New headwords have been inserted between the existing articles. The latter are being optimized during the compilation of the new headwords. In particular, many more synonyms and antonyms are added. This time of the compilation is assisted by data from Opentaal Foundation (including speech indicators, inflected forms of nouns and verbs, and word frequency information) and the Sketch Engine corpus of Dutch. The present lexicographers are Rik Schutz, Truus Kruyt, Wilfried Dabekaussen and Hanne Bussels.

Registered user needs may guide future extensions of the dictionary.

Notes
1 International Phonetic Alphabet.
2 Van Dale Lexicografie, Utrecht-Antwerpen. 2003, 2006.
3 http://taalunieversum.org/taalunie/.
4 Example from the current work.
5 Example from the current work.

Anthropological and linguistic fundamentals of lexicographic work

Miguel Eduardo Montoro

1. Introduction

I got the opportunity to work in dictionary compilation in quite an unusual way. Although I had studied lexicography, the reason it was included in my studies and research differed radically from the way I used it over the last six years, in which it has become my livelihood.

My biggest passion is philosophical research, and before I started to work on dictionaries I had the privilege of being guided by one of the great masters in philosophy, Andrea Di Maio (Professor at the Pontificia Università Gregoriana, Rome), who steered me towards lexicography.

The reason that philosophy led me to lexicography is that every thought uses words as a vehicle for expression, and to understand the thinking of a philosopher in a profound way requires understanding precisely the corpus of words he or she uses, their polysemy, and the total structure of his/her language understood as a semantic constellation of hierarchically inter-related words—where some emerge in importance over others and determine the total structure of his/her thought. Ultimately, to understand an author thoroughly implies, at least mentally, 'to make a dictionary' of the author.

To do this, we face the textual corpus of an author as if we were facing an unknown language for which we need a dictionary in order to understand what he or she is actually saying. We study the words used by the author statistically, make a word frequency list, select (by contrast with the common language) those terms considered as *keywords*, and try to understand the author's 'own language', constructing a semantic map with all word meanings that are used and their close inter-relationship. This is carried out by using particularly arduous techniques, an explanation of which is beside the point here, but which requires a microscopic study of words.

Such a study is so deep that, in fact, by studying a single keyword from a particular author we could write a full thesis, which leads to the paradox that the dictionary of an author can become a very rich series of such theses.

For example, in my case, I started to study the word *resolution* in St. Thomas Aquinas, and after completing a synchronic study about this word within the Thomistic corpus, my supervisor asked me for a brief diachronic introduction to the word as found in Aquinas. That is to say, I had to write the history of how various influences had contributed in the course of time to Aquinas's particular semantic nuances. So it was not enough to analyse the term as a lexicographer does, but rather as a historian of word semantics. I started this arduous research following the historical course and the clues all led me to about 17 centuries before Aquinas, to Plato. Since Plato wrote in Greek, I obviously could not find the very same word in his work, but an equivalent, διαλεκτική (dialectic). As a result, what should have been a minor aspect of my thesis turned into a thesis in its own right and I ended up doing a lexicographic study of διαλεκτική from Plato.

This is my background relating to lexicography, which eventually I started calling *high lexicography*, in contrast to *hard lexicography*, that is, dictionary making,

which later became my livelihood.

After deciding to change my lifestyle I started looking for work that would direct me towards linguistic areas such as translation, where I had reasonable success, to help me keep a good standard of living. Working as a translator I then had the opportunity to work as a lexicographer, which reminded me about my old studies, so I gladly applied for such work.

I pursued my lexicographic initiation in 'doing dictionaries', and not researching, but focused on general language dictionaries. That is when I hit the *hard lexicography* road.

My tutor in this journey, and boss at the same time, was Ilan Kenerman and his colleagues from K Dictionaries. With enormous patience, they transmitted to me their know-how. I must admit that I always followed them very obediently, suggesting at times what I thought was better suited, but trying to interpret what they asked for. After all, it seemed to be *their dictionary* rather than mine.

