> [from Webster's New World College Dictionary, 4th Edition. Copyright © 2010 by Houghton Mifflin Harcourt]

### 3.2 How the term “sensory” is translated into Greek

In Table 2, various translations of the term “sensory” are given, as provided in parallel documents issued by the European Union in English and in Greek (the term is used in domains such as health/ medicine, information technology, chemistry, agriculture, and education), in European Union Law, in the European Union glossary, and an English-Greek dictionary of translations (Glosbe). Collocations of the equivalent terms are also provided as found in examples in two major Greek dictionaries.

**Table 2: Translational equivalents of the term “sensory”**

Sources: European Union (EU) sources: <a href="https://iate.europa.eu/home">https://iate.europa.eu/home</a> , <a href="https://eur-lex.europa.eu/homepage.html">https://eur-lex.europa.eu/homepage.html</a> Glosbe: <a href="https://glosbe.com/">https://glosbe.com/</a> Dictionary of Modern Greek (DMG)
--

Dictionary of Standard Modern Greek (DSMG)					
<a href="https://www.greek-language.gr/greekLang/modern_greek/tools/lexica/triantafyllides/index.html">https://www.greek-language.gr/greekLang/modern_greek/tools/lexica/triantafyllides/index.html</a>					
grop	2 <sup>nd</sup> word in collocation	1. οργανοληπτικός	2. αισθητηριακός	3. αισθητήριος	4. αισθητικός
1	ανάλυση		EU		
1	χαρακτηριστικά		EU		
1	εξέταση		EU		
1	δοκιμασία		EU		
1	αξιολόγηση		EU		
1	εκτίμηση		EU		
1	έλεγχος		EU		
1,2	προφίλ	EU	EU		
1,2	ιδιότητα	DSMG	EU		
2	διαφορά		EU		
2	λειτουργία		EU, Glosbe		
2	παρατηρητής		EU		
2	ευαισθησία		EU		
2	μνήμη		EU		
2	όρος		EU		
2	έλλειμμα		EU		
2	ανταπόκριση		EU		
2	κόπωση		EU		
2	εντύπωση		EU, DSMG		
2	ικανότητα		Glosbe		
2	καταγραφή		Glosbe		
2	ερέθισμα		DMG, DSMG		

2	διέγερση		DSMG		
2	εμπειρία		DSMG		
2	δεδομένα		DSMG		
2,3	αντίληψη		EU, Glosbe	Glosbe	
2,3	αναπηρία		EU	EU	
2,3	δραστηριότητα		Glosbe	Glosbe	
3	απώλεια			EU	
3,4	όργανο			EU, DSMG	Glosbe
3,4	νεύρο			DSMG	DSMG
4	κύτταρο				DSMG
4	κέντρο				DSMG
4	σύστημα				EU, Glosbe
4	διαταραχή				EU
4	δεξιότητα				EU

### 3.3 Grouping the translational equivalents of the term “sensory”

Four groupings of the Greek equivalents of the term “sensory” as shown in the first column of Table 2 seem to emerge. There are however “gray” collocations, that belong to two groups. These are the cases where term “sensory” can be translated into Greek by two different terms. The collocations that belong to group 1 are clear cases and refer to food attributes perceived through the senses and translated by “οργανοληπτικός”. The same goes to the terms that belong to group 4, that refer to sensory organs, and are translated by the term “αισθητικός”. The term “sensory” in the collocations of group 3 can be translated by the Greek equivalent for groups 2 and 4, that is, instead of “αισθητήριος”, it can be translated as “αισθητηριακός” or “αισθητικός”. The conclusion drawn from Table 2 is that the term “αισθητηριακός” is mostly used as the translational equivalent of “sensory” for all collocational cases except those of groups 1 and 4.

### 3.4 Definitions of the Greek translational equivalents of the term “sensory”

The definitions of the Greek translational equivalents of the term “sensory” as provided in Greek dictionaries are given in Table 3, in order to compare their meanings to the meanings of the original English term. The sources used are two renowned dictionaries of modern Greek: the Dictionary of Modern Greek (DMG) and the Dictionary of Standard Modern Greek (DSMG).

