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# Lexicography and Semantics



Proceedings of the  
**XXI EURALEX International Congress**

8–12 October 2024  
Cavtat, Croatia



# LEXICOGRAPHY AND SEMANTICS

**Nakladnik:** Institut za hrvatski jezik  
**Za nakladnika:** Željko Jozić

**Knjiga:** Lexicography and Semantics,  
Proceedings of the  
XXI EURALEX International Congress

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**Oblikovanje naslovnice:** Elena Vrbanić, with the help of OpenAI  
**Tisak:**



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ISBN 978-953-7967-77-2

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# Lexicography and Semantics

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Valeria Caruso and Lucia di Pace

## WORDS FOR CHOOSING FOOD IN ALMA – MULTIMEDIA ATLAS OF BIO/CULTURAL FOOD

**Abstract** This paper presents an innovative lexicographic approach embedded within an online resource currently under development: *ALMA: Linguistic Multimedia Atlas of Bio/Cultural Food Diversity*. *ALMA* serves a dual purpose: firstly, to showcase linguistic diversity through culinary practices, and secondly to scrutinise food marketing strategies through the analysis of language and paralinguistics on food packaging. The resource has two main components: *Words for Food* (WF) and *Words for Choosing Food* (WCF) lexicographic articles. The WF articles delve into the lexicon of common language and technicalities of food practices, recognizing the dynamic interaction between common and specialised knowledge of food production. On the other hand, the WCF articles employ a segmentation methodology to scrutinize food packaging, identifying functional and linguistic constituents.

By summarizing individual labels and pinpointing issues regarding lack of transparency, the WCF articles facilitate consumer understanding and stimulate debates on labelling standards. This innovative lexicographic approach aims to empower consumers with linguistic and encyclopaedic knowledge while providing insights for legislators and manufacturers to enhance food labelling practice.

**Keywords** specialised language; food language; online lexicographic resources; food labels corpora; legal terminology; consumer protection texts

### 1. Introduction

This study presents the lexicographic articles of *ALMA: Linguistic Multimedia Atlas of Bio/Cultural Food Diversity* (Caruso & di Pace, 2024). The name *ALMA* has multiple meanings and evokes many components of the resource, as it stands for ‘nutrient’ in Latin, ‘soul’ in Old Italian, and ‘apple’ in Hungarian.

Currently in development, this online tool serves a dual documentary purpose. Primarily, it seeks to spread language knowledge through culinary practices by showcasing the local cultural heritage of renowned areas, celebrated for their traditions. At the same time, it explores various facets of food marketing, examining the language and paralinguistics used on packaging.

The linguistic choices crafted for sales purposes are explained in dedicated terminology articles which analyse all the components of the product label:

- the different product names, i.e., *legal*, *customary* or *descriptive* (EU Regulation, n. 1169/2011)<sup>1</sup>;

<sup>1</sup> The regulation is retained also in the UK under the EU (Withdrawal) Act 2018.

- all mandatory and non-mandatory textual elements, e.g., list of ingredients, storage conditions and/or conditions of use;
- graphic components, e.g., logos and pictograms.

This part of the resource aims to analyse the *Words for Choosing Food* (WCF), complementing the description of *Words for Food* (WF). The latter pertains not only to the lexicon of common language but also to the technicalities of food practices, acknowledging the fluid contexts of food production.

Following a concise presentation of the resource, the paper introduces the innovative aspects of the WCF section (Figure 1), which is based on a corpus of food labels created with the segmentation methodology used by Wiegand for dictionaries (Wiegand, 1984; Wiegand & Smit, 2013, § 3). According to this procedure, food packaging is segmented into macro-components, such as pack faces or different labels on the packaging. Within these components, various functional constituents and their specific *items* are identified, revealing several elements of interest in the terminology employed by the producers.

The two components of the resource aim to provide users with a variety of information on food, enhancing their linguistic and encyclopaedic knowledge, as well as their understanding of food labels. Similar to other consumer protection texts (e.g., pharmaceutical leaflets, see di Pace, 2019), food labels require specific skills to interpret. In this context, the WCF lexicographic entries summarize the contents of individual labels, highlighting elements of lack of transparency that may obscure product features.

This approach should also stimulate reflection on labelling standards and practices, providing insights for both legislators and manufacturers. Currently, mobile applications, such as Yuka (Yuka App), are available to provide guidance on the healthiness of packaged foods and assist consumers in making purchase decisions based on health-related motivations. However, consumers also choose food products based on other parameters, such as taste, ethics, or environmental friendliness and manufacturers use various types of information to influence consumers' choices, some of which may be hidden.

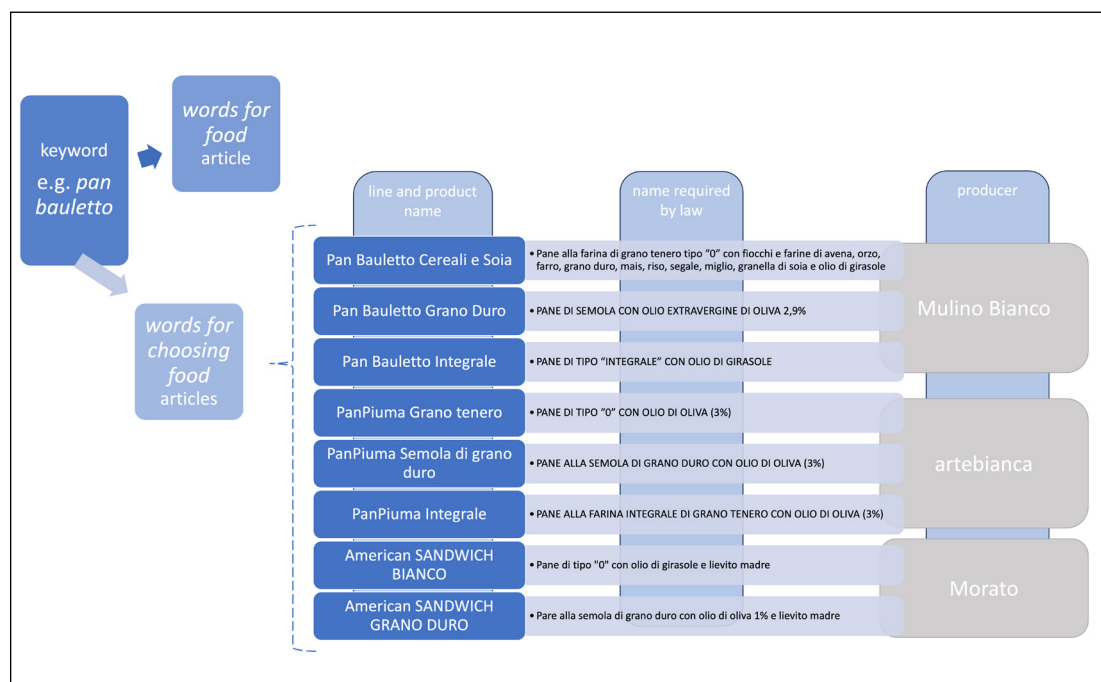
For all the purposes described above, a lexicographic approach appears effective in providing information quickly and efficiently through dictionary articles for any interested user. Furthermore, the use of general language dictionaries is recommended in the food labelling process, as they serve as a strategic reference by offering a reliable repository of encyclopaedic information shared by a language community.

## 2. ALMA Components

Recent research has mostly focused on analysing the language of food from an interactional perspective, with studies such as Rüdiger & Mühleisen (2020) and Tovaes & Gordon (2020) demonstrating how social status is negotiated through food.

In contrast, studies conducted in previous years by Silvestri (see *inter alia* Silvestri, 1999; 2002) have outlined a comprehensive method of analysis to explore the language of food from micro- to macro-linguistic levels. These studies represent the foundation upon which *ALMA* is currently developing, by also implementing the descriptions proposed by Silvestri with multimedia content to illustrate various aspects of food-related multimodality lexicalised by the WF, such as food shapes, colours, processing procedures and rituals connected to the food sphere.

The descriptive potential of *ALMA* and the richness of the data it provides for further research emerges by illustrating the lexicographic articles of the resource. Lemmas like “pan bauletto” (Figure 1), for instance, allow the user to access one article of the *Words for Food* section, which describes linguistic properties of words and technical terms. At the same time the user is referred to various articles of the *Words for Choosing Food* section, which are attached to the same type of aliment, e.g., the Italian *panbauletto* in Figure 1, despite the wide variety of selling names used by the manufacturers. More details about the lemmatisation in use for the WCF articles will be provided in dedicated paragraphs (§ 3.2).