I must confess that sometimes I followed the instructions and explanations somewhat blindly, without a deep understanding explicitly formulated in my mind that could explain the way I do things. Over time, increasing my *hard lexicography* knowledge, and reflecting over it, I achieved my own way to formulate all the deep reasons that would endorse the guidelines received from Ilan and his team.

This is precisely the point of this article – the deep anthropological and linguistic fundamentals, as well as the advantages and unique characteristics, of the dictionary that our team has developed under the guidance and supervision of K Dictionaries. It is therefore possible that a lexicographer, who is engaged in *hard lexicography* research, is likely to find here some statements that seem naive when seen from a merely lexicographic point of view, which is however not our focus here.

Let's discuss, then, the anthropological and linguistic foundations of the features of the Spanish dictionary core that we developed.

2. Succinct definitions

You may imagine how difficult it is for someone used to do a thesis based a single word to follow this simple instruction: 'definitions should be succinct'.

When you do not assimilate in a practical way a particular concept you never know whether you are coming or going in this field. It takes a long time to realize it and to adapt to such an instruction, which may sound simple but is not simple to implement. Very slowly, and after several attempts of trial and error, like all really strong and long-lasting learning, you start to assimilate what this means and all its practical implications.

Our instruction was that definitions should be as short and meaningful as possible, accomplishing the task of describing a given sense and disambiguating it in respect of any other sense or entry; that is, we should define the word itself and its semantic referent as distinct from any other word and also have the definition disambiguate a particular meaning as distinct from other meanings of polysemous words. All of this must be done in a 'succinct' way, that is to say using the smallest number of words and choosing the most meaningful ones with most expandable meanings in the task of disambiguating the entry.

Why, then, is having a *succinct* entry an advantage? Because—to begin with—the language function, understood as a systematic amount of orderly related words, is primarily apophatic.

What is the meaning of 'apophatic'? It says what something is *not*, rather than what it really *is*. That is to say that in the proper construction of a definition we look rather at the word in relation to other words than at its existential semantic referent. The purpose is to 'disambiguate' it, that is, to distinguish it from other words. It is thus clear that when we define, we look more at the relationship between words than at the word as a semantic vehicle of a reality.

Mathematical logic can represent such relationships between the words employed in the act of defining, by means of mathematical sets (cf. http://en.wikipedia.org/wiki/Mathematical_logic/). For example, if we want to define *man* and take the Aristotelian definition, 'a rational animal' (just for the sake of illustration, putting aside all actual criticism and controversy about this definition), *animal* will be our hypernym (genre or super-category), and *rational* its particular characteristic (or specific difference)[1]. In mathematical logic, this could be represented as appears in Figure 1.

Miguel Eduardo Montoro obtained his PhD in Philosophy with lexicographical orientation in 2003 at Pontificia Università Gregoriana, Rome, and has since taught various philosophical subjects in academic institutes in Argentina, Brazil and Italy. Dr Montoro is chief editor of the Kernerman Spanish Dictionary, and translator to Spanish of the French and Brazilian Portuguese dictionaries in the global series of K Dictionaries. emontoro@gmail.com

Figure 1: The complete definition in mathematical logic
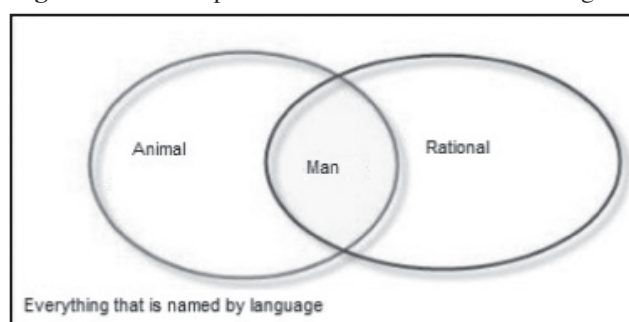
First of all, what we see is a big picture, a frame of reference in which the activity of defining will be performed, this being the universe of all things named by language. So defining means to separate within the universe of nameable or utterable things that which may interest us among all other nameables. The first major division is the hypernym, which we represent in Figure 2 with a circle inside the square of the universe.

