

The Terminographical Process: Phases and Dimensions

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Résumé de l'article

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The Terminographical Process: Phases and Dimensions

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RÉSUMÉ

Dans le présent article, nous présentons une proposition de segmentation et de caractérisation du processus terminographique, basée sur le modèle de Gouadec pour la traduction. Cette proposition découle d'une première systématisation et de l'analyse comparative des diverses caractérisations qui existent pour le processus terminographique, dans une tentative – qui s'est révélée infructueuse – d'identifier un modèle, ou une combinaison de différentes méthodologies, capables de répondre aux besoins spécifiques de la construction d'une ressource visant un public non spécialiste. Le processus terminographique est ainsi organisé en trois phases (*pré-terminographie*, *terminographie* et *post-terminographie*), et comprend trois dimensions d'analyse, *conceptuelle*, *communicative* et *textuelle*. D'une manière générale, en *pré-terminographie*, une recherche préparatoire est effectuée (familiarisation avec le domaine, identification des contextes communicatifs et construction des corpus spécialisés), étape qui est essentielle à la phase suivante (*terminographie*), dans laquelle une base de données terminologiques est construite et alimentée. La dernière phase (*post-terminographie*) vise essentiellement l'application industrielle de la ressource, ainsi que sa mise à jour continue. Cette méthode prend également en compte les trois dimensions des termes (conceptuelle, communicative et textuelle) qui sont appliquées et adoptées dans le processus même de création de bases de données terminologiques.

ABSTRACT

A proposal for segmentation and characterisation of the terminographical process, based on Gouadec's model for translation, is presented in this paper. It comes as a result of a systematisation and comparative analysis of the various existing characterisations of the terminographical process, in an attempt – that has proven to be unfruitful – to identify the one, or a combination of different ones, which would meet the specific needs to build a resource targeted at a non-specialist public. The terminographical process is thus organised in three phases (*pre-terminography*, *terminography*, and *post-terminography*), and comprises three dimensions of analysis (*conceptual*, *communicative*, and *textual*). Broadly speaking, in *pre-terminography*, a preparatory piece of research is carried out (special subject field familiarisation, communicative contexts identification, and building of specialized corpora), a step which is essential to the next phase (*terminography*), in which a terminological database is built and populated. The last phase (*post-terminography*) comprises efforts aimed at the industrial application of the resource, as well as underscoring the need for its continual update. This methodology also takes into account the three dimensions of terms (conceptual, communicative and textual) which are applied and adopted in the process of termbase creation itself.

MOTS-CLÉS/KEYWORDS

processus terminographique, dimension conceptuelle, dimension communicative, dimension textuelle
 terminographical process, conceptual dimension, communicative dimension, textual dimension

There is no comparative description available of the many different methods used in the production of terminological glossaries, dictionaries and term banks. (Sager 1990: 219)

Because information on scientific and technological innovation is being provided on a wider scale than ever before, through the full range of modern media, the need for a terminological information service for the general reader and new modes of access to such a service are likely to come into being. (Sager 1990:228)

1. Introduction

Resources built within the field of Terminology typically have translators, technical writers, and/or – future – special subject field specialists as target public. The study underlying this paper was developed under the hypothesis that termbases can be created, so as to make specialised data available to a public which may well not master it, either conceptually, or as discourse. The consumer's lack of, or reduced, understanding, as far as food items with health claims available on the market are concerned, has led to the creation of a termbase targeted at non-experts, aimed at making scientifically valid and accurate information on the so-called *functional foods* systematically available (Remígio 2007:15). The resource was conceived, built and populated within the framework of a corpus-based approach to terminography, which, besides comprising the textual dimension, also includes the conceptual and communicative dimensions. Terminography is here regarded as the applied field of Terminology which addresses the process of building termbases – and shall be denominated as *terminographical process*, in order to differentiate the process from one of its phases. The mediating role of Terminology in the transmission and access to knowledge here considered raises, however, challenges with regard to the accuracy and validity of the information made available. In order to overcome these challenges, methodological – and theoretical – criteria were taken into account and adopted, and will be depicted throughout this paper.

Our aim is thus to present a methodology for termbase creation, that comes as a result of a systematisation and comparative analysis of the various existing characterisations of the terminographical process, in an attempt – that has proven to be unfruitful – to identify the one, or a combination of different ones, which would meet the specific needs of building a resource targeted at a non-specialist public (Remígio 2008; 2010: 73-118).

Like the translation process (Gouadec 2002; 2005; 2007), the terminographical process is seen as being organized in three different but interrelated and mutually dependent phases (*pre-terminography*, *terminography* and *post-terminography*) and comprises three dimensions of analysis – *conceptual*, *communicative* and *textual*. It arises from a need to explicitly consider a communicative dimension (identification of communicative contexts) along with the conceptual dimension (familiarization with the special subject field) and the textual dimension (building of specialized corpora).

2. Dimensions of the terminographical process

Although Sager's statement quoted in the excerpt of this paper was written in 1990 (Sager 1990: 219), it still finds application nowadays. In the literature on Terminology, comparative descriptions of the different methodologies used in the process of termbase creation were actually not found. This fact has led to the establishment of, most certainly, the first one.

The systematisation and comparative analysis here conducted and described were, however, undertaken based on the three dimensions of terms – *conceptual*, *communicative* and *textual* – as shown below. The term is therefore regarded as being composed of one concept and one denomination, while being used in specific communicative contexts of a particular special subject field.