**Fig. 1:** General structure of *ALMA*. Food terms are described by two types of lexicographic articles: one, called *Words for Food*, provides lexical descriptions, and the other, called *Words for Choosing Food*, focuses on food labels. Both can be queried based on the type of product, regardless of their commercial names or the names required by law used for food products on the labels.

## 2.1 Words for Choosing Food

In the *ALMA* section dedicated to the *Words for Choosing Food*, linguistic and paralinguistic aspects emerging from the analysis of packaged food labels are collected. Within the EU, food products must comply with all obligations imposed by a specific legislation which defines ‘prepacked food’ as:

any single item for presentation as such to the final consumer and to mass caterers, consisting of a food and the packaging into which it was put before being offered for sale, whether such packaging encloses the food completely or only partially, but in any event in such a way that the contents cannot be altered without opening or changing the packaging (EU 1169/2011, art. 2, 2i).

It should be noted that the literature on labels has developed extensively in recent years, both in dedicated monographs (for example, see Albert, 2014; Berryman, 2015; Smith et al., 2022) and in scientific articles published in numerous journals such as the *Journal of Consumer Policy*, the *Journal of Consumer Protection and Food Safety*, *Appetite*, and *Food Quality and Preference*. The literature primarily focuses on issues of health protection or market constraints, covering fields of study that are social or, more specifically, micro-economic. However, studies dedicated to the linguistic analysis of labels seem to be lacking, despite the fact that labels are multimodal macro-texts consisting of names, texts, symbols, images, and more.

This deficiency is particularly notable considering that even the simple naming of foods is subject to debates and conflicts, driven by the need to protect traditional products of high quality and prestige. For instance, consider the legal process for registering *Pizza Napoletana* as a Traditional Speciality Guaranteed (TSG) with name reservation (EU Regulation 2022/2313). However, the issue of how to name foods remains one of the most confusing aspects within the legislative framework.

Therefore, the objective of the *ALMA* project is to thoroughly analyse the various components of labelling to highlight a) the different product denominations and their types; b) the use of marketing strategies to influence purchasing decisions; c) the lack of transparency inherent in the information provided to the consumers.

## 2.2 Words for Food

The features of *ALMA* are illustrated here by means of concrete examples, beginning with a case study: the lexicographic description of a popular Italian prepackaged bread, *Pan Bauletto Bianco*, produced by a major manufacturer in the country. The commercial name *Pan Bauletto* also gave rise to a neologism, *panbauletto*, since the product became very popular as the basis for many recipes, although it has not yet been lemmatized in dictionaries. The *Pan Bauletto Words for Food* article (Figure 2) allows for a better understanding of the product's characteristics and provides a quick overview of the *ALMA* articles on common and technical terms used in the food sector. This bread, which resembles the traditional English loaf, takes its name from the curved shape of the top of the slices, which makes it resemble a portmanteau, or *baule* in Italian.

The WF articles collect the data necessary to understand the named objects and also complement the information provided in the WCF articles on food labelling. This information is particularly relevant for clarifying the nature of products containing ingredients used in industry but not common in homemade preparations, such as *malt flour*, *gluten*, or *inverted sugar*, to name a few. Many of these ingredients, as well



as food additives, are rarely known to consumers, and *ALMA* aims to offer prompt support regarding them to its users.

<b>Pan Bauletto</b> <span style="float: right;">→ words for choosing food</span>	
Lemma	variants: <i>panbauletto</i> (graphic variant due to univerbation), <i>pane bauletto</i> (lexical variant, without loss of the final vowel -e)
Type	Products; Bread. Ordinary language
Morphology	<i>Pan Bauletto</i> , compound word <i>Pan</i> (shortening of <i>pane</i> n. m. 'bread') <i>Bauletto</i> (n. m., derived word on the base <i>baule</i> 'case' + evaluative suffix -etto, with the meaning 'little case')
Semantics	Metaphor: the shape of the loaf from the mould in which bread is baked A very soft type of loaf, made with olive oil, with an elongated, rounded shape resembling that of a trunk. It is widely used for stuffed sandwiches, savoury snacks and as a basic ingredient in many recipes.
Meaning	<i>Io, come te, faccio il pane a lievitazione naturale, a volte tipo pan bauletto</i> <i>Ho fatto anche un pan bauletto più dolce</i> <i>dividere a metà la salsiccia, schiacciare per bene sulla fetta di pan bauletto</i> <i>Sopra il panbauletto mettete la crema di ricotta</i> <i>Mi piace molto questo pane bauletto di farro integrale biologico</i> <i>Il pane bauletto è un ottimo sostituto del pane fresco</i>
Hypernym	<i>pane in cassetta</i> , multi-word, 'bread baked in a box', 'sandwich bread', 'pullman bread'
Co-hyponym	<i>Pancarré</i> , compound n. m. : <i>pan(e)</i> + <i>carré</i> adj. 'squared' (false French loanword)
Source	Written sources: corpora; website of bread company; advertising images; bread packs
Previous and following levels	-1 dough; 2 bruschetta
Etymology	From a Product Name, originally registered by ESKA Snc Di Scucchiario Lino & Co (19/10/2007 UIBM), now produced by Mulino Bianco (trademark)
Ethno-socio-psycholinguistic implications	"Attenzione, il pancarré è superato; adesso si tosta una cosa chiamata Pan Bauletto"
Notes	



Fig. 2: *Pan Bauletto* Word for Food article in *ALMA* translated into English from the original Italian article

To effectively capture the characteristics of food products, an ontological model developed specifically for these types of concepts by Silvestri in various studies is used (see *inter alia* Silvestri, 1999; 2002). Foods are considered as “products” within a supply chain defined by different “procedures” representing the work required to produce and consume them. This methodology traces production chains through different “processing stages,” from the production of ingredients to food consumption practices, including events such as meals; a sketch of this ontology is provided in Caruso & di Pace (2024).

Four main types of information are provided in the lexicographic entries of the *Words for Food* articles: i) formal aspects of the lemma (its variants, morphological description); ii) its semantics; iii) relevant phraseology; and iv) ethno-socio-anthropological implications.

The semantic description offered in the articles refers to the ontological organisation of *ALMA*'s data. It briefly presents the different ‘levels of processing’ (indicated as ‘previous and following levels’ in the form), the paradigmatic dimension (synonyms/antonyms, holonyms/meronyms), and the type of word, i.e., whether it lexicalizes a product or a process and whether the lexicalization is a metaphor, metonymy, or synecdoche. These specifications enable users to search the database to obtain lists of lemmas corresponding to the mentioned typologies.

### 3. A Lexicographic Method for Label Analysis

The three objectives outlined above – collecting different types of product names, understanding marketing strategies that influence consumer motivation in food purchases, and addressing the lack of transparency in the information provided to consumers – are achieved through a systematic study of food labels. This study is conducted using a lexicographic approach, which serves as the basis for creating WCF articles. These synthesise the characteristics of food labels on the basis of both the “mandatory” information required by law and the “voluntary” information provided by the manufacturer.

The method of analysis and description used is based on the structuralist decomposition method used for dictionaries by H. E. Wiegand (Wiegand, 1984; Wiegand & Smit, 2013). The first step in this procedure is to identify the macro-components to be analysed, in our case the “faces” of the packaging, which are then broken down into individual items, i.e., units with a specific function that can also be further segmented. Figure 3 illustrates this method with the segmentation of a *Pan Bauletto* pack sold in Italy, the back of which has been broken down into 16 *items*<sup>2</sup>, some of which have been further subdivided into their constituent elements.

The *item* numbered as 3, for example, includes the product name required by law (indicated as 3a, see § 3.2) and the list of ingredients (3b), whose progressive number is registered and used as a reference to illustrate the characteristics of the packaging (see Table 1).