This circle already sets a limit, a distinction, a difference between what is inside the circle and what is outside it. And it tells us, therefore, that what I will define is *inside the circle*, and in a negative way that *it is not outside*. But this circle is not enough to give us precise coordinates of what we want to define, because inside it there is more than the very thing we define, which is *man*. In this circle are all sentient beings or animals together with *man*. Although this provides us with a coordinate by means of which we have separated *man* from the rest of the universe, i.e. the non-sentient beings, that is not enough. It is still indefinite inside that set, and this indefinition is what we call ambiguity.

Therefore, another coordinate is necessary, a particular characteristic or specific difference that distinguishes inside the circle of animals this sentient called *man* from the rest. This characteristic is, according to Aristotle, rationality. Thus, inside the box we draw another circle of rational beings, as shown in Figure 3.

We see, then, that the 'animal' circle intersects the 'rational' circle and the intersection of both forms the unique and particular space of *man*. So what we just did was to give the coordinates by means of which we could distinguish *man* from:

- all non-sentient and non-rational beings, such as plants, minerals, other physical or chemical entities, etc. This is the striped area in Figure 4;
- all sentient beings: animals (in the Aristotelian sense, including *man*), as shown in Figure 5;
- all rational beings: men, angels, God (apart, obviously, from their real existence; here

I refer only to their linguistic existence), as appears in Figure 6.

In this way, the intersection of these spaces locates the word *man*'s exclusive place of linguistic existence, as shown in Figure 7.

If we focus on nothing but this exclusive place, we will realize that, as a word, that is to say, as significant (according to Saussure, 1916), what we have is actually a set of negative coordinates of what is not *man*:

- it is not the set of all non-sentient beings: plants, minerals or other physical or chemical entities, etc;
- it is not the set of all sentient beings with no rationality, called in our modern semantics *animals* (not including *man*);
- it is not the set of all rational beings that lack sensibility, such as angels and God.

This implies that the word, as appropriate, is absolutely relative to where it is located in the semantic map or semantic constellation of a total language. So a definition is merely functional, serving only to give us the coordinates that are unique to what we want to define. But it could happen that for any reason these coordinates cease to be unique to that word. For example, if we discovered sentient rational life outside Earth, the Aristotelian definition would not be functional any more, given that it would not denote *man*'s new reality the way we would know it. We could then call *rational animals* both *man* and such aliens.

Definition is functional, knowledge is not. What *man* is will always be present in our cognitive capacity, because knowledge is contact, it is to touch the thing. Defining, however, demands a further activity to produce *a representative 'verbum' that could be transmitable to others and to me* (significant), which entails the act of naming something. And it is because naming does not mean knowing that in our hypothetical case, in which the Aristotelian definition would cease to be functional, we would resort to the same knowledge to name new characteristics that distinguish *man* from aliens.

This analysis makes it clear that defining means giving coordinates, so a dictionary becomes a set of coordinates of the most significant words in a language. A dictionary is a GPS that tells us where we are when we look for a word. It demarcates an exclusive space where the word is and where the rest of the words are not. And the best way to give coordinates is using the most clear and determinant references to locate a place. Anyone travelling to an unfamiliar city knows that a long explanation of how to arrive somewhere is nothing but confusing and often ends up making us go astray or having trouble finding the place. It is usually enough

Figure 2: The hypernym
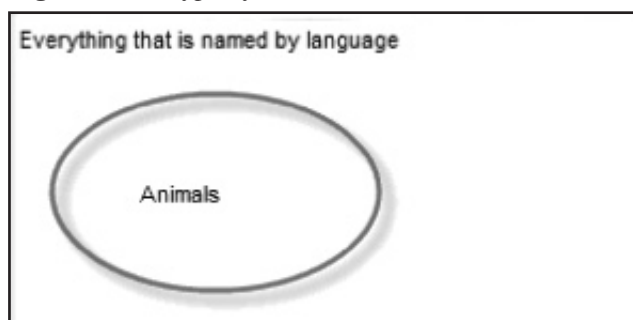
to explain directions with a minimum of the best and clearest references used as location coodinates. The same happens with words and language.