Still in 1990, Sager identifies three dimensions of the term – *cognitive*, *linguistic* and *communicative* – and thus advocates a theory of terminology that encompasses these three dimensions:

- 1) a cognitive one which relates the linguistic forms to their conceptual content (...);
- 2) a linguistic one which examines the existing and the potential forms of the representation of terminologies;
- 3) a communicative one which looks at the uses of terminology and has to justify the human activity of terminology compilation and processing. (Sager 1990: 13)

Later, in 2003, in an editorial statement entitled *Terminology during the past decade (1994-2004)*, L'Homme, Heid and Sager approach and examine the first decade of existence of the journal *Terminology*. Given the active contribution of the journal to the development of Terminology, this review also comprehends the field of knowledge itself:

We should like to take this opportunity to examine how the contributions in *Terminology* (as well as a number of books published by John Benjamins in their series 'Terminology and Lexicography Research and Practice'), appeared over the past decade, have helped us understand aspects of terms and characteristics of specialized texts, and to question the field of terminology as a whole. (L'Homme, Heid and Sager 2003: 151)

In this editorial statement, the authors describe the different characterisations of the *term* which have been of particular attention and study over the decade in review. This analysis is based on the three dimensions of terms by Sager. Regarding the linguistic dimension, the authors cite research on the formation of terms in specific special subject fields; on the analysis and understanding of the linguistic behaviour of terms, with the increasing use of large corpora and computer applications; on the consideration of word categories, other than nouns, as terms; on the place of terms within phrasemes or collocations; and on work on different languages, which has contributed to challenging certain views on the language-independent nature of terms. As far as the cognitive dimension is concerned, L'Homme, Heid and Sager report work based on a larger set of conceptual relationships, other than the hierarchical ones; insights into metaphor and its occurrence in specialized corpora, through cognitive frameworks of analysis; and approaches to concept definition. The work on the semantic dimension of terms and on semantic and lexico-semantic relationships, as well as on true synonymy is also mentioned. Finally, with respect to the communicative dimension, the authors make reference to the focus on the users

for whom terminological descriptions are conceived; to the social dimension of terms; to the study of text types; and to the diachronic perspective of terminology (L'Homme, Heid and Sager 2003: 156-157).

In this systematisation no research in which these three dimensions are all together studied or analysed is, however, reported. The question that comes out of this fact is whether, in the existing descriptions of the terminographical process, those dimensions are included or not. The answer to this question is *no* – and will be discussed in more depth in the next section.

From our perspective, these three dimensions of the term – textual, conceptual and communicative – require a methodology of termbase creation that, likewise, comprises a *textual*, *conceptual* and *communicative dimension of analysis*. Note that a conceptual dimension – and not a cognitive one, as Sager argues –, is pointed out, given that in *Terminology*, the focus is not on cognitive aspects of knowledge acquisition but rather on concepts, their characteristics and on the relationships they establish amongst themselves in a particular special subject field. The *conceptual dimension* of analysis thus comprises the conceptual representation of the special subject field being studied and, when applicable, a subfield delimitation. These operations are important for the subsequent stages of identification of term candidates, of elaboration of concept systems and of identification of contexts rich in conceptual information for the writing of definitions (Remígio, Costa and Roberto 2005; Remígio, Roberto and Costa 2006b). A *textual*, and not linguistic, *dimension* of analysis is also referred to, since in the process of termbase creation the aim may not be of describing and analyzing morphosyntactic and/or semantic aspects of term candidates per se, but of identifying them, namely through the exploration, by semi-automatic means, of specialized corpora, which are composed of texts that have been selected and organized according to specific criteria.

Finally, the singular nature of this study shall be mentioned and justified: the variety of actors responsible for text production. As a matter of fact, texts on functional food targeted at the consumer are not only written by researchers, professors or science communicators, but also by actors from the food industry and journalists, who produce texts according to given communicative intentions, intimately related to their professional, academic and/or social activity.

Thus, in order to evaluate the adequacy and relevance of term candidates and of contexts rich in conceptual information – the latter for definition writing – identified in texts produced by different actors and with different communicative intentions, the corpus has been designed to reflect the diversity of contexts in which communication within the special subject field in analysis takes place (Remígio, Roberto and Costa 2008; 2006a). Hence the importance of the *communicative dimension* here emphasised.

Now that the three dimensions of analysis to take into consideration when building a termbase, namely one targeted at non-experts, have been listed, the existing characterizations of the terminographical process will be depicted.

3. Characterizations of the terminographical process

3.1. Systematisation and comparative analysis

In the literature on terminology, there are various descriptions of the different phases and/or stages that constitute the terminographical process: Rondeau (1984: 74); Cabré (1992/1993: 289; 1999b: 142); Rey (1995: 135); Meyer and Mackintosh (1996: 262); Dubuc (2002: 49-53); L'Homme (2004: 46-47); Canada, Bureau de la traduction du gouvernement du Canada (2001/2011); Arntz, Picht and Mayer (2004: 219). Those characterisations are systematised in a table (see Appendix), and will be comparatively analysed, according to the objectives of the research that underlies this study and to the dimensions mentioned above. Since the termbase being built is monolingual, only monolingual characterisations are considered.

As previously mentioned, the systematisation of the various methodologies for termbase creation was carried out with the objective of identifying one – or a combination of different ones – which would meet the specific needs of building a termbase targeted at non-experts. The aim was to find a methodology where the communicative dimension would be taken into account, in addition to the conceptual and textual dimensions.

The table in the Appendix shows that a *conceptual dimension* (in italics: identification, delimitation and representation of the special subject field) and a *textual dimension* (underlined: text collection and selection, corpora building and exploration) is specified in each of the nine characterisations.

However, one can also verify that no characterisation explicitly includes a *communicative dimension*, i.e., a dimension which comprises the analysis of the contexts in which communication in the special subject field takes place and, therefore, which considers the text producers, their communicative intention(s), target public, etc.