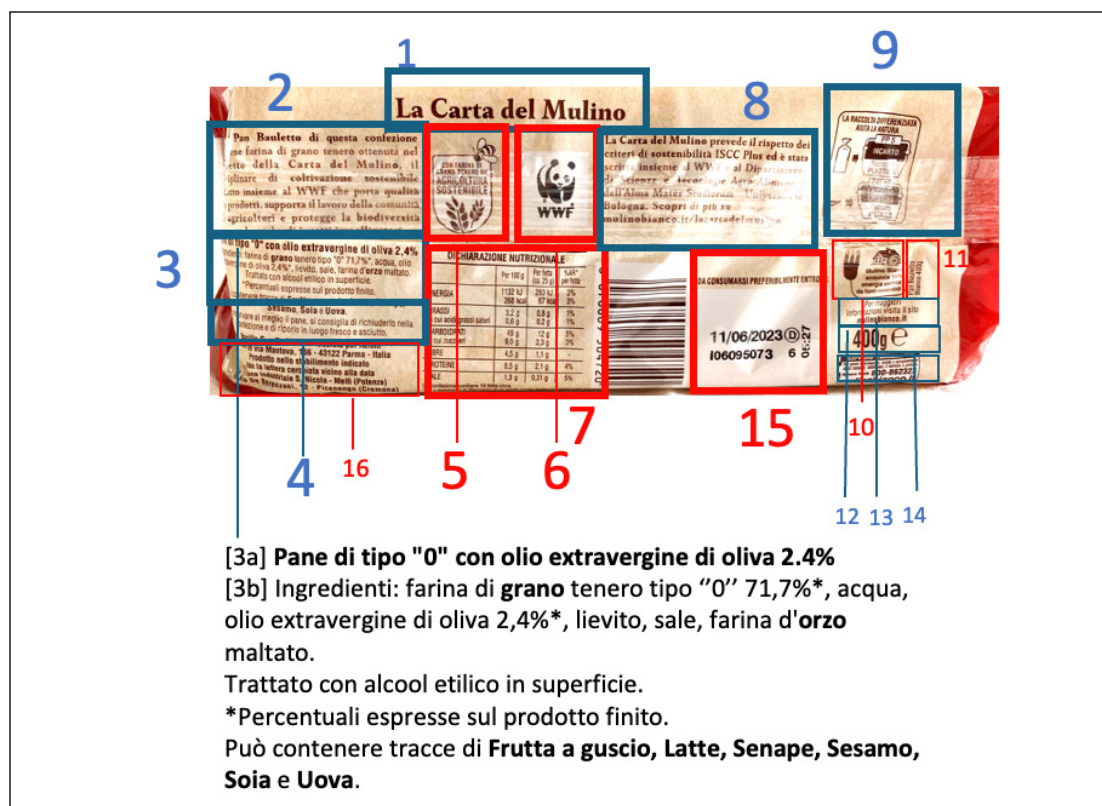


Fig. 3: Example of decomposition of a food label

<sup>2</sup> The terminology used here follows that introduced by Wiegand in his *General Theory of Lexicography* (see *inter alia* Wiegand, 1984; Wiegand & Smit, 2013).

**Table 1:** Segmented packaging *items* with the corresponding “purchase motivation” and aspects of lack of transparency (or “issues” in the form)

n°	element	Type	purchase motivation	side	issues	specification	notes
8	La Carta del Mulino prevede il rispetto prevede il rispetto dei criteri di sostenibilità ISCC Plus...	Text	natural content	back	obscurity		acronym “ISCC Plus”
3b; 18	Farina di grano tenero tipo “0”	ingredients	natural content	back	obscurity	bold type	do not explain that bold types highlight an allergen
3b; 27	Frutta a guscio	ingredients		back	obscurity	capital letter	anomalous use of capital letters
5	pictogram	logo with text	natural content	front	replication		
5	pictogram	logo with text	ethical content	front	replication		
2	Mulino Bianco	company name	ethical content	side2	replication	bee icon	
2	Ogni Pan Bauletto di questa confezione...	text		back	repetition	textual	2, 8
2	Ogni Pan Bauletto di questa confezione...	text	ethical content	back	repetition	inter-semiotic	2, 6, 8
3b; 21	lievito	ingredients		back	vagueness		which yeast type?

The *item* collection provides a basis for outlining the label features according to the dimensions listed above (points: § 2.1, a, b, c). These features are supplemented in a lexicographic article of the type exemplified in Figure 4.

The article offers linguistic data as the first piece of information, lemmatising the primary name of the product, which is generally a product name (or commercial name, Vaxelaire, 2014) used for marketing purposes displayed on the principal field of vision (or ‘front of pack’). A morphological segmentation follows, analysing the components of the name used in the industry (Forte & Della Penna, 2017, § 3.2). In the case of *Pan Bauletto Bianco*, the line name is *Pan Bauletto*, as many other types of this bread are produced, and the product is called simply *Bianco* (‘white’), which is a collocate standing for ‘wheat flour’. For a strictly morphological analysis based on linguistic principles, the user is referred to the general WF article on *Pan Bauletto*.

Name on the Front of the Pack/Primary Name FOP	<b>Pan Bauletto Bianco</b> Line and Product name
Morphology	<i>Pan Bauletto Bianco</i> , multi-word <i>pan bauletto</i> → words for food, n. m. (compound), line name <i>bianco</i> , adj., product name
Semantics	<i>Pan Bauletto</i> ; <i>bauletto</i> = metaphor (from the shape) <i>Bianco</i> = with wheat flour
Secondary Name BOP	<b>Pane di tipo «0» con olio extravergine di oliva 2.4%</b> , multi-word (legal name+specification) <i>Pane di tipo «0»</i> , legal name <i>con olio extravergine di oliva 2.4%</i> , specification of the additional ingredient
Pack Items 48	Ingredients 16, Logo with text 4, Slogan 3, Line and product name 3, Text 3, Image 3, Company name 3, Pictogram with text 2, Product description 1, Manufacturer 1, Date 1, Title of text 1, References for the consumer 1, Name required by law 1, Nutrition table 1, Weight 1, Logo 1, Product identification 1, Storage conditions 1
Purchase motivation average per item 1,35	48 items, which mostly offer information related to health protection, the naturalness of the product and respect for ethical choices (through reference to specific agricultural disciplinary rules, drawn up in collaboration with public institutions and non-governmental organisations).  none 34% health 19% ethical 18% natural content 18% sensory appeal 9% weight control 1%
Item Issues average per item 1,18	The label is characterised by redundancy (44% of the items, replication + repetition) and contains elements that may be difficult to understand (25%, obscurity + vagueness)  none 43% replication 32% obscurity 23% repetition 12% vagueness 2%
Manufacturer	M*** B***

Fig. 4: An article from *the Word for Choosing Food* in ALMA: Pan Bauletto Bianco. The article has been translated into English from the original Italian.

Information on semantics provides a more comprehensive explanation of the product name and affords the lexicographer the opportunity to analyse marketing strategies in product naming. This aspect is not as thoroughly explored in the case of *Pan Bauletto Bianco*, as its naming relies on a simple metaphor, namely the word *bauletto* which is derived from the curved upper side of the bread. However, readers of this paper are well aware of many product names that stand out for the savvy associations they evoke. *Q-tips*, a famous product name for cotton swabs, is considered to have gained commercial success after its naming, with the “Q” standing for ‘quality’ and perhaps subliminally evoking the shape of ears.

The secondary name, typically printed before the ingredients list, is the name required by law, as it will be explained in a moment (§ 3.2). The other sections of this article point towards describing the richness of the packaging contents, providing a count of the *items* as indicated by the “Pack items” search zone<sup>3</sup> (48 on the label of *Pan Bauletto Bianco*, see Figure 4). They also highlight the producers’ efforts to pursue special marketing strategies by indicating “Purchase motivation[s]” (see the corresponding search zone in the article), which can be fostered by specific label features, and the issues (“Item issues” search zone) that users can experience when interacting with the label. These issues may hinder consumers’ ability to make informed purchase choices, especially with regard to elements of obscurity, vagueness, and ambiguity.

<sup>3</sup> Search zones in dictionary articles are aggregated data blocks facilitating the look up process, see Gouws (2014).

### 3.1 Motivation in the Choice of Foodstuff

The different purposes for which producers decide to present certain contents on labels align with the motivations behind dietary choices of consumer segments (“Purchase motivation” search zone). These motivations are discussed extensively in the literature (starting with Steptoe, Pollard, & Wardle, 1995), which highlights how consumers may be guided by considerations related to: a) health (seeking proper nutrition or foods considered healthier than others); b) *natural content* (preference for foods free of pesticides, preservatives, etc.); c) sensory appeal (choice of food not only on the basis of taste but also on the basis of smell and appearance); d) weight control (choice on the basis of calories information, etc.); e) familiarity (tendency to prefer what is perceived as familiar rather than new); f) ethic concern (environmental concerns, e.g., choice of not eating meat, but also preference for food packaged in recyclable materials); g) convenience; h) price; i) mood (as systematised by Cavazza & Guidetti, 2020, pp. 15–16).

In analysing the *Words For Choosing Food*, each *item* on the label is linked to a specific purchase motivation. Hence, the term “Words For Choosing Food” is employed, as all elements on food labels aim to guide consumer product choices.

### 3.2 Legal Names, Commercial Names and Lemmatisation Issues

The initial challenge in compiling concise descriptions of food labels in the form of lexicographic entries, as exemplified in Figure 4, arises from lemmatisation.