Some might argue that it is better to define with many words because that provides more information. And this is somewhat true. But let us think of the function of a dictionary. I insist on the image that a dictionary is not used to learn deep content, but to place a word somewhere in my total space of knowledge – to put it in a certain semantic place, uniquely. With this piece of information I can continue my research on the word, not in a dictionary, but inside this semantic place that we have negatively defined using our linguistic GPS. Thus, to move inside this linguistic space we need a specific GPS, more powerful, but somewhat more limited, as it only serves to explore this space and this is precisely the specific literature on a topic, which on the other hand is not exactly the function of a dictionary.

Because of all these arguments, I find this simple instruction I was given very beneficial: 'definitions should be succinct'.

3. Dual disambiguation of meanings in polysemous entries

The second main guideline I was given was to provide another element of disambiguation for each sense of polysemous entries.

And I say 'another element' because the disambiguation by itself is provided by the definition. It means that to every polysemous entry we should add a meta-element that by itself segregates semantically the semantic place where the meaning must be comprised. For example, let's look at the word *desfloración*:

desfloración [desflora'θjon] *nf*

1 =marchitamiento; envejecimiento del aspecto de alguien o de algo ◊ *la desfloración de sus energías vitales*

2 *bot* acción de sacar la flor a una planta ◊ *la desfloración de losrosales*

3 *coll* =desvirgamiento; acción de hacer perder la virginidad a una persona ◊ *desfloración de mujeres*

In addition to the definitions, which in themselves have the ability to disambiguate, different meta-elements are added to reinforce the semantic place in which the definitions must be located. To the first sense, a synonym is added, which by itself segregates semantically the other concepts. The same happens to the second sense by means of a subject field (*botany*) and to the third sense by the language register (*colloquial*) and a synonym.

So, if we compare the dictionary to linguistic GPS coordinates, each of these meta-elements would be another coordinate
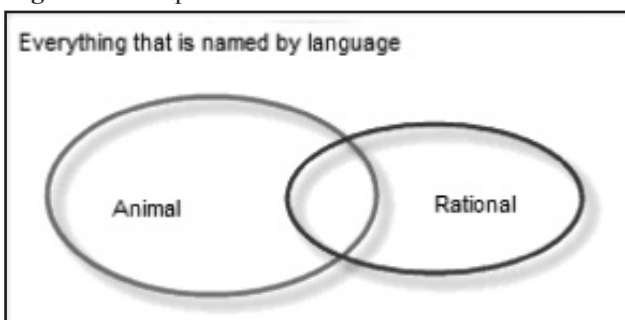
Figure 3: The specific difference

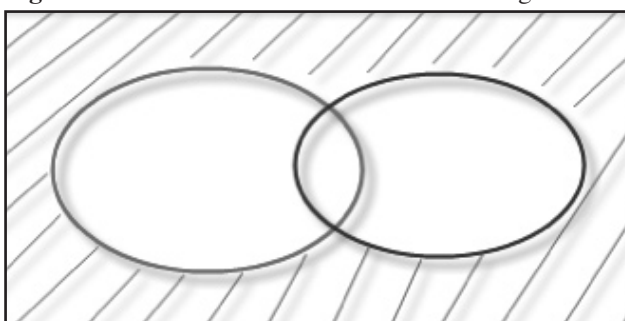**Figure 4**: All non-sentient and non rational beings
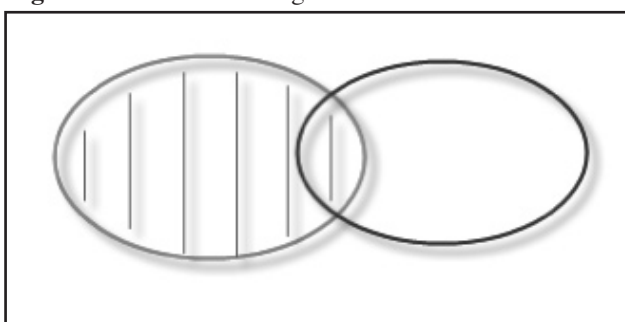