**Table 3: Definitions of the Greek translational equivalents of the term “sensory”:**

		<b>DMG</b>	<b>DSMG</b>
<b>1</b>	<b>οργανοληπτικός</b>	[ΧΗΜ] [για τις ιδιότητες των τροφίμων] αυτός που γίνεται αντιληπτός από τα αισθητήρια όργανα [π.χ. οργανοληπτικά χαρακτηριστικά των τροφίμων είναι το χρώμα, η οσμή, η γεύση και η υφή]	-
<b>2</b>	<b>αισθητηριακός</b>	αυτός που σχετίζεται με τα αισθητήρια όργανα [πχ αισθητηριακό ερέθισμα]	που γίνεται ή γενικά σχετίζεται με τα αισθητήρια όργανα
<b>3</b>	<b>αισθητήριος</b>	[αρχ.] αυτός που σχετίζεται με τις αισθήσεις	που έχει σχέση με τις αισθήσεις
<b>4</b>	<b>αισθητικός</b>	1. αυτός που σχετίζεται με τις αισθήσεις και την αντίληψη διά μέσου αυτών	που έχει σχέση με τις αισθήσεις. α. (φυσιολ.) αισθητήριος: Αισθητικές ίνες. Οι αισθητικές θηλές της γλώσσας / ρίζες του νωτιαίου μυελού. Αισθητικό νεύρο / κέντρο. Αισθητικά κύτταρα. β. (σπάν.) που αισθάνεται: Αισθητικά όντα. γ. που προέρχεται από τις αισθήσεις: Αισθητική παράσταση. Οι γνώσεις του ανθρώπου είναι νοητικές ή αισθητικές.



These definitions explain the groupings made in Table 2. The term “οργανοληπτικός” that appears in group 1 of collocations is a technical term that refers to the organoleptic perception of food attributes through the senses and can be easily distinguished from the rest of the terms. The term “αισθητήριος” of group 3 is characterized in one of the dictionaries as archaic and so it is semantically covered by the terms “αισθητηριακός” and “αισθητικός” of the groups 2 and 4.

#### **4 Final proposal for the translation of the term “sensory linguistics” and the key terms/ notions of the field into Greek for validation and standardization:**

Following the two possible etymologies of the English term that appear in Table 1, if the word “sensory” comes from the noun “sense” then the Greek term could be formed from the noun “αίσθηση” and be “αισθητικός”. Thus, “sensory linguistics” would be “αισθητική γλωσσολογία”. But as one can conclude from the collocations offered for the term “sensory” in Table 2 and from the definitions and the examples of the word “αισθητικός” in Greek dictionaries as shown in Table 3, the term «αισθητικός» cannot cover the same semantic and pragmatic instances as the English term. So, such a proposal would be incorrect.

If the term “sensory” derives from the noun “sensor” according to the second etymology provided in Table 1, then the Greek term could be formed from the noun “αισθητήρ(ας)” and be either “αισθητήριος” or “αισθητηριακός”. The term “αισθητήριος” is archaic and is less used than the term “αισθητηριακός”, as explained in the two Greek dictionaries in Table 3, and the translational equivalents of the term “sensory” in Table 2. Therefore, the term “sensory” in the field of sensory linguistics should be translated as “αισθητηριακός”.

An alphabetical listing of corresponding terms from English into Greek, as presented and used in the present paper, follows for validation and standardization:

(emotional) valence= (συναισθηματικό) σθένος

embodied lexicon= ενσώματο λεξιλόγιο

embodiment=ενσωμάτωση

emotion lexicon= λεξιλόγιο / γλωσσάρι συναισθημάτων

modality exclusivity= τροπική αποκλειστικότητα

sensory adjectives= αισθητηριακά επίθετα

sensory lexicon= αισθητηριακό γλωσσάρι / λεξιλόγιο / λεξικό

sensory linguistics= αισθητηριακή γλωσσολογία

sensory modality= αισθητηριακή τροπικότητα

sensory vocabulary= αισθητηριακό λεξιλόγιο / γλωσσάρι

sensory= αισθητηριακός

syn(a)esthesia= συναισθησία

syn(a)esthetic metaphor= συναισθητική μεταφορά

### **Bibliographic References:**

Baker, A. K. *et al.* (2014) 'Development of a Lexicon for Caviar and Its Usefulness for Determining Consumer Preference', *Journal of Food Science*. doi: 10.1111/1750-3841.12703.