In the methodology presented by Cabré in the late 90's, which is based on the *Communicative Theory of Terminology*, as the author calls it, the communicative function of Terminology is emphasized (Cabré 1999a). However, when listing the different phases that comprise the process of termbase creation, no reference is made to one in which the communicative dimension is, or could be, addressed.

In fact, in several of her works, Cabré (1999a; 1999b; 1999c; 2000; 2003) discusses the multidimensional nature of terms, which, according to the author, are composed of three dimensions – cognitive, linguistic and communicative:

So, if we accept the multidimensional nature of terminological units, we speak of three dimensions [cognitive, linguistic and communicative] which have to be kept permanently before our eyes as the point of departure. Each one of the three dimensions, while being inseparable in the terminological unit, permits a direct access to the object. (Cabré 2003: 187)

Although the multidimensionality of terms is seen as point of departure, Cabré nonetheless upholds a partial approach to the object. This theoretical perspective reflects itself in Cabré's methodological viewpoint. Indeed, in the author's *Theory of Doors*, a partial access to the object of study is postulated, which likewise includes the choice of one access door to the term, methodologically speaking: "but since it is impossible to approach the many facets of a multidimensional unit all at once, my approach has been one of developing separate means of accessing this unit" (Cabré 2003: 193). The linguistic dimension is the access door chosen by Cabré.

In fact, there seems to be in Terminology a major concern to define and/or clarify whether the approach in termbase creation is onomasiological or semasiological, rather than in taking into account both dimensions – *conceptual* and *textual* – together with the *communicative* one.

In this context – i.e., without considering the contexts in which communication in a specific subject field is established, one question may be raised: *what is the process for text selection, out of which information, adequate to the needs of the envisaged target public, will be identified and extracted to populate a termbase?*

Another aspect that arises from the above systematisation relates to the fact that there is a wide range of preparatory stages – from goals setting to corpora building and/or to conceptual representation of the special subject field – that precedes the first contact with term candidates.

From our experience, two remarks about these preparatory stages (grey shade in the Appendix) can be made: on the one hand, these stages take a long time; on the other hand, despite the time-consuming nature of the process, it is essential to the subsequent stages of terminological data identification and management. This means that the results obtained in the later stages of the terminographical process largely depend on the work undertaken in the initial ones. This importance is, however, neither explicit nor implicitly considered in the systematisations presented above.

Four aspects – two positive and two negative, listed below accordingly – emerge from the stages which comprise the activities of data identification and management to include in a termbase, and which are described with more or less similarity among them or with more or less detail by each author cited in the Appendix.

The first aspect concerns the inclusion, by Arntz, Picht and Mayer, of a stage of conceptual system construction, or “elaboration of the concept systems”¹ (Arntz, Picht and Mayer 2004: 219; our translation) after the identification and extraction of term candidates from the corpus, which leads to the conclusion that the termbase, other than term records, will also contain conceptual systems. The other authors refer to this stage only in the preparatory part of the terminographical process.

The second one relates to the consideration of a stage for problem management and solving, or “treatment and resolution of problematic cases” (Cabr   1992/1998: 131, translated by DeCesaris). The inclusion of a specific stage to handle terminological problems encountered is of great importance, since the process of termbase creation may well comprise a number of unanticipated scenarios and/or problems not initially planned for, which must be addressed and/or to which an adequate solution must be found.

The third aspect relates to the nonexistence of a specific stage for validation of data present in the termbase, which we consider to be essential to quality management. Except for Cabr  , who considers a stage she calls “revision of work” (Cabr   1992/1998: 131, translated by DeCesaris) – without however specifying how this supervision occurs – no other author has identified a specific stage for the validation process, though some recognise the importance of collaborative work with special subject field specialists (Rondeau 1983; Meyer and Mackintosh 1996; Arntz, Picht and Mayer 2004).

Finally, the last remark: none of the methodologies enumerated above includes a final stage for data update. In *Le Pavel, didacticiel de terminologie*, a similar stage is described “actualiser ou tenir    jour les fiches saisies dans une base de donn  es en

fonction de l'évolution du savoir spécialisé et des usages linguistiques afférents" (Canada 2001/2011). It does constitute, however, an intermediate stage and not a final one – the latter clearly implying the constant update of the resource. Given the dynamic nature of knowledge, we consider the inclusion of this stage essential to guarantee the relevance, usefulness and quality of terminological products.

For the above stated reasons, a conclusion can be drawn: none of the characterisations of the terminographical process which have been described meet the needs and aims of our project – *to build a termbase on functional food targeted at the consumer*. And not even a combination of different ones can be taken into consideration, since none includes a communicative dimension of analysis. This fact does not mean, however, that the methodology for termbase creation herein proposed does not import some stages listed in the other methodologies – which actually happens.

Lastly, a brief reference to Pérez Hernández (2002) shall be made. Although the author does not present a description of the terminographical process, he is perhaps the only author who advocates the existence of three dimensions of the term in this process:

[...] in order to have an accurate conception of what constitutes terminological work, it is necessary to understand terms as multidimensional units, since they comprise

- i. a dimension which we can consider essentially linguistic, in that they are lexical units,
- ii. a conceptual dimension, in that they are units which represent specialised knowledge,
- iii. a communicative dimension, since it is through these units that specialists are able to efficiently transmit and communicate this specialised knowledge. (Pérez Hernández 2002, our translation)²

These three dimensions are, however, only explicitly considered once the corpus has been explored, and not at an initial or preparatory phase of the process of termbase creation:

As we have mentioned in the previous chapters, in this research work we have used a corpus of texts in electronic format to perform terminological work. It has proved to be an essential tool to account for the three dimensions of terminological units, since out of it we can extract conceptual, linguistic and contextual information necessary to compile a whole termbase. (Pérez Hernández 2002, our translation)³

Differently from Pérez Hernández (2002), we propose the inclusion of the three dimensions of analysis right at the preparatory phase of this process (i.e., prior to identification and management of terminological information), by means of conceptual representation of the special subject field, identification of communicative contexts, and corpora building.