Figure 5: All sentient beings

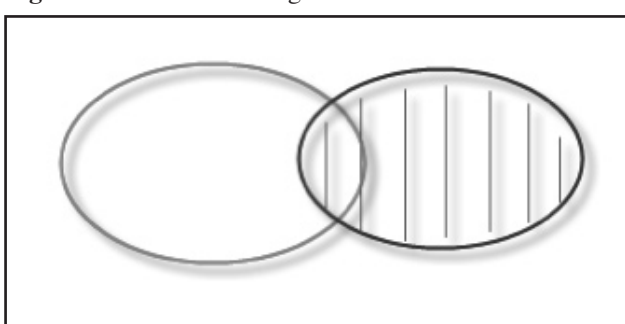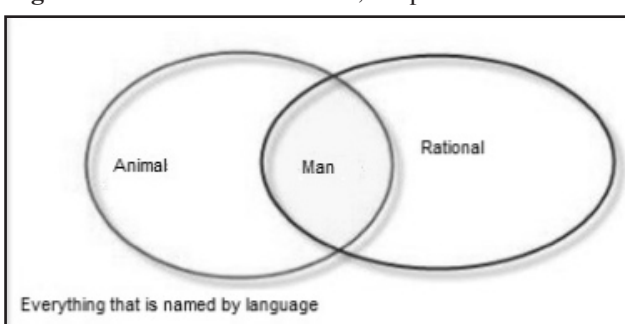**Figure 6**: All rational beings

Figure 7: Intersection of the sets, the place of the definition

cañón [ka'ɲon] *nm*
  1 *mil* tubo por el cual sale impulsado el proyectil de un arma
  ◊ *cañón del rifle*
  2 *geog* estrecho profundo entre dos montañas
  ◊ *cañón del Colca*
cañonazo [kaɲo'naθo] *nm*
  1 =descarga; bombazo disparado por un cañón
  ◊ *La ceremonia comenzaba con un cañonazo.*
  2 =ruido; estruendo y daño producido por esta descarga
  ◊ *La ciudad quedó destrozada por los cañonazos.*
  3 *sport coll* lanzamiento fuerte de la pelota al arco
  ◊ *Tiró un cañonazo al arco.*
cañonear [kaɲone'ar] *vt mil* disparar proyectiles con un cañón
  ◊ *El capitán dio la orden de cañonear el puerto.*
cañoneo [kaɲo'neo] *nm mil*= bombardeo; lanzamiento de proyectiles
  ◊ *Comenzó el cañoneo al puerto.*
cañonera [kaɲo'nera] *nf*
  1 *naut* hueco al costado de una embarcación o pared para disparar artillería
  ◊ *El fuego artillero salía de las cañoneras del buque.*
  2 *mil* carpas usadas por los soldados en sus campañas
  ◊ *Desembarcaron e instalaron las cañoneras cerca de la costa.*

Sample entries from
Kernerman Spanish Dictionary

that indicates the meaning in polysemous entries.

Why is it particularly advantageous to provide these elements in polysemous entries?

First, because more coordinates provide more possibilities to place the meaning of a particular concept linguistically.

But is this not the same as putting more information into a definition, making it longer?

The answer is no, because this information is provided, precisely in the manner of a meta-element, by presenting at the same time the information category. Many dictionaries also carry such information, that the term *desfloración* is the same as *marchitamiento*, without using the equal sign [=] that indicates the category of such information and shows that both terms are synonyms. This offers an additional advantage because more coordinates are given, not only by the amount of information itself, which is larger, but by the presentation structure of the information. If all the information were instead presented at the same level in a long definition without meta-elements, this would be more demanding on the reader, who, with the meta-element style of presentation, can have his/her questions solved in a clear and precise way, like well-demarcated signals, each one contributing to understanding a meaning.

The anthropological fundamentals of this feature lie in the fact that our mind organizes ideas and concepts as a three-dimensional map, where on the horizontal plane we can draw together the inter-relationship coordinates of words in what is termed a 'conceptual map'. For example, see the conceptual map of the word *plant* in Figure 8.