As illustrated in Figure 1, the product names of industrial food items are primarily determined by manufacturer-established principles (Forte & Della Penna, 2017). A specific name identifies the product line (e.g., *Pan Bauletto*), followed by specifications that can be used to distinguish different types of the same line: e.g., *Pan Bauletto Integrale*, *Pan Bauletto di Grano Duro*, *Pan Bauletto Cereali e Soia*.

However, in addition to these commercial names, there must be a name with legal value, which is the only one required to trade a food product in the European Community and the United Kingdom. There are, however, a number of critical aspects to be considered in relation to this legal designation.

First of all, there are three types of names by which a food can be designated. Their differences are due to: the existence of specific laws for certain types of products, the availability of common names in linguistic usage and, in the absence of the former, the need to designate foods clearly enough to enable consumers to “understand their nature” (EU 1169/2011, Art. 1, 2, p). The choice of one type of name over another is thus limited: only in the absence of the first type, or *legal name*, can one resort to the second, *customary name*, and thus to the third, *descriptive name*. The contradictory nature of the terminology introduced by the legislator must be emphasised, as all the proposed names hold legal value, yet the adjective *legal* is used to refer to only one of them (*the legal name*). In the absence of an appropriate hypernym to denote all three

types of names, we have opted for *name required by law* as the more general term in the context of this research.

### 3.3 Current Strategies in Pre-Packaged Food Naming

A preliminary analysis of a number of Italian products (Caruso & di Pace, in press) has made it possible to outline the practices used in the naming of foodstuffs in the country. Firstly, there is a multiplicity of names on the same packaging (sometimes up to five), secondly, there is a great variation in the *names required by law* of products from the same line and, finally, there are cases of poor fidelity to *realia* due to the misuse of common names.

This phenomenon is observed in the case of the ‘plum cakes’ of a well-known Italian company. This name is currently used in Italy for a very popular snack. In everyday usage, the term *plum cake* refers to a fluffy sponge treat made with yogurt rather than the traditional British ‘plum cake’. However, the *plum cakes* in this line are called *brioche* by the manufacturer in their *descriptive name* (or the *name required by law* in Table 2):

**Table 2:** Examples of the different designations used as *names required by law* of products from the same line, by the same manufacturer, compared to the *commercial name* and the additional designations used on the same pack

Commercial Name	Name Required by Law	Additional name
PlumCake Classico	Brioche preparata con yogurt	Merende
PlumCake con Granella di Mandorle e Ricotta	Brioche con mandorle e ricotta, senza zuccheri aggiunti, con edulcoranti con aggiunta di calcio	
PlumCake Integrale	Brioche preparata con farina integrale di frumento e yogurt	Merende

However, it is well known that brioche belong to the family of ‘enriched doughs’, as they are described in gastronomic glossaries or:

[a] dough made with butter, sugar, eggs or oil. Enriched doughs are softer and richer than those made solely with flour, water, salt and yeast. Examples include brioche and hot cross buns. (Baking Glossary)

Other questionable practices concern the use of modifiers within the descriptive name. Sometimes evaluative adjectives are used that one would not expect to find in a *name required by law*. For example, another Italian manufacturer’s ‘plum cake’ is a “Prodotto dolciario da forno. Merende di soffice Pasta Margherita preparata con Yogurt Magro” (En. ‘Bakery confectionery. Snacks made of soft sponge cake dough prepared with low-fat yoghurt’). Note in this detailed description the specification of the ‘fluffiness’ of the sponge cake and the different ways of referring to the snack cake, both as a “baked confectionery product” and the classifier “snacks made of.”

Likewise, the descriptive names coined by manufacturers are very complex text strings, sometimes small captions, which need to be properly described and segmented.

The anomalies of the names already illustrated, such as a yoghurt snack being described as an ‘enriched dough’, will be clarified for the end user of *ALMA* thanks to its mediostructure, which will allow hyperlinks between WCF and WF articles. The latter in fact contain the encyclopaedic information necessary for the user to fully understand any descriptive inaccuracy.

### 3.3.1 Redundancy

For a proper assessment of packaging features, the proliferation of synonyms referring to the same product is recorded as a case of “redundancy.” Other elements contributing to this effect are “repetitions” and “duplicates”, which can also occur in an intersemiotic dimension (see Jakobson, 1959) when logos, images, or pictograms are used that refer to the same contents presented in discursive form within texts.

On the packaging synthesised by the entry in Figure 1, two texts (item 2 and item 8 in Figure 3) appear emphasising how the company adheres to a discipline that promotes sustainable agriculture and ethical principles:

Each Pan Bauletto in this pack contains wheat flour obtained in accordance with the [Manufacturer’s name] Charter, the sustainable cultivation specification drawn up together with the WWF, which brings quality to the products, supports the work of the farming community, and protects biodiversity by also encouraging pollinating insects. (text of *item 2* on the *Pan Bauletto* pack in Fig. 3)

Logos 5 and 6 communicate the same principles, and the image of the wheat ear on the front of the pack (reproduced in Figure 4) reaffirms the same ethical content. Furthermore, logo 5 is replicated on three different faces of the pack.

These aspects of redundancy represent one of the descriptive parameters used in the WCF entry, listed alongside aspects of lack of transparency among the “Item issues.” A mean is provided for these elements: in the case of *Pan Bauletto Bianco*, an average of 1.18 “Item issues” and of 1.35 “Purchase motivation[s]” per *item* has been identified.

### 3.3.2 Lack of Transparency

The elements that lack transparency are also registered, illustrated and classified as cases of “vagueness”, “ambiguity” or “obscurity.” In this context, we define “transparency” as the ability of a text to be accurately interpreted by its intended user. Vagueness occurs in all cases where the meaning of the term is not defined and circumscribed (Cruse, 1986, p. 81; Ježek, 2005, p. 70). For example, classificatory adjectives such as *high/low*; *young/old*; *beautiful/ugly* are generally considered to be vague because there are no explicit parameters or scales of reference to guide their use. Similar examples are common on food packaging, especially regarding storage instructions. For packaged bread, it is generally stated: “Store in a cold, dry place, away from sunlight”, but it is not clear how many degrees guarantee that a place is sufficiently “cold” or what conditions determine its dryness.

In contrast, a term is “ambiguous” when several meanings are legitimate (see also Cruse, 1986, pp. 49–68). For example, to the Italian noun phrase *zucchero cristallino*<sup>4</sup> two different values are ascribed in general language dictionaries. For De Mauro, the multi-word has the technical-scientific meaning of “solid matter that appears in the form of a crystal or an aggregate of crystals: *crystalline sugar, crystalline ice*.” The Treccani, on the other hand, claims a ‘commercial’ use to designate the product of the “first crystallisation [of sugar], purified and dried, which is produced for industrial use”, and which is distinct from “refined or granulated sugar.”

Obscurity, on the other hand, concerns expressions that cannot be interpreted, either because of information gaps in the text itself or because of insufficient knowledge on the part of the interpreter/consumer. In this regard, for *ALMA*, we opted to utilize general language dictionaries as a reference point to evaluate the accessibility of information for consumers. In instances involving terminological neologisms, corpora were consulted for verification. For example, the term *panbauletto* discussed earlier is currently in use with the meaning described in the WF article of Figure 4, as evidenced by corpus attestations (cfr. Caruso & di Pace, 2024).

#### 4. Concluding Remarks

This paper has outlined the features of a new type of lexicographic article intended to provide a concise yet explanatory description of food labels.

The proposal aims to address consumers’ information needs in alignment with the purposes indicated by the most recent legislation in effect in the EU.

It is expected that the analysis, based on lexicographic principles, will enhance consumers’ understanding of food labelling and assist legislators in refining regulations. Consumers are presented with concise descriptions – such as those in Table 1 – of label components aligning with different purchase motivations and others that lack transparency. Furthermore, they are presented with specific linguistic analysis and encyclopaedic information to acquire better knowledge on food topics and make better informed purchase choices.

Lastly, legislative terminology and the analysis of food designations appearing on labels can be the subject of more specialised analysis in dedicated publications (Caruso & di Pace, in press).

#### References

Albert, J. (Ed.). (2014). *Innovations in Food Labelling*. Elsevier – Woodhead Publishing.

Baking Glossary, *Baking As Lifestyle Medicine Glossary*. Retrieved June 2, 2024, from <https://www.sourdough.co.uk/glossary/enriched-dough/#:~:text=A%20dough%20made%20with%20butter,brioche%20and%20hot%20cross%20buns>

<sup>4</sup> The noun phrase appears in a descriptive name such as “Croissant con zucchero cristallino in superficie”, En. ‘croissant with crystalline sugar on the surface’.



Berryman, P. (Ed.). (2015). *Advances in Food and Beverage Labelling. Information and Regulations*. Elsevier – Woodhead Publishing.