This paper thus presents a methodology for termbase creation which comprises three dimensions of analysis and is organized in three phases. The above mentioned preparatory stages of the terminographical process are considered in the first phase; data validation is included in the second phase; and data update is part of the third and final phase (see section 5). Our proposal is based on the translation process model advocated by Gouadec (2002; 2005; 2007), which is described below.

4. The translation process: pre-translation, translation and post-translation

Terminology is an interdisciplinary field that closely interacts with Lexicography, Information and Documentation Sciences, Translation, Technical Communication, Computer Engineering, among others. Given its proximity to Translation in particular, we aim to import to Terminology – and namely to the terminographical process – the model applied to translation – developed by Gouadec (2002; 2005; 2007) –, which relates to the organization of the global translation process. According to this model, the translation process is divided into three phases: *pre-translation*, *translation* and *post-translation*.

Regarding translation as a process, Gouadec stresses the need for designing a model to provide translation services in the professional context. The author justifies this need by stating that translation is frequently seen as a spontaneous operation: “la traduction est souvent vue comme une opération spontanée” (Gouadec 2005: 643). Later he adds:

Le problème résulte sans doute du fait que les modèles explicites ou implicites de la traduction ne sont pas suffisamment ouverts et complets pour expliquer et analyser le traitement, par celui que l’on continue d’appeler le traducteur, d’une diversité de types de matériaux intégrés à une variété de supports et susceptibles de mobiliser, dans leur ‘traduction’ une variété de fonctions et d’opérations. (Gouadec 2005: 644)

Gouadec thus proposes a translation process organised in phases, divided into stages which, in turn, are segmented into operations, which may have impact both in Translation theory and teaching and in day-to-day practice. We shall stress that within the scope and objectives of this study, only the phases will be object of analysis.

Gouadec believes that with this model a critical path of the translation process can be established, from the moment the material to translate arrives, to the moment it is ready to be sent to the client: “tout simplement parce que l’on peut mesurer l’effet de la suppression, du déplacement ou de la modification de chacune des opérations considérées” (Gouadec 2005: 653). These stages, particularly the operations within each phase, do not necessarily occur sequentially:

L’analyse du processus de traduction doit être la somme des analyses de toutes les opérations qui entrent dans ce processus mais aussi, et peut-être d’abord, l’analyse de la manière dont ces opérations s’articulent entre elles, se suivent, se chevauchent, se recouvrent parfois, concourent ou s’excluent. (Gouadec 2005: 648)

The model of translation services provision is described, at least, in three of the author’s works (Gouadec 2002; 2005; 2007). The last two works have slight changes from the initial model, which may well show the evolving nature of knowledge production. A comparative systematisation of the different phases identified by the author is presented below.

TABLE 1

“Modelisation of the translation process,” according to Gouadec*

	Gouadec 2002: 17	Gouadec 2005: 644	Gouadec 2007: 13
Phases	—	1. Phase d’attente et prospective	—
	1. Acquisition de la traduction	2. Phase de pré-traduction	1. <i>Pre-translation</i>
	2. Préparation de la traduction ou pré-traduction		
	3. Traduction proprement dite (transfert)	3. Phase de traduction	2. <i>Translation</i>
	4. Post-traduction (contrôles, corrections)	4. Phase de post-traduction	3. <i>Post-translation</i>
	5. Mise en forme et livraison		

* “Modélisation du processus d’exécution des traductions,” selon Gouadec.

In 2002, Gouadec named five phases that constitute the translation process: *obtention of the translation* (acquisition de la traduction); *preparation of the translation or pre-translation* (préparation de la traduction ou pré-traduction); *translation proper* (traduction proprement dite); *post-translation* (post-traduction); *formatting and delivery* (mise en forme et livraison) (Gouadec 2002: 17; our translation; see Table 1). In his subsequent works, the first – which comprises the initial negotiation process – and the last one – which includes the finalization of the translation product and its delivery to the client – are included in *pre-translation* and *post-translation*, accordingly, and considered as stages of those phases. In 2005, Gouadec listed another phase, not mentioned previously, nor subsequently considered, entitled *waiting and prospective phase* (phase d’attente et de prospective). This phase comprises a set of operations by the translator – preceding or succeeding the translation process – that ranges from specialised training to knowledge and know-how update. According to the author, due to the circular nature of this process, the interventions that precede and/or succeed the translation act are often hard to differentiate:

[...] si ces interventions en amont et en aval se confondent, c’est tout simplement parce que le système fonctionne en boucle et que, passée la première prestation, le résultat de chaque nouvelle prestation (inter)vient en amont de la suivant. (Gouadec 2005:644)

We shall now focus on the three phases of the translation process which are common to Gouadec’s three works.