Diederich, C. (2015) *Sensory Adjectives in the Discourse of Food*. John Benjamins Publishing Company. doi: 10.1075/celcr.16.

Dingemans, M. (2012) 'Advances in the Cross-Linguistic Study of Ideophones', *Linguistics and Language Compass*. doi: 10.1002/inc.3.361.

Fenko, A., Otten, J. J. and Schifferstein, H. N. J. (2010) 'Describing product experience in different languages: The role of sensory modalities', *Journal of Pragmatics*. doi: 10.1016/j.pragma.2010.05.010.

Galán-Soldevilla, H. *et al.* (2005) 'Development of a preliminary sensory lexicon for floral honey', *Food Quality and Preference*. doi: 10.1016/j.foodqual.2004.02.001.

Koch, I. S. *et al.* (2012) 'Sensory characterization of rooibos tea and the development of a rooibos sensory wheel and lexicon', *Food Research International*. doi: 10.1016/j.foodres.2011.11.028.

Marks, L. E., Carterette, E. C. and Friedman, M. P. (1978) 'The Unity of the Senses: interrelations among the modalities'. Academic Press, p. 302.

Ng, M., Chaya, C. and Hort, J. (2013) 'Beyond liking: Comparing the measurement of emotional response using EsSense Profile and consumer defined check-all-that-apply methodologies', *Food Quality and Preference*. doi: 10.1016/j.foodqual.2012.08.012.

San Roque, L. *et al.* (2015) 'Vision verbs dominate in conversation across cultures, but the ranking of non-visual verbs varies', *Cognitive Linguistics*. Walter de Gruyter GmbH, 26(1), pp. 31–60. doi: 10.1515/COG-2014-0089.

de Ullmann, S. (1945) 'Romanticism and Synaesthesia: A Comparative Study of Sense Transfer in Keats and Byron', *PMLA/Publications of the Modern Language Association of America*. Cambridge University Press (CUP), 60(3), pp. 811–827. doi: 10.2307/459180.

Viberg, Å. (1983) 'The verbs of perception: a typological study', *Linguistics*, 21(1). doi: 10.1515/ling.1983.21.1.123.

Williams, J. M. (1976) 'Synaesthetic Adjectives: A Possible Law of Semantic Change', *Language*. doi: 10.2307/412571.

Winter, B. (2019) *Sensory Linguistics*. doi: 10.1075/celcr.20.

Wu, G. *et al.* (2017) 'Lexicon Development, Consumer Acceptance, and Drivers of Liking of Quinoa Varieties', *Journal of Food Science*. doi: 10.1111/1750-3841.13677.

### **Internet sources:**

Dictionaries:

<https://dictionary.cambridge.org/dictionary/english/sensory>

<https://www.collinsdictionary.com/dictionary/english/sensory>

<https://glosbe.com/>

[https://www.greek-language.gr/greekLang/modern\\_greek/tools/lexica/glossology/index.html](https://www.greek-language.gr/greekLang/modern_greek/tools/lexica/glossology/index.html)

<https://www.greek->

[language.gr/greekLang/modern\\_greek/tools/lexica/triantafyllides/index.html](https://www.greek-language.gr/greekLang/modern_greek/tools/lexica/triantafyllides/index.html)

European Union Webpages:

<https://eur-lex.europa.eu/homepage.html>

<https://iate.europa.eu/home>

Authors:

Malamatenia Panagiotou

Teacher of English / Lexicographer / PhD candidate

Department of Food Science and Nutrition, University of the Aegean

Mitropolitou Ioakeim 2, 81400, Myrina, Lemnos

email: [teniapanagiotou@gmail.com](mailto:teniapanagiotou@gmail.com)

Dr Konstantinos Gkatzionis

Associate Professor / Director of Laboratory of Consumer Responses and Sensory Perception of Food & Drinks' (ConsumerLab) / Head of Department of Food Science and Nutrition, University of the Aegean

Mitropolitou Ioakeim 2, 81400, Myrina, Lemnos

email: [kgkatzionis@aegean.gr](mailto:kgkatzionis@aegean.gr)