Caruso, V., & di Pace, L. (2024). I saperi alimentari e la loro descrizione linguistica e multimodale. Esempi da *ALMA: Atlante Linguistico Multimediale della diversità Alimentare bio/culturale*. In L. Cirillo, & R. Nodari (Eds.), *Contesti, pratiche e risorse della comunicazione multimodale* (pp. 45–63). Studi AITLA.

Caruso, V., & di Pace, L. (in press). Analisi linguistica delle etichette alimentari: la questione delle denominazioni tra circolarità normativa e vaghezza terminologica. In J. Altmanova, M. Centrella, & C. Grimaldi (Eds.), *Terminologia del patrimonio culturale materiale e immateriale: analisi e approcci di studio*. Peter Lang.

Cavazza, N., & Guidetti, M. (2020). *Scelte alimentari*. Il Mulino.

Cruse, D. A. (1986). *Lexical Semantics*. Cambridge Textbooks in Linguistics.

De Mauro, *Il nuovo De Mauro*. Retrieved June 2, 2024, from <https://dizionario.internazionale.it/>

di Pace, L. (2019). *La lingua del bugiardino. Il foglietto illustrativo tra linguaggio specialistico e linguaggio commune*. Franco Cesati Editore.

Forte, M., & Della Penna, A. (2017). *L'Oréal e la Vache qui Rit*. Analisi semio-linguistica di due nomi commerciali Francesi. *Lingue e Linguaggi*, 22, 81–96. DOI 10.1285/i22390359v22p81

Gouws, R. H. (2014). Article Structures: Moving from Printed to e-Dictionaries. *Lexikos*, 24, 155–177. <https://doi.org/10.5788/24-1-1256>

Jakobson, R. (1959). On Linguistic Aspects of Translation. In R. Brower (Ed.), *On Translation* (pp. 232–239). Harvard University Press.

Ježek, E. (2005). *Lessico. Classi di parole, strutture, combinazioni*. Il Mulino.

REGULATION (EU) No 1169/2011 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 25 October 2011 on the provision of food information to consumers.

REGULATION (EU) No 2022/2313 OF COMMISSION IMPLEMENTING REGULATION (EU) of 25 November 2022 entering a name in the register of traditional specialities guaranteed (Pizza Napoletana (TSG)).

Rüdiger, S., & Mühleisen, S. (Eds.). (2020). *Talking about Food: The social and the global in eating communities*. John Benjamins Publishing Company.

Silvestri, D. (1999). Demografia, sistemi agrari, regimi alimentari nel mondo antico. In D. Vera (Ed.), *Atti del Convegno Internazionale di Studi (Parma 17-19 ottobre 1997)* (pp. 345–365). Edipuglia.

Silvestri, D. (2002). Introduzione. In D. Silvestri (Ed.), *Apriti, sesamo! "Bollettino dell'Atlante Generale dell'Alimentazione Mediterranea* (pp. 9–13). Quaderni di AION n.s. 4. Il Torcoliere.

Smith, V., Barratt, D., Møgelvang-Hansen, P., & Wedel Andersen, A. U. (2022). *Misleading Marketing Communication. Assessing the Impact of Potentially Deceptive Food Labelling on Consumer Behaviour*. Palgrave MacMillan.

Steptoe, A., Pollard, T. M., & Wardle, J. (1995). Development of a Measure of the Motives Underlying the Selection of Food: The Food Choice Questionnaire. *Appetite*, 25(3), 265–284. <https://doi.org/10.1006/appe.1995.0061>

Tovares, A., & Gordon, C. (Eds.). (2020). *Identity and ideology in digital food discourse: Social media interactions across cultural contexts*. Bloomsbury Academic.

Vaxelaire J.-L. (2014). Point de vue sur les noms déposés. In M. Van Campenhoudt, N. Lemaire, & R. Temmerman (Eds.), *Traduire aux confins du lexique: les nouveaux terrains de la terminologie. Cahiers de linguistique. Revue de sociolinguistique et de sociologie de la langue française* 40(2), 159–176.

Vocabolario Treccani online. Retrieved June 2, 2024, from <https://www.treccani.it/vocabolario/>

Wiegand, H. E. (1984). On the Structure and Contents of a general Theory of Lexicography. In R. R. K. Hartmann et al. (Eds.), *LEXeter '83 Proceedings* (pp. 13–30). Max Niemeyer.

Wiegand, H. E., & Smit, M. (2013). Microstructures in printed dictionaries. In R. H. Gouws, U. Heid, W. Schweickard, & H. E. Wiegand (Eds.), *Dictionaries. An International Encyclopedia of Lexicography: Supplementary volume. Recent Developments with Special Focus on Computational Lexicography* (pp. 149–214). Mouton de Gruyter.

Yuka App, *Yuka – Food & Cosmetic Scanner*, Yuca, SAS, Paris: France <https://yuka.io/>, last update May 2024.

## Acknowledgements

This work is part of a research project funded by the Department of Literary, Linguistic, and Comparative Studies at the University of Naples “L’Orientale”: *ALMA: Multimedia Linguistic Atlas of Bio/Cultural Food Diversity*, coordinated by Anna De Meo (DR No. 0007984 of 02/01/2022, Rep. 75/2022).

This work is the result of continuous collaboration between the authors. However, Valeria Caruso is responsible for paragraphs 2, 2.2, 3, 3.3.1, 3.3.2, while Lucia di Pace is responsible for paragraphs 1, 3.1, 3.2, 3.3, 4.

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## OLD WORDS, NEW TERMS



**Abstract** Although the ‘Circular Economy’ has been widely discussed in the media for years, general dictionaries still do not provide the relevant definitions and/or collocations. We show by examining dictionary definitions that many salient words used in this field have undergone varying degrees of semantic broadening in the general language. Current terminological needs often dictate more precise meanings than those used in the general language, in essence leading to semantic narrowing. We discuss these two seemingly opposing forces in relation to a small set of words from the ‘Circular Economy’ and show how this sort of semantic development is easily accounted for within the Communicative Theory of Terminology.

**Keywords** Circular Economy; Communicative Theory of Terminology; sense broadening; sense narrowing of terms

### 1. Introduction

Working towards a sustainable environment is a topic of considerable public interest and as a result, economists, environmental scientists, policy makers and the public at large increasingly refer to the concept of ‘Circular Economy’. As is the case with several sub-fields within a social science, the terminology employed when speaking about this topic is primarily taken from words that already occur in the general lexicon. This type of situation often poses a challenge for defining the terms used in the field, because the expressions being used already exist and often show a significant degree of polysemy and variation in use and meaning.

In this paper, we discuss the development of several salient expressions associated with the terminology of the ‘Circular Economy’ in English and Spanish. The paper is structured as follows. We first briefly set forth the theory of terminology we adopt, the Communicative Theory of Terminology (Cabr , 1999; Cabr , 2023). We then discuss the definition of ‘Circular Economy’ and identify a small number of expressions commonly found in texts on this topic which will be the object of analysis. The fact that several of the lexical items studied have long been in use in general, non-specialized domains has historically led to a significant degree of polysemy, while the recent terminological use of the same expressions leads to semantic narrowing. We also discuss the inclusion and representation of these expressions in current dictionaries of reference of English and Spanish, and conclude by commenting on the terminological needs for this growing field of interest.

## 2. Communicative Theory of Terminology

The Communicative Theory of Terminology (Cabr , 1999; Cabr , 2023) is an integral approach to terminology that brings together cognitive, social and linguistic factors. Importantly, terminological units are lexical items or lexicalized units, the specialized domain character of which is activated in certain communicative contexts. Terminological units are typically nouns; nevertheless, terminological units may also belong to other lexical categories, such as verbs and adjectives. In the Communicative Theory of Terminology terminological units are linguistic units and as such may display variation in form, meaning and function, and as such the vocabularies of specialized domains display synonymy and polysemy. We believe that this theory is particularly well-suited to analysing terms from specialized domains in which the vocabulary has been taken from existing expressions, as lexical items that have been long been in have often undergone varying degrees of semantic change.

A consequence of Cabr 's linguistic-based approach to terminology is that lexicographic representation in general language dictionaries is not fundamentally different from terminographic representation in special subject domain terminologies because there is no clear-cut structural division between the general lexicon and terms; rather, the difference between lexicographic representation and terminographic representation is one of the thematic constraints on terminographic products. Terminological units, then, may be seen as senses of lexical units that are activated in a context of specialized communication (whether that be between experts or between experts and laymen). In Cabr 's theory, diachronic studies, specifically those on lexical change in special subject domains, are of interest (Lorente Casafont, 2024, pp. 278–279).