Pre-translation (phase de pré-traduction) is a preparatory, though crucial phase, which mainly relates to administrative and management issues: “in a broad sense, pre-translation includes all of the commercial negotiations and technical operations prior to receiving the material for translation” (Gouadec 2007: 21). The phase cannot, however, be reduced to these operations: “in a more restricted sense, it [pre-translation] starts once the material that has to be translated has become available” (Gouadec 2007: 21). In this more restricted sense, pre-translation is defined as:

[e]nsemble des activités conduisant à la mise en place de tous les éléments nécessaires à la traduction (compréhension du document, recherche d’informations, mobilisation de la terminologie et de la phraséologie nécessaires, préparation du matériau à traduire). (Gouadec 2002: 59)

It is precisely in this more restricted perspective that pre-translation can frequently be confused with pre-transfer – a stage seen as part of the translation phase. This resemblance can be found in a definition of pre-translation, written by Gouadec in 2002: “à proprement parler: pré-transfert. Préparation de la traduction” (Gouadec 2002: 426).

Within the scope of this paper, pre-translation will be considered as a phase which comprises both the wider and the narrower descriptions.

The *translation phase* (phase de traduction) is, in turn, divided into three stages, *pre-transfer* (pré-transfert), *transfer* (transfert) and *post-transfer* (post-transfert):

Il s'agit de situer l'étape de transfert entre une étape de préparation systématique et une étape de retraitement et aménagement du résultat brut du transfert et, plus largement, de confirmer que l'ensemble dépend en outre de ce qui se passe en pré-traduction et de ce qui se passera en post-traduction. (Gouadec 2005:649)

As pre-transfer has already been described, we will now focus on transfer. According to Gouadec, this stage encompasses the passage from one linguistic and cultural system to another, and, thanks to the stages that precede and succeed it, presents itself as more decomplexified showing, likewise, better chances of being performed with quality:

Une fois que le traducteur a vérifié et préparé le matériau, défini les options de traduction, acquis les savoirs qui lui faisaient défaut pour comprendre parfaitement le matériau à traduire, mobilisé les modèles, termes et expressions qu'il utilisera, et mis en place l'environnement matériel, logiciel et technique requis, le processus de transfert peut se déclencher avec toutes les garanties de qualité requises. (Gouadec 2002: 22)

Later, in 2005, the author adds: “le transfert n'est qu'une opération au milieu d'autres opérations, conditionnée par ces autres opérations en amont et en aval” (Gouadec 2005: 649). The translation process is, thus, seen as a whole, where the parts – each of which with equal value to obtain a final quality product – are interrelated and mutually influence each other.

Lastly, in post-transfer, quality control as well as adaptation and formatting operations are undertaken:

Post-transfer covers anything that has to be done to meet the quality requirements and criteria prior to delivery of the translated material. It mostly pertains to quality control and upgrading. It also includes formatting and various preparations for delivery. (Gouadec 2007: 13)

As in pre-translation and pre-transfer, the frontiers between post-transfer and the final phase of the translation process – post-translation – are subtle and, in this specific case, directly related to those which are considered to be, and those which aren't – the skills or roles of the translator. Indeed, in this process model, other professionals, besides the translator, can be included:

Vient ensuite une série d'opérations que l'on situera, selon les cas, en post-transfert ou en post-traduction selon que l'on considère que le traducteur doit s'en tenir à l'exécution de la traduction ou que l'on considère au contraire que sa prestation de traducteur dépasse, parfois largement, l'exécution de la traduction au sens où elle aboutit à la mise à disposition d'un matériau traduit diffusable et donc intégré à son support fonctionnel. (Gouadec 2005: 647)

Finally, *post-translation* (phase de post-traduction) not only comprises post-editing activities and delivery of the final product but also, similarly to pre-translation, administrative issues relating to the relationship between the client and the translator:

Post-translation covers all activities that follow delivery of the translated material. These include possible integration of the translated material [...] but also, of course, all the 'administrative' business of getting paid, setting up an archive of the project, consolidating the terminology for future uses, and much more. (Gouadec 2007:13)

Now that Gouadec's translation process has been described, our methodology for termbase creation will be presented.

5. Phases of the terminographical process

As previously mentioned, the characterisation of the terminographical process here proposed is based on Gouadec's model for the translation process. This model was, however, designed for the professional context, thus covering a set of management operations, negotiation and contact with the clients, which are specific to the provision of services. Our study is, in turn, developed in an academic context, though it aims at the industrial application of the terminological resource. As a result our proposal does not include business-oriented stages.

Notwithstanding, there is a current debate and importance given to the relationship between the terminographer and the marketplace⁴, either due to a growing need for terminological services by companies, or due to a greater consciousness by the terminographer of the relevance of dissemination initiatives of his/her activity beyond the academic and/or institutional context, in order to create non-existent market needs or to address latent ones, as far as products developed or services provided in Terminology are concerned. This scenario makes it fundamental that, in a near future, stages and operations intimately relating to the marketplace scenario are added to the characterisation here depicted.

As in translation, the process of termbase creation is here organised in three phases, each phase is subdivided into stages and, some of these, into substages. Broadly speaking, in *pre-terminography* preparatory work is developed, which is essential to the next phase (*terminography*) where hands-on activities regarding termbase creation are carried out. The last phase (*post-terminography*) is market-oriented and also emphasises the circular nature of this process.

The proposal results from a need to explicitly consider a communicative dimension of analysis in the terminographical process, along with the conceptual and textual ones. Its relevance also concerns the clear delimitation of the different phases that constitute the process, which are interrelated and mutually dependent, despite the fact that they focus on distinct objectives.

On the other hand, this segmentation stresses the importance (and also the duration) of the various stages that precede the tasks of extraction, identification and/or production of data to include in the termbase. Those initial stages are part of *pre-terminography*.

Lastly, this organization also allows for the inclusion of a final phase, once the termbase is built, which aims at developing efforts conducive to its industrial and commercial application, as well as its continuous update: *post-terminography*.