But such a conceptual map is used not only in the horizontal dimension of ideas, which involves the meaning relations among the words, but it also includes the hierarchic dimension of the concepts' interaction among themselves, placing some concepts above others, showing the hierarchical supremacy of certain ideas that form the base of the concepts that they dominate. In this sense, expressing the contents by means of meta-elements is not only giving more content, but it also helps to create 'mental boxes' for the dictionary user, constructing his/her own conceptual word map in a more efficient way than the linear and non-specific account of a long definition that is full of data but which lacks the enhancement and the coordinates that are explicit in a conceptual map, and are also explicit in a definition done by means of meta-elements.

4. All the entries have an example
Perhaps this feature would sound more naive to lexicographers. Whom may it concern to discuss the importance of examples of usage in a lexicographic publication?

On the one hand, it is necessary to remember the viewpoint of this article, which is not quite lexicographical, but is rather anthropological and linguistic.

On the other hand, at least as regards the Spanish language, I have never encountered any monolingual dictionary that applies a standard rule of having examples of usage following each definition. But in this case, a lexicography professional may argue, and even be right, that such a principle, in which every definition must be followed by an example, is not necessary.

Nevertheless, in order to show the lack of examples in common Spanish monolingual dictionaries, I carried out a small statistical research—not scientific, though, but indicative (on account of the sample's size)—about the proportion existing between definitions and examples in polysemous entries (the average number of definitions per entries in the entire

Figure 8: Conceptual map
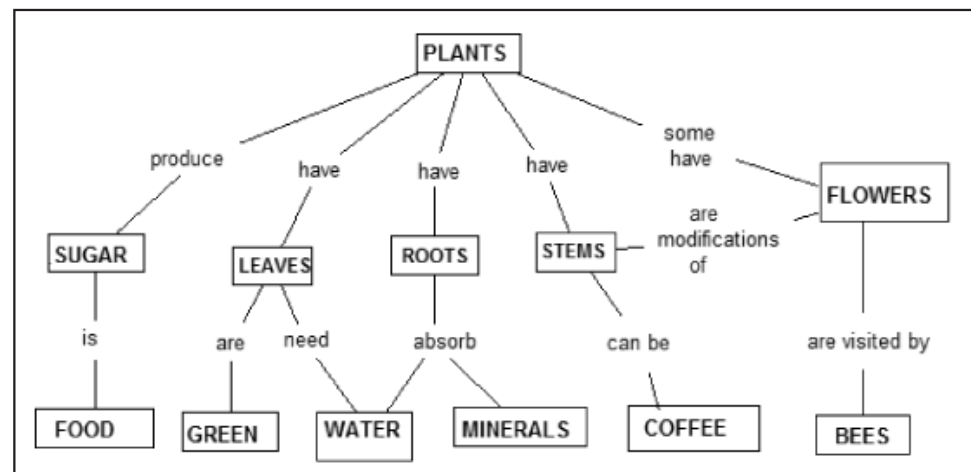
sample was 33). For this purpose, I used the three dictionaries most known and used for the Spanish language: The *Diccionario de la Real Academia*, *El Gran Diccionario de la Lengua Española Larousse* and the *Diccionario General de la Lengua Española*. The outcome was that in such context of highly polysemous entries, in these three dictionaries only 8.5% of the defined senses came with an example.

Therefore, on the concrete practice of lexicography, the obvious importance of using examples does not seem to be translated into real facts. Undoubtedly, there is the need to make other statistical studies on a scientific level, not merely indicative, to confirm the proportions and the hypothesis formulated above. And there is also the need to know the criteria that determines whether an example should or should not be used in a given definition, so that the person looking for the information may have a better judgment on the matter.

That being said, stepping back from the lexicographic view and into the anthropological view, we attempt to explain something tremendously obvious such as the importance of a definition being accompanied by an example.

To address this issue, I should state one of my theses with a personal opinion that may not be shared by others:

'One truly understands a definition when the definition takes concrete shape, in an internal way, in which what is being defined is materialized by an example.'

I started to be truly aware of such thesis, even though I already knew the anthropological fundamentals previously, while making the corrections of the 50,000 entries of the dictionary. Then I realized that most of the time my mind could only distinguish the meaning of an entry or the meaning of a definition of a polysemous entry when I read its example(s). Moreover, when compiling entries, what first came to my mind was an example, and based on the example I would start to search for the genre (hypernym) to which the word belonged as its differential characteristic and, only then, I could shape the definition. Immediately after that, my mind started to check whether this definition would fit all the possible examples in relation to the defined meaning. What I discovered was that the mind makes a double recognition: from the example to the abstract definition and from the abstract definition to the example and to all its possible examples.