It is important to bear in mind that a traditional terminological definition formulated within the General Theory of Terminology (W ster, 1968) typically applies to nouns in the natural sciences and in technological fields and assumes that concepts are easily delimited. W ster and his school of thought believe that concepts can be univocally defined in individual specialized subject domains, which often results in several homonymous terms belonging to different, well-defined subject domains. The Communicative Theory of Terminology differs from the General Theory of Terminology in many aspects that are discussed at length in Cabr  (1999), Cabr  (2003) and elsewhere (see, for example, Faber and L'Homme, 2022) and as such we will not engage in a comparison here, but rather affirm that we have chosen to consider the vocabulary of the 'Circular Economy' through the lens of the Communicative Theory. Given the Communicative Theory's linguistic foundations, a look at the semantic history and use of the main words associated with this topic, as well as their morphological structure, should provide insight into the nature of common words that take on lexicalized, terminological status in certain contexts.

### 3. The ‘Circular Economy’



What is a ‘Circular Economy’, other than an economy that is in some way opposed to a ‘Linear Economy’? Murray et al. (2017, p. 371) state that it is an economy that has “no net effect on the environment; rather it restores any damage done in resource acquisition, while ensuring little waste is generated throughout the production process and in the life history of the product.” They also state that the origin of the term is debatable, although they place it at an undetermined moment in the 1960s.

The definition given by Murray et al. is not exactly the same as that given by the European Parliament (2016), which states “Circular economy: an economic model based *inter alia* on sharing, leasing, reuse, repair, refurbishment and recycling, in an (almost) closed loop, which aims to retain the highest utility and value of products, components and materials at all times.” We note that the European Parliament’s definition makes no mention of restoring damage to the environment; rather, it concentrates on making optimal use of products (which are shared, leased, reused, repaired, refurbished and recycled).

Neither of these definitions is particularly good by lexicographic standards. In Murray et al.’s definition, “no net effect on the environment” is equated with generating “little waste”, but those two concepts are not equivalent because, presumably, any amount of waste generated has some effect on the environment. The European Parliament’s definition is not much better, as it introduces a hedge (“(almost) closed”) and states that the ‘Circular Economy’ is an economic model based on six different types of actions applied to products and on some other, unidentified actions as well (the reference to “*inter alia*”). Although neither of these works is a dictionary and thus definitions do not have to meet the same standards as those written by lexicographers, they nevertheless introduce elements of ambiguity that could have been avoided, particularly since several of the concepts mentioned are increasingly the object of binding legislation in the European Union (e.g., the right to repair directive adopted by the European Parliament in April 2024, legislation on waste management, legislation on plastic recycling, to name only three (European Parliament, 2024)). In fact, it is precisely because issues associated with the ‘Circular Economy’ are becoming law in an international context that they demand clear, unambiguous and perhaps standardized definitions.

Several—but not all—major dictionaries of English include ‘Circular Economy’ (not necessarily capitalized) as a headword. The *Oxford English Dictionary* currently defines ‘circular economy’ as follows:

An economic system in which the journey of a product, material, etc., leads back in some way to where it began; (now *esp.*) a system or process which seeks to minimize or remediate harm to the environment by recycling, reusing, or regenerating products or materials, as a means of reducing waste and more sustainably or efficiently continuing production.<sup>1</sup>

<sup>1</sup> This definition was first published in the OED in 2021.

The first recorded use of this expression dates back to 1932. A Google search for ‘circular economy’ yields a simpler definition from Oxford Dictionaries: “an economic system based on the reuse and regeneration of materials or products, especially as a means of continuing production in a sustainable or environmentally friendly way.” ‘Circular economy’ is defined in the *Collins English Dictionary* (“an economic system based on using renewable resources, eliminating waste, and reusing and recycling material goods”), but is not listed as a lexicalized phrase by *Merriam-Webster Online* in either the *Unabridged Dictionary* or the *Collegiate Dictionary*, nor is it included in either the *American Heritage Dictionary of the English Language* or in *Cambridge English Dictionary Online* (at the date of writing, June 2024). This absence may be due to the fact that the phrase was simply not frequent enough to warrant dictionary inclusion when the dictionary in question was being prepared, or to the fact the lexicalized phrases—as opposed to individual words—are poorly represented in general language dictionaries. In this respect, its absence from the *Cambridge English Dictionary Online* is perhaps surprising because this online resource provides extensive lists of related words and phrases, and includes a vocabulary cloud titled “Environmental issues” containing phrases such as *carbon tax* and *eco-footprint*, both of which are clearly more recent in creation than ‘circular economy’ (the *Oxford English Dictionary* dates *carbon tax* to 1979 and *eco-footprint* to 2002).

Dictionaries of Spanish similarly show uneven inclusion of the expression ‘*economía circular*’. The *Diccionario de la lengua española* by the Spanish Royal Academy in its most recent electronic edition<sup>2</sup> does not include the phrase. The online commercial lexicographic resource *Diccionarios.com*, however, does include the phrase under the headword ‘*economía*’, and its definition is similar to that given by Oxford Dictionaries, although it also specifically contrasts the concept of ‘Circular Economy’ with that of ‘Linear Economy’:

*Modelo económico que persigue producir bienes de modo sostenible, potenciando la reutilización y el reciclado de los productos más allá de su vida útil: en contraste con la economía lineal, basada en la lógica de usar y tirar, la economía circular busca dar siempre una nueva vida a los productos.*<sup>3</sup>

### 3.2 Vocabulary of the ‘Circular Economy’

To determine a small set of lexical expressions frequently used in conjunction with the ‘Circular Economy’ that could be analysed within the scope of this paper, three documents of reference were consulted: The European Parliament’s 2016 briefing on the ‘Circular Economy’ in English; the European Commission’s 2020 “Circular Economy Action Plan for a Cleaner and More Competitive Europe,” in both English and Spanish; and, the “Circular Economy Glossary” published online by the Ellen Macarthur Foundation in both English and Spanish. The following expressions were chosen, as they were all found in all three sources, as well as being prominent in the definitions discussed in the previous section:

<sup>2</sup> We are referring to the seventh online update of the 23<sup>rd</sup> edition.

<sup>3</sup> Our English translation of the original Spanish: ‘An economic model that aims to produce goods in a sustainable fashion, emphasizing the reuse and recycling of products beyond their useful life: in contrast to the linear economy, which is based on the idea of use and disposal, the circular economy always aims to give products a new use.’

**Table 1:** Words chosen for study

English	Spanish
<i>circular</i> [adjective], <i>circularity</i>	<i>circular</i> [adjective], <i>circularidad</i>
<i>sustainable</i> , especially <i>sustainable development</i>	<i>sostenible</i> , especially <i>desarrollo sostenible</i>
<i>sustainability</i>	<i>sostenibilidad</i>
<i>recycle</i>	<i>reciclar</i>
<i>reuse</i> [verb]	<i>reutilizar</i>
<i>waste</i> [noun]	<i>residuo/desperdicio/desecho</i>

A cursory examination of these words yields that most are polysemous in general discourse and most are morphological derivatives, and our own knowledge of the history of lexis in English and Spanish indicates that many of these words have been in use in a variety of contexts for generations, if not hundreds of years. We now turn to these characteristics in more detail.

### 3.2.1 Polysemy, Semantic Development, and Morphological Structure of the English Set of Expressions

The English words under study have all been in use for generations, and in some cases, for centuries. The following table provides an overview of the degree of polysemy recorded in two contemporary dictionaries of reference (one originally published in the United States, the other originally published in Britain), along with the date of first use as reported by *Merriam-Webster.com Dictionary*:

**Table 2:** Overview, English expressions<sup>4</sup>

	Number of senses, Merriam-Webster	Date of first known use, Merriam-Webster	Number of senses, Collins English Dictionary
<i>circular</i>	6	15 <sup>th</sup> century	5
<i>circularity</i>	none; run-on entry	not indicated	none; run-on entry
<i>sustainable</i>	2	1924	3
<i>sustainability</i>	none; run-on entry	1924	2
<i>reuse</i>	1	1843	1
<i>recycle</i>	8	1925	4
<i>waste</i>	4	13 <sup>th</sup> century	10

We note that the differences in the number of senses recorded reflects each dictionary’s criteria for determining senses and sub-senses, and a fewer number of senses does not necessarily mean that the dictionary’s coverage of meaning is lacking. The fact that all but one of the expressions is polysemous is interesting and reflects the progressive semantic broadening that these expressions have experienced over time.

<sup>4</sup> The number of senses refers to the major, numbered sense distinctions under the headword and does not include the number of sub-senses.