A systematisation and subsequent description of the terminographical process is presented below (Table 2). Its stages and substages are in line with the objectives and needs which arose out of the experience of building a termbase on functional foods targeted at the consumer. Mention must be made that this methodology reports to the process of building a monolingual resource.

TABLE 2
Terminographical process

Phases	Stages and substages
Pre-terminography	<ul style="list-style-type: none">• goals setting• special subject field conceptual representation<ul style="list-style-type: none">◦ delimitation of the subfield• communicative contexts identification<ul style="list-style-type: none">◦ delimitation of the communicative contexts in popularising discourse• specialised corpora building<ul style="list-style-type: none">◦ selection of the subcorpus under analysis◦ reference corpus building
Terminography	<ul style="list-style-type: none">• termbase architecture• terminology constitution<ul style="list-style-type: none">◦ creation of lists of forms◦ identification of term candidates via lists of simple forms◦ identification of term candidates via lists of complex forms◦ identification and systematisation of problematic cases and/or of terminological peculiarities• conceptual systems building• definitions writing<ul style="list-style-type: none">◦ generation of concordances◦ identification of contexts rich in conceptual information◦ identification and highlighting of conceptual characteristics◦ systematisation and selection of the conceptual characteristics identified◦ definitions writing• term records filling• data validation
Post-terminography	<ul style="list-style-type: none">• termbase industrial and commercial application• data update

As in pre-translation, *pre-terminography* comprises a set of stages which form the basis for the next phase, which is termbase creation. Among those are goal setting, conceptual representation of the special subject field, identification of the communicative contexts, and specialised corpora building. These last three stages cover, accordingly, the conceptual, communicative and textual dimensions of analysis of the terminographical process.

In the very beginning it is therefore important to list the goals that motivate the creation of the termbase. At this stage a set of guiding questions can be posed:

- a) What is the identified problem?
- b) What is the possible solution?
- c) What is the purpose of the termbase?
- d) What is the special subject field?
- e) What is the target public?
- f) What are the working languages?
- g) What is the size of the termbase?
- h) What is the time span for the project?

Once the goals are set, the special subject field is represented conceptually, which allows for the familiarization with its dynamics, complexity, extension and limits, the interdisciplinary links it maintains, as well as the clear definition of the object of study. This conceptual representation is based on a set of sources and resources which may vary from one special subject field to another. Some examples of sources and resources are contact and close collaboration with special subject field experts, bibliography on the topic, higher education curricula, classification systems and thesauri, technical reports, among others. To guarantee its quality and accuracy, the conceptual system has to be validated by subject field specialists.

However, and in line with the stages identified as *première délimitation du sous-domaine* (Rondeau 1984: 74) and as *division of the subject field in subfields* (Arntz, Picht and Mayer 2004: 219, our translation)⁵ – and given the dimension of the special subject field, a substage of delimitation of the subfield may well be added. This stage and substage constitute the conceptual dimension of analysis of the terminographical process.

The third stage of *pre-terminography* relates to the identification of the contexts in which communication in the special subject subfield is established, in order to select those where popularizing discourse is produced. A communicative context comprises the circumstances of discourse production, taking into account the text producers, their communicative intention(s) and the target public. We, therefore, consider that when building a termbase, the adequacy of the information made available to the target public can only be assured when that information is extracted from the texts produced within the communicative contexts where the target public is the same as that of the resource under construction. This stage constitutes the communicative dimension of analysis of the terminographical process.

Finally, the specialised corpora are built – this phase may as well comprise a substage for selection of a subcorpus of analysis. Texts from different genres are selected, with the aim of obtaining a representative sample of, in our case, popularizing discourse on functional foods, and organized within the corpus, according to the communicative context in which they were produced. Those texts will then be separately analysed, using *WordSmith Tools*, so that terminological information identified and extracted can be compared: quantitatively and according to relevance. This comparison aims at evaluating the adequacy of inclusion of texts produced in three different communicative contexts in the corpus, of corpus design and, as a consequence, to assess the need to redesign the corpus, in order to obtain more and better results.

A reference corpus of texts targeted at subject field specialists, and thus representative of scientific discourse on the field, may also be built, for comparison purposes, and to verify if information not present in the corpus of study and relevant for the resource is identifiable. This stage relates to the textual dimension of analysis.

The above mentioned stages – except for the first – do not necessarily take place consecutively, but sometimes simultaneously. The lengthy nature of *pre-terminography* – and the acquisition of conceptual, communicative and textual competences on the special subject field it implies – portrays its importance and relevance to the subsequent phases and stages, particularly to the identification of term candidates and of contexts rich in conceptual information, the latter for definition writing, to include in the termbase.

Terminography targets at creating the terminological resource: it goes from termbase architecture conception to data validation. In its first stage, the architecture of the termbase is created: the structure of concept systems and term records is defined, prototypes are made and navigation among them is conceived. Once structural aspects of the termbase are set, terminology constitution starts, i.e., selection of the universe of term candidates to include in the termbase. This stage includes the creation of lists of forms – which are automatically created, using *WordList* of the *Oxford WordSmith Tools* (Scott 2004) – and the subsequent identification of term candidates both via lists of simple forms (lists that contain forms with one sequence of characters), and lists of complex forms (lists that contain forms with more than one sequence of characters), where theories and perspectives in Terminology are taken into consideration. As a matter of fact, the methodology for identification of term candidates was based on two complementary criteria: belonging to the special subject field; and occurrence frequency.