I mentioned above that this phenomenon happened 'most of the times', because every once in a while, in cases in which the meanings are more popular, the presence of an example

was not necessary in order to understand what was being defined. Nevertheless, I realized that in such cases the mind elaborates its own 'examples', its own materialization of the abstract definition known in classical anthropology as *phantasma*[2] and in modern evolutionary psychology, such as with Jean Piaget (cf. 1936, 1950, 1924), as *knowledge structures*. One may object that the *phantasma* of the scholastics is more static and that Piaget's *knowledge structure* is, on the other hand, more dynamic, but in reality neither *phantasma* nor *knowledge structure* is, respectively, static or purely dynamic. Both describe the same episode, but from different viewpoints, leading to different conclusions.

The crucial aspect for the scholastics was to describe the structure of knowledge and, therefore, the *phantasma* can give the impression of being something static, when it is not, because it is not simply an evident representation, as a photograph would be, but it is a schematic representation that precedes the concept, in which, and by means of which, the intellect retains the concept. Besides, the intellect always needs this representation when we think and use the concepts by means of the *conversio ad phantasmata* (*conversion to sense experience*).

As to Piaget, the most important point is to describe, not only the structure, but the dynamics of the assimilation process. He does not consider knowledge as a pre-supposition, as scholastics do, but as the result of a process and of a movement. From this perspective, there are two types of scheme: the first, of action, and the second, of knowledge. The action schemes are principles of learning economy: once an action considered successful is executed, and then repeated several times, it creates an action scheme that turns such action into a permanent habit of the individual. On the other hand, the knowledge scheme is more structuring of the perception and it functions exactly as what organizes this perception. The scheme converts itself into a mental structure that is determined by an object. For example, this structure allows the possibility of executing actions towards absent objects and, therefore, it configures the perception towards a present or absent object. After this massive generalization, of structuring the perception of the object, a series of subtler differentiations according to its similarities and differences starts, and this is exactly the knowing process. Finally, it is possible to state that such schemes can be transferred and generalized.

However, beyond the difference between classical anthropology and its *phantasma* and *modern* anthropology and its *schemes*, what is most important

cañonero, -ra [kaɲo'nero, -ra] *nm/f sport* jugador que tiene un tiro potente y efectivo
◊ *el cañonero del equipo*
■ – [kaɲo'nero, - ra] *adj* nave, embarcación: que está armada con uno o varios cañones
◊ *un barco cañonero*
canónica [ka'nonika] *nf rel* vida monástica de los teólogos según las reglas antiguas
◊ *la canónica de la Catedral de León*
canonical [kanoni'kal] *adj* que se relaciona con el reglar
◊ *vestimenta canonical*
canónico, -ca [ka'noniko, -ka] *adj*
1 *rel*=eclesiástico; relativo a los cánones y disposiciones de la iglesia
◊ *Está estudiando derecho canónico.*
2 *rel* texto, libro: que es establecido o admitido por una tradición o religión
◊ *evangelio canónico*
3 =adecuada; que se ajusta a las características de un canon con exactitud
◊ *norma canónica*
canóniga [ka'noniɣa] *nf coll* siesta que se toma antes del almuerzo
◊ *Se echó una canóniga en la última hora de clase.*
canónigo [ka'noniɣo] *nm rel* ecl esiástico de una catedral
◊ *canónigo asesor*

Sample entries from *Kernerman Spanish Dictionary*

Kernerman Spanish Dictionary was developed from 2006 to 2010 under the editorship of Miguel Eduardo Montoro.
The first part of the dictionary was compiled by Sebastián Cerón, Sergio López and Verónica Elizondo, and revised by Irene Renau Araque.
The second part was compiled by Sergio López, Patricia Teijeiro, Ivana Fasano and Federica Urquiza, and revised by Elisenda Bernal Gallén.
The third part was compiled by Sergio López, Ivana Fasano and Patricia Teijeiro.
The first part corresponds to the 12,000 most common words, the second to the 24,000 most common words, and the third to the 50,000 most common words.

is that both movements teach and support that there is no pure thought (in the human being, obviously) and that the process of actualization with concepts is accompanied by a *phantasma* or a *scheme* that allows thinking in action.