The original meaning of adjective *circular* clearly refers to round shape and is still frequently used with that sense according to Sketch Engine, but notably the third most frequent noun it modifies in the English Web 2021 corpus is *economy*.<sup>5</sup> The verb *reuse* has only one sense in both dictionaries, but this is somewhat misleading because the verb on which it is based, *use*, has several current senses in both dictionaries (8 in *Merriam-Webster.com Dictionary* and 6 in the *Collins English Dictionary*).

The oldest English word in this group has undergone semantic broadening over time. The original sense of *waste* is that of 'barren land', although today it is more frequently associated with the sense of 'unwanted by-product of a manufacturing process, chemical laboratory or nuclear reactor'.<sup>6</sup> According to Sketch Engine's Word Sketch feature, the five most frequent modifiers of *waste* are *hazardous*, *radioactive*, *toxic*, *solid* and *plastic*, all of which fall under this latter sense and clearly point to the idea of having a harmful effect on the environment.

All of the words with the exception of *waste* are morphologically derived, and the prefix and suffixes present in these words are frequent and still productive in English. The influence of morphological structure on dictionary representation is a complex issue (DeCesaris, 2020–2021) that we will not delve into here, but it is important to note that derived words often display fewer senses than their base forms. This can be observed in the definitions given in *Merriam-Webster.com Dictionary* for *sustain* and *sustainable*, as the transitive verb *sustain* has 8 senses, most of which are not applicable to the use of the adjective *sustainable* nor to its derived noun, *sustainability*.

**Table 3:** Definitions of *sustain* and *sustainable*, Merriam-Webster.com Dictionary

	<i>sustain</i>	<i>sustainable</i>
<b>Sense</b>		
1	to give support or relief to	capable of being sustained
2	to supply with sustenance : <b>NOURISH</b>	<p><b>a:</b> of, relating to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged  <i>sustainable</i> techniques  <i>sustainable</i> agriculture</p> <p><b>b:</b> of or relating to a lifestyle involving the use of sustainable methods  <i>sustainable</i> society</p>
3	<b>KEEP UP, PROLONG</b>	
4	to support the weight of : <b>PROP</b> <i>also</i> : to carry or withstand (a weight or pressure)	
5	: to buoy up <i>sustained</i> by hope	

<sup>5</sup> The most frequent noun modified by *circular* is *motion*, followed by *saw*, *economy*, and *orbit*.

<sup>6</sup> Definitions have been adapted from *Merriam-Webster.com Dictionary*.



6	<b>a:</b> to bear up under <b>b:</b> SUFFER, UNDERGO <i>sustained</i> heavy losses	
7	<b>a:</b> to support as true, legal, or just <b>b:</b> to allow or admit as valid the court <i>sustained</i> the motion	
8	to support by adequate proof: CONFIRM testimony that <i>sustains</i> our contention	

It is not uncommon in dictionaries of English for morphologically derived words to remain undefined if the dictionary in question defines both the base word and the pertinent affix as a headword (which is the case for *circularity* and *sustainability* in *Merriam-Webster.com Dictionary*; *-ity* is defined as a noun suffix meaning “quality, state, degree”).

Examination of usage data confirms that *sustain* occurs in a wide variety of contexts, whereas *sustainable* currently refers to economics. The data from Sketch Engine (English Web 2021 corpus) shown in Table 4 for the use of *sustain* as opposed to the use of *sustainable* reveal that what is *sustained* in English is quite varied, ranging from *injuries*, *damage*, *wounds*, and *loss* to *growth* and *momentum*. We note that what is *sustained* may have either positive semantic prosody (*growth*, *momentum*) or negative semantic prosody (*injuries*, *damage*, *wounds*, *loss*), and the direct object of the active verb can be either (cf. *sustain damage* vs. *sustain momentum*), although the pattern [**noun** *sustained*] with the postposed participle strongly associates with negative prosody. In contrast, *sustainable* is mainly used to modify *development*, *future*, *goal*, *agriculture*, and *growth*, all of which are part of the ‘Circular Economy’.

**Table 4:** Comparison of Word Sketch data for *sustain* and *sustainable*

Objects of <i>sustain</i>	Nouns modified by <i>sustainable</i>
<b>injury</b> injuries sustained	<b>development</b> sustainable development
<b>damage</b> sustained damage	<b>future</b> a sustainable future
<b>wound</b> wounds sustained	<b>goal</b> sustainable development goals
<b>loss</b> losses sustained	<b>agriculture</b> sustainable agriculture
<b>growth</b> sustain growth	<b>growth</b> sustainable growth
<b>momentum</b> sustain the momentum	<b>practice</b> sustainable practices
<b>fracture</b> sustained a fracture	<b>management</b> sustainable management
<b>concussion</b> sustained a concussion	<b>livelihood</b> sustainable livelihoods

### 3.2.2 Polysemy, Semantic Development, and Morphological Structure of the Spanish Set of Expressions

The Spanish words under consideration all have Latin roots, and all but *residuo* are morphologically derived.<sup>7</sup> The degree of polysemy represented in dictionaries is somewhat less than that observed in English, as shown in Table 5.<sup>8</sup>

Table 5: Overview, Spanish expressions

	Number of senses, <i>Diccionario de la lengua española, Real Academia Española</i>	Number of senses, <i>Diccionarios.com</i>	Comparison with number of English senses, <i>M-W.com / Collins</i>
<i>circular</i>	4	4	6 / 5
<i>circularidad</i>	1	0	0 / 0
<i>sostenible</i>	2	2	2 / 3
<i>sostenibilidad</i>	1	1	0 / 2
<i>reciclar</i>	4	3	8 / 4
<i>reutilizar</i>	1	1	1 / 1
<i>residuo</i>	4	3	
<i>desperdicio</i>	2	2	
<i>desecho</i>	5	3	

We note that the derived words *circularidad*, *sostenibilidad*, and *reutilizar* are defined in the dictionaries with a clear cross-reference to their base words, which is common practice in Spanish dictionaries (Spanish dictionaries do not have a strong tradition of run-on entries, unlike English dictionaries, and they often require the user to refer to definitions under another headword). The verbs with the prefix *re-* are relatively new additions to the Academy dictionary (*reciclar*, in 1984; *reutilizar*, in 2014).

Interestingly, texts on the ‘Circular Economy’ in Spanish use three equivalents for the word *waste* in English: *desecho*, *desperdicio*, and *residuo*. All three have been in use in Spanish for hundreds of years, having been recorded in the earliest dictionaries of the language. The current definitions of these words do not clearly distinguish among the three; for example, the Academy dictionary gives *residuo* as the third sense of *desecho*, and states that both *residuo* and *desperdicio* are synonyms of *desecho*.

<sup>7</sup> The word *residuo* was borrowed from the Latin into Spanish in the 15<sup>th</sup> century and cannot be considered a morphologically derived word in a synchronic analysis of Spanish.

<sup>8</sup> No comparison is shown for *residuo/desperdicio/desecho* because all correspond to *waste*.

Table 6: Definitions, *Diccionario de la lengua española*, 23rd edition<sup>9</sup>

<i>desecho</i>	<i>desperdicio</i>	<i>residuo</i>
1. m. Aquello que queda después de haber escogido lo mejor y más útil de algo. SIN.: restos, sobras, <u>residuo</u> , piltrafas.	1. m. Derroche de la hacienda o de otra cosa. SIN.: despilfarro, derroche, dilapidación. ANT.: aprovechamiento	1. m. Parte o porción que queda de un todo. SIN.: resto, sobrante, excedente, remanente, saldo, resta, rezado, pucho resquicio.
2. m. Cosa que, por usada o por cualquier otra razón, no sirve a la persona para quien se hizo.	2. m. Residuo de lo que no se puede o no es fácil aprovechar o se deja de utilizar por descuido. SIN.: restos, broza, <u>desecho</u> , <u>residuo</u> , despojos. ANT.: aprovechamiento	2. m. Aquello que resulta de la descomposición o destrucción de algo.
3. m. Residuo, basura. SIN.: basura, <u>desperdicio</u> , escoria, <u>residuo</u> , bazofia, broza, piltrafas.		3. m. Material que queda como inservible después de haber realizado un trabajo u operación. U. m. en pl. SIN.: restos, sobras, despojos, <u>desecho</u> , <u>desperdicio</u> , basura, escombros, morralla, escurriduras.
4. m. Desprecio, vilipendio.		4. m. Mat. Resto de la sustracción y de la división. SIN.: resto, diferencia, resta, restante.
5. m. Lo más vil y despreciable.		