The identification and systematization of problematic cases and/or of terminological peculiarities is also included in terminology constitution. This substage is very similar to Cabré's stage of "treatment and resolution of problematic cases" (Cabré 1998: 131, translated by DeCesaris). However, unlike the author, only identification and systematization activities are taken into account here, since we consider that – namely in what problematic cases are concerned – management and possible problem solving operations shall be undertaken in subsequent stages, and not in a specific stage, so that each case can be individually analyzed and handled. This systematisation – which takes place at an intermediate level and not at a final one, which is the case of Cabré's proposal – allows and facilitates the treatment, in due time, of each case identified.

The third stage of *terminography* consists of building conceptual systems, having as basis the established terminology. As previously mentioned, only Arntz, Picht and Mayer (2004: 219) contemplate this stage. Compared to a fully textual description, the representation of the special subject field allows for a pictorial and easier understanding of the concepts that constitute it and of the relationships they establish among themselves.

The next step comprises definition writing, which is then divided into five sub-stages: generation of concordances; identification of contexts rich in conceptual information; identification and highlighting of conceptual characteristics from those contexts; systematisation and selection of the conceptual characteristics identified; and, finally, definition writing itself.

This stage embraces the three dimensions of analysis which characterise the terminographical process: textual dimension – since the starting point comprises textual elements, i.e., concordances –; the communicative dimension – the concordances are generated by communicative context –; and the conceptual one – the aim is to access conceptual information, via the identification of contexts rich in conceptual information, i.e., those contexts where at least one conceptual characteristic of a concept is expressed, and, in particular, via the identification of the characteristic(s) of a given concept linguistically expressed there. The definitions are then written according to the goals initially set for the termbase, which implies that only specific characteristics, out of those that have been identified, may be included. The others, which may complement the definition, may be included in the field entitled *additional information*.

In the fifth stage of *terminography* the term records are filled in. Since the terminology has already been established and the definitions written, this operation consists mainly of data insertion.

Finally, we identify a stage of data validation by special subject field specialists, aiming at accuracy and quality management of content to include in the termbase. As we postulate a corpus-based methodology for the terminographical process, we are aware of the fact that the corpus may have limitations and/or contain incorrect content. The validation process, which was based on the work developed by Costa and Silva (2006: 12), consists of grids that are filled in by subject field specialists, which will then be analysed by us, and either lead to the incorporation of the validated data in the termbase, or to reformulation of content, which will subsequently lead to a new validation process.

Post-terminography, on the other hand, includes efforts towards the industrial and commercial application of the termbase, as well as continuous data update. This phase takes place at the medium and long term and requires that the terminological information in the termbase has already been validated and is ready to be made available to the target public.

This stage of promotion of the industrial application of the termbase developed in academic context aims at fostering the development of the terminographical process in the business context, so that Terminology affirms itself in the marketplace, increasingly providing competitive and quality products and/or services.

Lastly, we shall mention that in none of the characterisations of the terminographical process listed above is included a stage for data update. If we consider the dynamic nature of knowledge, which inevitably implies changes in its structure, both with the inclusion of new concepts and/or changing or removal of existing ones, one shall then consider a stage for data update, to avoid the termbase from becoming ineffective, since knowledge changes may well lead to terminological changes.

6. Concluding remarks

A proposal of characterisation of the terminographical process has been presented in this paper, which comes as a result of the non-existence of a communicative dimension of analysis, of a delimitation of the preparatory stages of the process, of a stage of data validation, and of a final stage of – continuous – data update in the existing characterisations.

The distinctive features of the methodology here proposed are, on the one hand, its organisation in three phases (*pre-terminography*, *terminography* and *post-terminography*) and, on the other hand, the contemplation of three dimensions of analysis in each phase (*conceptual*, *communicative* and *textual*) where their consideration in one phase has influence on the work undertaken in the next phase.

As a matter of fact, above we argued the presence of the *conceptual dimension* (via the conceptual representation of the special subject field), the *communicative dimension* (via the identification of communicative contexts) and the *textual dimension* (via specialised corpora building) in *pre-terminography*.

Furthermore, in *terminography*, the corpus is explored, namely to identify and extract term candidates and contexts rich in conceptual information, taking into consideration its organization in communicative contexts: hence the presence of the *textual* and *communicative dimensions*.

Likewise, the *conceptual dimension* is present in this phase, in the terminology constitution stage, namely in the identification of term candidates, which is undertaken taking into consideration, besides the frequency criterion, the criterion of whether they belong, or not, to the special subject field – i.e., if the forms extracted from the corpus denominate a concept of the special subject field; in the conceptual systems building stage; and in the definitions writing stage, particularly in the identification of contexts rich in conceptual information out of the concordances generated from the corpus, and in the identification and highlighting of conceptual characteristics.

The last phase, *post-terminography*, has not yet been fully accomplished, and, consequently, no considerations will be presented about this phase. In this sense, future work, besides focusing on *post-terminography* stages, and on the analysis of the implications and impact of the work developed in *pre-terminography* and *terminography* in this final phase, will comprehend the characterisation of the terminographical process in the business context, as well as, its characterisation in the creation of bi- or multilingual termbases.