This is the important point, when someone gives us a definition of something we can probably understand each word separately, but we may not understand what it truly refers to until the moment we create this *scheme* or *phantasma*, which comes from a sensitive order (not only thoughts) and implies, in a sense, a sensitive universal schematic representation of every materialization possible of the semantic space limited and demarcated by the definition.

In this respect it is important to stress the importance of examples in the areas of pedagogy and education. The example contributes directly to the elaboration of the *scheme* that allows us to understand the definition. Sometimes, when the definition refers to something that is extremely clear, there is no need for examples, because our mind elaborates the *scheme* as a sort of sensitive generalization of every possible example that might work for the definition.

But this does not happen all the time, nor most of the time and, especially, this is not how it works when we learn something new.

If there is something in which the majority of thinkers are in agreement, and that most thinkers in history had the tendency to use, it is the 'definition–example' pair, when something new is being taught. First, it is necessary to state the definition as an abstract mold that needs to be filled by the materialization of the example that always follows such a definition. This way of passing on education and knowledge has not changed since the early days of history until today, and it indicates something structural within human beings.

'Something structural' refers to the convenience and/or necessity for those who learn, that examples are essential to truly understand what is being said.

However, if this is how it works for any kind of teaching/education, that is evermore so for a dictionary, which is the first giver of the semantic coordinates of a word. It does not matter whether it is a native speaker who is consulting a monolingual dictionary or someone learning a foreign language consulting a bilingual dictionary.

To sum up, I consider an advantage and a very important characteristic of the dictionary we elaborated the fact that each and every one of the definitions of the entries is accompanied by (an) example(s) of usage.

5. Conclusion

As expressed by the title, this article does not merely present a lexicographic point of view, nor a particularly lexicographic perspective, but mostly explains the anthropological and linguistic insights of a person who has been meticulously following the procedures of the lexicography professional. Surely, on a lexicographic level, there are strong reasons for the guidelines described above for creating a dictionary—to write succinct definitions; use meta-elements to disambiguate polysemous terms; and add illustrative examples for each sense. By writing this article, I wanted to share the amazement witnessed by a philosopher who is discovering, from his own perspectives and also from his science, that everything that he once executed blindly in creating a dictionary in fact has a deep foundation in the human being, in the way we learn, in the way we communicate and in the way we assimilate contents. I hope this interdisciplinary essay is, somehow, useful for lexicography professionals.

Notes

1. This is referred to by modern lexicographers as 'formal definition' (cf. Trimbley, 1985: 75-76), which is sufficient for our purpose.
2. Cf. Aquinas, *Summa Theologiae* I, 85, 1, in *Opera Omnia*, 1992.

References

Diccionario de la Lengua Española de la Real Academia Española. 22nd ed. Madrid: Spanish Royal Academy. 2001.

Diccionario General de la Lengua Española. Barcelona: Vox. 2009.

Gran Diccionario de la Lengua Española. Barcelona: Larousse. 2008.

Opera Omnia Thomae Aquinatis cum hypertextibus in CD-ROM. Busa, R.S.J. (ed.). Milano: Editel. 1992.

Piaget, J. 1956 [1924]. *Le jugement et le raisonnement chez l'enfant*. 4th ed. Paris : Delachaux & Niestlé.

Piaget, J. 1957 [1950]. *La construction du réel chez l'enfant*. 2nd ed. Paris: Delachaux & Niestlé.

Piaget, J. 1998 [1936]. *La naissance de l'intelligence chez l'enfant*. 9th ed. Paris: Delachaux & Niestlé.

Saussure, F. de, 1949 [1916]. *Cours de linguistique générale*. 4th ed. Paris: Payot.

Trimbley, L. 1985. *English for science and technology: A discourse approach*. Cambridge & New York: Cambridge University Press.