These three words have been defined in similar terms for hundreds of years. For example, the definition for *desecho* in the 1780 edition of the Academy dictionary reads as follows: “*Sobra, desperdicio de alguna cosa, el residuo que queda despues de haber escogido lo mejor y util de ella.*”<sup>10</sup>

Corpus data do not clarify the issue much, as all three words are commonly used as direct objects of the verbs *expulsar* ‘expel’, *reutilizar*, *verter* ‘dump’, and *reciclar*. European Union documents tend to refer to *residuos* in Spanish, but we note that the concept of *residual waste* is usually rendered as *desechos residuales*. Although *desperdicio* is common in texts with reference to food, it is not exclusively used as such: although the most frequent modifier of *desperdicio* is *alimentario* (‘food-related’), the second most frequent is *industrializable* (‘able to be industrialized’).<sup>11</sup> It often implies that the waste was not a necessary outcome of the process involved. We have not been able to discern a clear-cut difference between *desecho* and *residuo*, and frequency data from Sketch Engine similarly show that both are in current use and collocate with the same words (*sólido* ‘solid’, *tóxico* ‘toxic’, *peligroso* ‘dangerous’, *radioactivo* ‘radioactive’, among others).

<sup>9</sup> Explanation of abbreviations used in the *Diccionario de la lengua española*: *m.* (masculine gender for a noun); *SIN* (synonyms); *ANT* (antonyms); *U. m. en pl.* (mainly used in the plural); *MAT* (mathematics). Senses that are restricted to a specific geographical area and which are so labelled have not been included in this table. The underlining in red is ours.

<sup>10</sup> The 1780 edition was consulted via the *Nuevo Tesoro Lexicográfico de la Lengua Española*. Our English translation of the original Spanish (which was printed without accents): ‘Leftover, waste from something, the waste that remains after having chosen the best and most useful parts of it.’

<sup>11</sup> According to Word Sketch, Sketch Engine (Spanish Web Corpus 2018).

## 4. Discussion

The lexical items most closely associated with the ‘Circular Economy’ are all in general use in both English and Spanish in a variety of semantic contexts. The key word *circular* may have its origins in a description of a physical reality, but clearly over time its use has been extended to intangible contexts: shapes, motions, orbits, arguments, and economies can all be *circular*. The fact that we now use the lexicalized phrase ‘Circular Economy’ with a fixed, terminological-like meaning does not preclude the use of *circular* in other contexts, some of which display differing pragmatic overtones: *circular* is now a positive characteristic of manufacturing processes, but is a negative feature of arguments or reasoning. Similar observations may be made about other lexical items in this field. *Sustain*, and especially its participial form *sustained*, is commonly used in court proceedings in English (see sense 7 in Table 3 above), but *sustainable* increasingly – and almost exclusively – is used to refer to initiatives that do not harm the environment. The meanings of *sustain/sustainable/sustainability*, like those of the Spanish equivalents *sostener/sostenible/sostenibilidad*, have expanded over time, but in the more recent usage in specialized discourse on waste management and environmental policy, the meanings of these words have become narrower. In essence, the use of these words in a terminological context has initiated the reverse of the historical trend of semantic broadening.

The use of old words from the general language in a new specialized field, in which words are used with terminological intent, is nicely accounted for by the Communicative Theory of Terminology. The terminological sense of expressions is triggered by their use in specialized discourse; e.g., in texts on economics, *sustainable* in the expressions *sustainable development* or *sustainable future* makes use of a specific meaning of *sustainable*. The definition of the terminological sense may be phrased following the same style requirements adopted by a specific dictionary project and does not need to be structurally different from the style used for defining other senses. In our view, then, it is not that *circular* in physics, for example, is a different term from *circular* in economics; rather, the word *circular* is polysemous and takes on different nuances of meaning when used in domain-specific discourse. Those nuances are typically represented in dictionaries as separate senses, often with subject labels.

Given the current social interest in the ‘Circular Economy’, it is somewhat disheartening that several of the dictionaries examined did not afford the expression headword status. We note that the newer sense of *sustainable/sostenible* is now widely accounted for in general language dictionaries, and we would expect that ‘Circular Economy’ will soon find its way into more headword lists. A good dictionary definition of ‘Circular Economy’ would improve on those given in section 3.1 of this paper by eliminating the ambiguity those definitions display; the European Parliament’s definition in particular could be improved by specifying what ‘*inter alia*’ refers to, and this may require substantial rewording of the definition.

## 5. Concluding Remarks

The lexis in the ‘Circular Economy’ provides for a fascinating case of rapidly developing senses for words that have existed for a long time. We have showcased the tension between general lexicological development and specific terminological needs. The words most associated with this field are polysemous, yet present terminological requirements that select and prioritize specific senses in specialized discourse. The need for improved lexicographic representation of the vocabulary in this field is clear, as governments worldwide increasingly enact legislation on the ‘Circular Economy’ that is important to us all. If that legislation is to be binding and enforceable by law, the expressions used must be clearly defined.

## References

- Cabré, M. T. (1999). *La terminología. Representación y comunicación*. Institut Universitari de Lingüística Aplicada.
- Cabré, M. T. (2003). Theories of terminology: Their description, prescription and explanation. *Terminology. International Journal of Theoretical and Applied Issues in Specialized Communication*, 9(2), 163–199. <https://doi.org/10.1075/term.9.2.03cab>
- Cabré, M. T. (2023). *Terminology. Cognition, language and communication*. John Benjamins.
- Circular Economy Glossary / Glosario de economía circular. (2021). Ellen Macarthur Foundation. Retrieved February 4, 2024, from <https://ellenmacarthurfoundation.org>
- DeCesaris, J. (2020–2021). Dictionaries and Morphology. In Z. Gavriilidou, L. Mitits, & S. Kiosses (Eds.), *Lexicography for Inclusion: Proceedings of the 19th EURALEX International Congress*, Vol. 2. (pp. 577–584). Democritus University of Thrace.
- European Commission. (2020). *A new Circular Economy Action Plan for a cleaner and more competitive Europe / Nuevo Plan de acción para la economía circular por una Europa más limpia y más competitiva*. Document 52020DC0098. Retrieved January 22, 2024, from <https://eur-lex.europa.eu>
- European Parliament. (2016). Briefing. Closing the Loop. New Circular Economic Package. Document 5738999. Retrieved January 15, 2024, from [https://www.europarl.europa.eu/thinktank/en/document/EPRS\\_BRI\(2016\)573899](https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI(2016)573899)
- European Parliament. (2024). Topics. Climate and environment. Circular economy. Retrieved July 25, 2024, from <https://www.europarl.europa.eu/topics/en/topic/circular-economy>
- Faber, P., & L’Homme, M.-C. (2022). *Theoretical Perspectives on Terminology. Explaining terms, concepts and specialized knowledge*. John Benjamins.
- Lorente Casafont, M. (2024). La lexicalització dins del canvi terminològic. *Caplletra. Revista Internacional De Filologia*, 76, 277–298. DOI: <https://doi.org/10.7203/caplletra.76.28217>

Murray, A., Skene, K., & Haynes, K. (2017). The Circular Economy: An Interdisciplinary Exploration of the Concept and Application in a Global Context. *Journal of Business Ethics* 140, 369–380. <https://doi.org/10.1007/s10551-015-2693-2>

Sketch Engine. Word Sketch [sustain], [sustainable], [waste], [residuo], [desperdicio], [desecho]. Retrieved May 24, 2024, from <https://www.sketchengine.eu/guide/word-sketch-collocations-and-word-combinations/>

Wüster, E. (1968). *The Machine Tool. An interlingual dictionary of basic concepts*. Technical Press.

### Dictionaries:

*American Heritage Dictionary of the English Language Online*. <https://www.ahdictionary.com/>

*Cambridge English Dictionary Online*. <https://dictionary.cambridge.org/dictionary/>

*Collins English Dictionary Online*. <https://www.collinsdictionary.com/dictionary/english>

*Diccionario de la lengua española. 23<sup>rd</sup> edition, 7<sup>th</sup> online update*. Real Academia Española. <https://dle.rae.es>

*Diccionarios.com*. <https://www.diccionarios.com>. [Portal of Larousse Editorial in Spain and compendium of dictionaries edited by Larousse and Vox]

*Merriam-Webster.com Dictionary*. <https://www.merriam-webster.com/dictionary>

*Nuevo Tesoro Lexicográfico de la Lengua Española*. <https://apps.rae.es/ntlle/SrvltGUILoginNtlle>

*Oxford English Dictionary Online*. <https://www.oed.com>

## Acknowledgements

Work on this paper was supported by the project EVOTERM. *Procesos de lexicalización y complejidad de las comunidades de hablantes en el estudio diacrónico de la terminología y del discurso de especialidad en economía e informática*, reference PID2021-127585NB-I00, financed by the *Agencia Estatal de Investigación* (AEI) of Spain and the European Regional Development Fund (ERDF).

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