APPENDIX

Systematisation of the characterizations of the terminographical process

Rondeau (1984)	Cabré (1993) ⁶	Cabré (1999) ⁷	Rey (1995)	Meyer and Mackintosh (1996)	Dubuc (2002)	L'Homme (2004)	Canada (2001/2011)	Arntz, Picht, <i>et al.</i> (2004) ⁸
Choix du domaine et de la langue de travail	Definition and delimitation of task	Delimitation of the theme and definition of the work			Définition des objectifs de la recherche			Organizational preliminary considerations
<i>Première délimitation du sous-domaine</i>	<i>Preparation of search</i>	<i>Preparation and planning</i>	<i>Identifying, defining and delimiting the subject field</i>	<i>Familiarization with the domain</i>	<i>Initiation au domaine</i>		<i>Délimiter le domaine à étudier</i>	<i>Delimitation of the subject field</i>
Consultation de spécialistes				<u>Knowledge sources identification</u>				
<u>Collecte de la documentation</u>			<u>Systematic gathering of information on the subject</u>	<u>Choix de la documentation</u>	<u>Mise en forme d'un corpus</u>		<u>Déterminer le corpus textuel</u>	
<i>Établissement de l'arbre du domaine</i>			<i>Conceptual analysis</i>	<i>Constitution de l'arbre de domaine</i>		<i>Entreprendre l'analyse conceptuelle</i>		
<i>Expansion de la représentation arborescente du sous-domaine choisi</i>							<i>Division of the subject field in subfields</i>	
Établissement des limites du travail		<u>Gathering and analysis of documentation material</u>						

<u>Collecte et premier classement des termes</u>	<u>Preparation of terminology</u>	<u>Realización</u>	<u>Linguistic analysis of the corpus</u>	<u>Identification of an initial set of terms (nomenclature)</u>	<u>Repérage des unités terminologiques ou établissement de la nomenclature</u>	<u>Repérage des termes</u>	<u>Établir la nomenclature ou la liste des termes</u>	<u>Collection and preliminary mapping of identified denominations and concepts as well as all relevant information</u>
<u>Vérification et classement des couples notion / dénomination</u>				Analysis of the nomenclature and information gathering	Analyse terminologique	<u>Collecte de données</u>		
						Analyse et la synthèse des données		
Normalisation			Creation of files		Rédaction de fiches terminologiques	Encodage des données	Créer des dossiers terminologiques	<i>Elaboration of the concept systems</i>
					Dossier de normalisation			
Travaux de présentation des données terminologiques	Presentation of work	Presentation of results	Organization of terminological description	Preparation of dictionary entries or term records		Organisation des données terminologiques	Enregistrer les termes sélectionnés	Data Management within the concept system
							Enregistrer les justifications textuelles	
							Assigner les marques d'usage	
	Revision of work					Gestion des données terminologiques	Gérer le contenu terminologique par domaine d'activité	
							Actualiser ou tenir à jour les fiches	
							Établir des références croisées	
	Treatment and resolution of problematic cases		Terminological and terminographic products		Banques de terminologie		Créer différents produits terminologiques	Presentation of the work to the user

*Conceptual dimension: in italics. Textual dimension: underlined. Preparatory stages: grey shade.

NOTES

1. "Erarbeitung der Begriffssysteme" (Arntz, Picht and Mayer 2004: 219).
2. "[...] para llegar a tener una acertada concepción de lo que constituye un trabajo terminológico, es necesario entender los términos como unidades pluridimensionales, ya que en ellos se integra a la vez
 - i. una dimensión que podemos considerar fundamentalmente lingüística, en cuanto que son unidades léxicas,
 - ii. una dimensión conceptual, en cuanto que son unidades que representan conocimiento especializado,
 - iii. una dimensión comunicativa, ya que es por medio de estas unidades que los especialistas pueden transmitir y comunicar este conocimiento especializado de forma eficiente." (Pérez Hernández 2002; Section: 4.1 Dimensiones que conforman las unidades terminológicas. Visited on 23 August 2009, <<http://elies.rediris.es/elies18/41.html>>)
3. "Como hemos adelantado en los capítulos anteriores, en el presente trabajo de investigación hemos usado un corpus de textos en formato electrónico para realizar una labor terminográfica. Éste ha resultado ser una herramienta fundamental para poder dar cuenta de la triple dimensión que conforma las unidades terminológicas, ya que de él se puede extraer la información conceptual, lingüística y contextual necesaria para compilar una base de datos terminológica completa." (Pérez Hernández 2002; Section: 4.1.4 Unidades terminológicas y su dimensión comunicativa: la documentación especializada. Visited on 23 August 2009, <<http://elies.rediris.es/elies18/414.html>>)
4. Two illustrative examples are the recent summits organised the *European Association for Terminology: The Terminology Profession and the Marketplace* in 2009 (Paris, France, 19 February 2009; visited on 15 January 2013, <<http://www.eaft-aet.net/en/activities/eaft-seminar-in-paris/>>), and the *5th Terminology Summit - Terminology 2010: quality matters* in 2010 (Budapest, Hungary, 12-13 November 2010; visited on 15 January 2013, <http://www.eaft-aet.net/fileadmin/files/AET_Newsletter_06_EN.pdf>).
5. "Aufteilung des Fachgebietes in kleinere Einheiten." (Arntz, Picht and Mayer 2004: 219)
6. "Definición y delimitación del trabajo; *Preparación del trabajo*; *Elaboración de la terminología*; Presentación del trabajo; Supervisión del trabajo; Tratamiento y resolución de los casos problemáticos" (Cabré 1993) [in the appendix]
7. "Delimitación del tema y definición del trabajo; *Preparación y planificación*; *Realización*; Presentación de los resultados." (Cabré 1999) [in the appendix]
8. "Organisatorische Vorüberlegungen; *Abgrenzung des Fachgebietes*; *Aufteilung des Fachgebietes in kleinere Einheiten*; *Beschaffung und Analyse des Dokumentations-materials*; *Sammlung und vorläufige Zuordnung der gefundenen Benennungen und Begriffe* sowie aller zweckdienlichen *Informationen*; *Erarbeitung der Begriffssysteme*; Bearbeitung des Materials im System-zusammenhang; Bereitstellung für den Benutzer." (Arntz, Picht and Mayer 2004) [in the appendix]

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